Environmental Assessment and Section 4(f) *De Minimis* Analysis

FOR

East Side Corridor (SD100)

I-90 to South of Madison Street
Sioux Falls, South Dakota

Minnehaha County
South Dakota

Submitted Pursuant to 42 U.S.C. 4332(2) (c) and 49 U.S.C 303
By the
U.S. Department of Transportation
Federal Highway Administration
and
South Dakota Department of Transportation

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ACRONYMS, ABBREVIATIONS, AND SHORT FORMS

AASHTO	American Association of State Highway and Transportation Officials
AST	above ground storage tank
BA	Biological Assessment
BMPs	best management practices
BO	Biological Opinion
CEQ	Council on Environmental Quality
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
City	City of Sioux Falls
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel(s)
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EDWDD	East Dakota Water Development District
EO	Executive Order
et seq.	*et equential* (and the following)
Exit 402	I-90/N. Timberline Avenue
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FINDS	Facility Index System
FIS	Federal Insurance Study
FONSI	Finding of No Significant Impact
FR	Federal Register
ICIS	Integrated Compliance Information System
I-29	Interstate 29
LEDPA	Least Environmentally Damaging Practical Alternative
LOMR	Letter of Map Revision
LOS	level of service
LWCF	Land and Water Conservation Fund

MGD	million gallons per day
mph	miles per hour
MPO	Metropolitan Planning Organization
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
Project	To select a preferred alternative for the Northern Segment of SD100
RCP	Reinforced Concrete Pipe
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental conditions
ROW	right-of-way
SARC	State Archaeological Research Center
SD11	South Dakota Highway 11
SD100	South Dakota Highway 100
SDDENR	South Dakota Department of Environment and Natural Resources
SDGFP	South Dakota Department of Game, Fish, and Parks
SDDOT	South Dakota Department of Transportation
SFWPP	Sioux Falls Water Purification Plant
SHPO	State Historic Preservation Office
State	State of South Dakota
STIP	State Transportation Improvement Plan
SWPPP	Stormwater Pollution Prevention Plan
T&E	threatened and endangered
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

USFWS	U.S. Fish & Wildlife Service
UST	underground storage tank
WAPA	Western Area Power Administration

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CHAPTER 1
PURPOSE OF AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

This environmental assessment (EA) pertains to a proposed limited-access regional arterial roadway being planned on the northeastern edge of the City of Sioux Falls, South Dakota. This proposed roadway would be a portion of the proposed East Side Corridor, which has also been referred to as South Dakota Highway 100 (SD100). In the future, SD100 will become Hwy 100, but for the purpose of this EA is referred to as SD100. The East Side Corridor was first introduced in 1995 and was the subject of an EA and a Supplemental EA, both published in 2003 (see Section 1.2, Project Background).

This EA is an independent evaluation of the Northern Segment of SD100 between I-90 Exit 402 and Madison Street, herein referred to as the Project. This EA has been prepared 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) and the corresponding regulations and guidelines of the U.S. Department of Transportation (USDOT) and the Federal Highway Administration (FHWA). This EA discusses the development of the Project's alternative design concepts and potential for social, economic, and environmental impacts, as well as the public's and resource agencies' involvement in the NEPA process.

This chapter provides background information on the Project and identifies the Study Area. It also describes the Project, defines the purpose of and need for Project, and identifies other transportation projects planned in the vicinity of the Project.

1.2 PROJECT BACKGROUND

The East Side Corridor Project was introduced in the 1995 Sioux Falls Regional Transportation Study (Sioux Falls MPO, 1995) as a way to address future transportation needs in the area south and east of the current city limits of Sioux Falls. The East Side Corridor was proposed to be a 17-mile regional arterial highway to accommodate forecasted regional travel demand in Lincoln and Minnehaha Counties (see Figure 1-1). The planned East Side Corridor has been mentioned in several other subsequently approved reports and studies including:

- 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
- South Dakota State Transportation Improvement Plan (STIP) 2014-2017 (SDDOT, 2013).

In 2000, the City of Sioux Falls (the City) and the South Dakota Department of Transportation (SDDOT) initiated the scoping process for the environmental review of the East Side Corridor Project. Through the scoping process, a range of build alternatives for SD100 was developed, as documented in the October 2001 Sioux Falls East Side Corridor Scoping Memorandum (SEH, 2001). In 2003, the Project Review Team analyzed these and other build alternatives, and an EA for compliance with NEPA was prepared. The Project Review Team recommended that SD100 follow the Preferred Alternative identified in the 2003 EA (see Figure 1-2). A Finding of No Significant Impact (FONSI) was signed by FHWA on July 16, 2003.

Later in 2003, SDDOT initiated the design phase for the following segments of the 2003 EA Preferred Alternative:

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

During the design phase, the updated cost for right-of-way (ROW) was determined to be significantly higher than originally estimated and not feasible or practical. Alignment shifts were then proposed to utilize more of the existing SD11 ROW for the two segments noted above. This new alignment was identified as the SDDOT Supplemental Segment (see Figure 1-2). The typical section included a four-lane highway with a raised center median, 12-foot-wide shoulders, a shared use path along the highway, and a centerline near the existing SD11 centerline. At the intersection of SD11 and SD42, the 2003 EA Preferred Alternative proposed an interchange, whereas the SDDOT Supplemental Segment proposed an at-grade intersection. Potential impacts associated with the SDDOT Supplemental Segment were evaluated in a Supplemental EA. The Supplemental EA was approved by the FHWA on November 25, 2003 (SDDOT, 2003), and construction of the two segments was completed in 2005.

In an effort to preserve ROW for the future SD100 corridor, preparation of ROW plans and plats was initiated for the remainder of the 2003 EA Preferred Alternative. During an open house held on February 7, 2006, new concerns with regard to the proposed speed limit, corridor safety, and traffic capacity were raised. To address the public's concerns, additional changes to the 2003 EA Preferred Alternative were proposed, which resulted in a Revised Build Alternative (see Figure 1-2). These concerns are discussed in Section 2.1.4, Alternatives Eliminated from Further Analysis.

In 2012, FHWA and SDDOT determined that reevaluation of SD100 environmental impacts between I-90 and Madison Street needed to be delayed to allow for incorporation of any changes necessitated by the Downtown Sioux Falls Rail Yard Redevelopment EA. This decision resulted in splitting the Revised Build Alternative into a Northern Segment (I-90 Exit 402 to South of Madison Street) and Southern Segment (I-29 Exit 73 to South of 26th Street) for purposes of evaluating environmental impacts (see Figure 1-2). A Supplemental EA was prepared for the Southern Segment of the Revised Build Alternative, and the associated FONSI was signed by FHWA on April 26, 2012 (FHWA and SDDOT, 2012). The Downtown Sioux Falls Rail Yard Redevelopment EA was completed in 2013, and the associated FONSI was signed by FHWA on September 26, 2013.

Over the course of developing this EA for the Northern Segment (that is, the Project), utility operations have changed and utility regulations have become more stringent, bringing constructability of the Northern Segment of the Revised Build Alternative, specifically the bridge across the Big Sioux River, into question. Operational changes have increased the electrical loads carried through the transmission lines. Increased loads result in additional sag in the power lines. In this case, the increased sag reduced the clearance between the ground and the power lines by as

much as 8 feet. Lack of ground clearance limits the ability for construction equipment, such as cranes, to operate safely when in close proximity to the transmission lines. In addition, changes in utility regulations have made it challenging to obtain approval for powering down transmission lines during construction. Scheduling such an outage is unpredictable and uncertain as the power company's approval must be based on the demand for power at the time of an outage request. For these reasons, in early 2013, it was determined that additional build alternatives should be developed for the Northern Segment to avoid conflicts with private utilities such as Western Area Power Administration (WAPA) and Xcel (see Section 2.1.3, Evaluation of Build Alternatives).

As reflected in this project background, alternatives and modifications to the alternatives have been numerous. In order to provide a more cohesive document, FHWA and SDDOT made the determination this environmental document would be completed as an EA instead of a Supplement to the earlier documents.

1.3 STUDY AREA

The Project is located in Minnehaha County on the northeastern edge of the City of Sioux Falls (see Figure 1-2). The Study Area for the Project includes the area of proposed construction activities of the reasonable alternatives considered and described in Chapter 2. The Study Area boundaries are shown in Figures 1-2, 1-3a and 1-3b.

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 Northern Segment of SD100 is approximately 4 miles long and extends from the interchange of I-90 and N. Timberline Avenue to Madison Street. A realignment of 60th Street North, Rice Street, and Redwood Blvd would also be part of the design to maintain east-west traffic flow through the Study Area. Completion of the Northern Segment of SD100 would provide a more efficient transportation corridor along the east side of Sioux Falls and would serve the transportation needs based on the historic growth and future growth projections in northeast Sioux Falls and Brandon. As development around Sioux Falls warrants, the specific portions of the Northern Segment would be constructed.

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 the year 2025. The purpose and need for SD100 in this EA is the same as the 2003 EA except that the transportation needs have been updated to accommodate 2035 year traffic projections. The purpose and need for SD100 is to:

- Adequately prepare the City of Sioux Falls for needs consistent with planning decisions and future construction of other public and private infrastructure investments.
- Prevent study area highway transportation deficiencies that will occur if nothing is done. These potential deficiencies include highway capacity, safety, and access issues.
- Accommodate the traffic growth needs of northeastern Sioux Falls.

1.6 OTHER TRANSPORTATION PROJECTS

Other transportation projects are planned in the vicinity of the Project (see Figure 1-2) and have been or will be addressed in separate NEPA documents. If these projects intersect with this Project, their design will accommodate the design of the other projects. The following projects are currently programmed in the STIP for fiscal years of 2014 to 2017 (SDDOT 2013).

- Downtown Sioux Falls Rail Yard Redevelopment Project – *Project *EM 1225(03)* – An Environmental Assessment has been completed by the City of Sioux Falls, SDDOT, and FHWA to study redevelopment of the existing rail switchyard currently located in downtown Sioux Falls.
- I-229 Structures – *Projects IM 2292(92)4* and *IM 2292(94)10* – Repair of structures on I-229 over Cliff Avenue and 60th Street North.
- I-90 Structure Replacement – *Project IM 0909(81)406*– Replace structure over Split Rock Creek 0.4 miles east of SD11.
- I-229 (Exit 5) – *Project IM 2292(06)5* – Interchange Improvement at I-229 (Exit 5) 26th Street Interchange/Yeager Road in Sioux Falls.
- Crossover Construction – *Project IM 0909(76)402* – I-90 from MRM 403 to MRM 408, construction of three crossovers.

N

Not to Scale

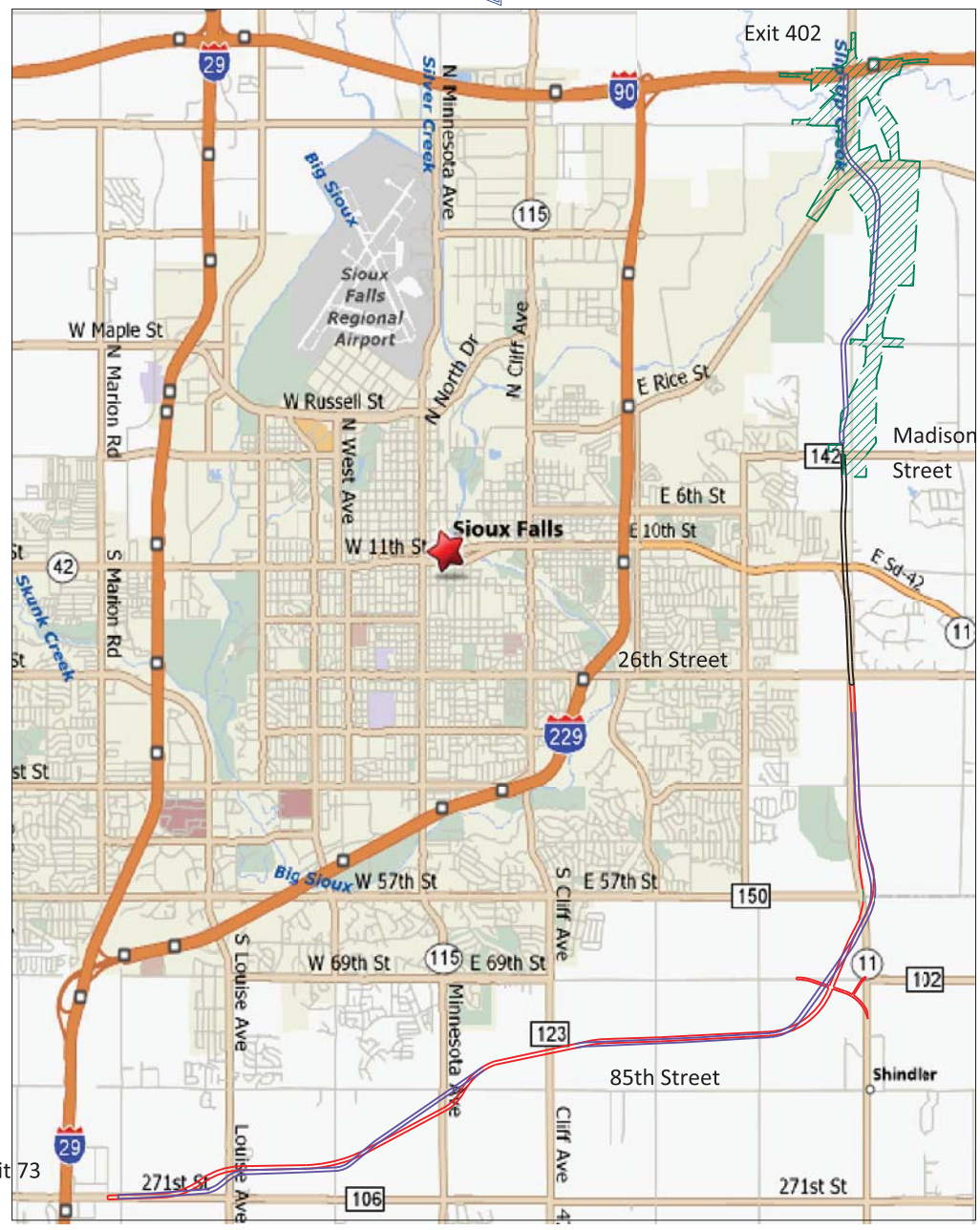
Legend

2003 EA Preferred Alternative

SDDOT Supplemental Segment

Revised Build Alternative (Southern Segment)

Study Area



Project Location Map

All Segments of SD100

Figure

1-1

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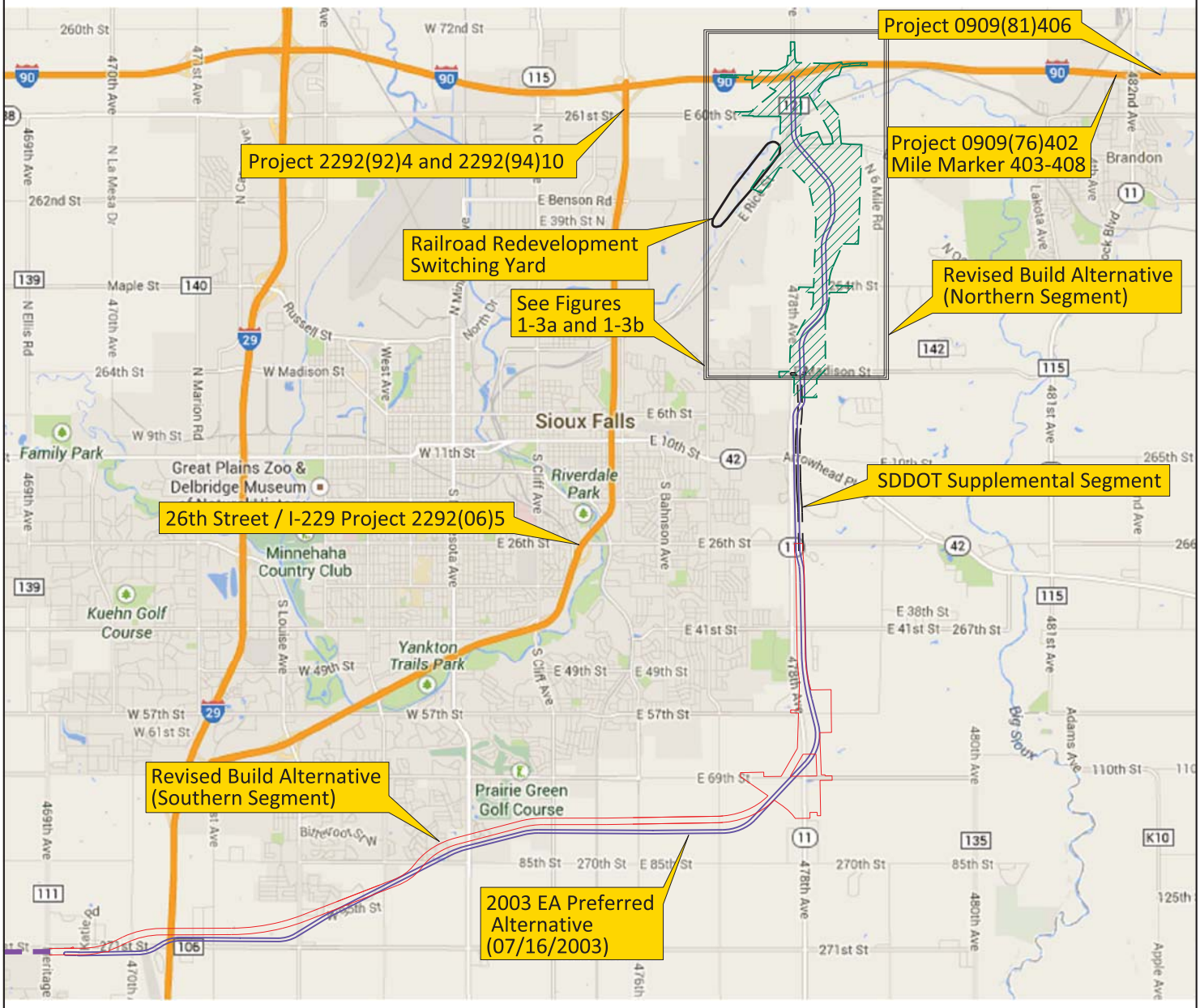
N

1" = 6500'

Legend

- 2003 EA Preferred Alternative
- SDDOT Supplemental Segment
- Revised Build Alternative Study Area (Southern Segment)
- West Corridor
- Study Area



Date of Aerial Photography: 2012

HDR

Study Area

All Segments of SD100

Figure

1-2

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Date of Aerial Photography: 2012

Northern Segment Study Area

Northern Segment of SD100

Figure 1-3a

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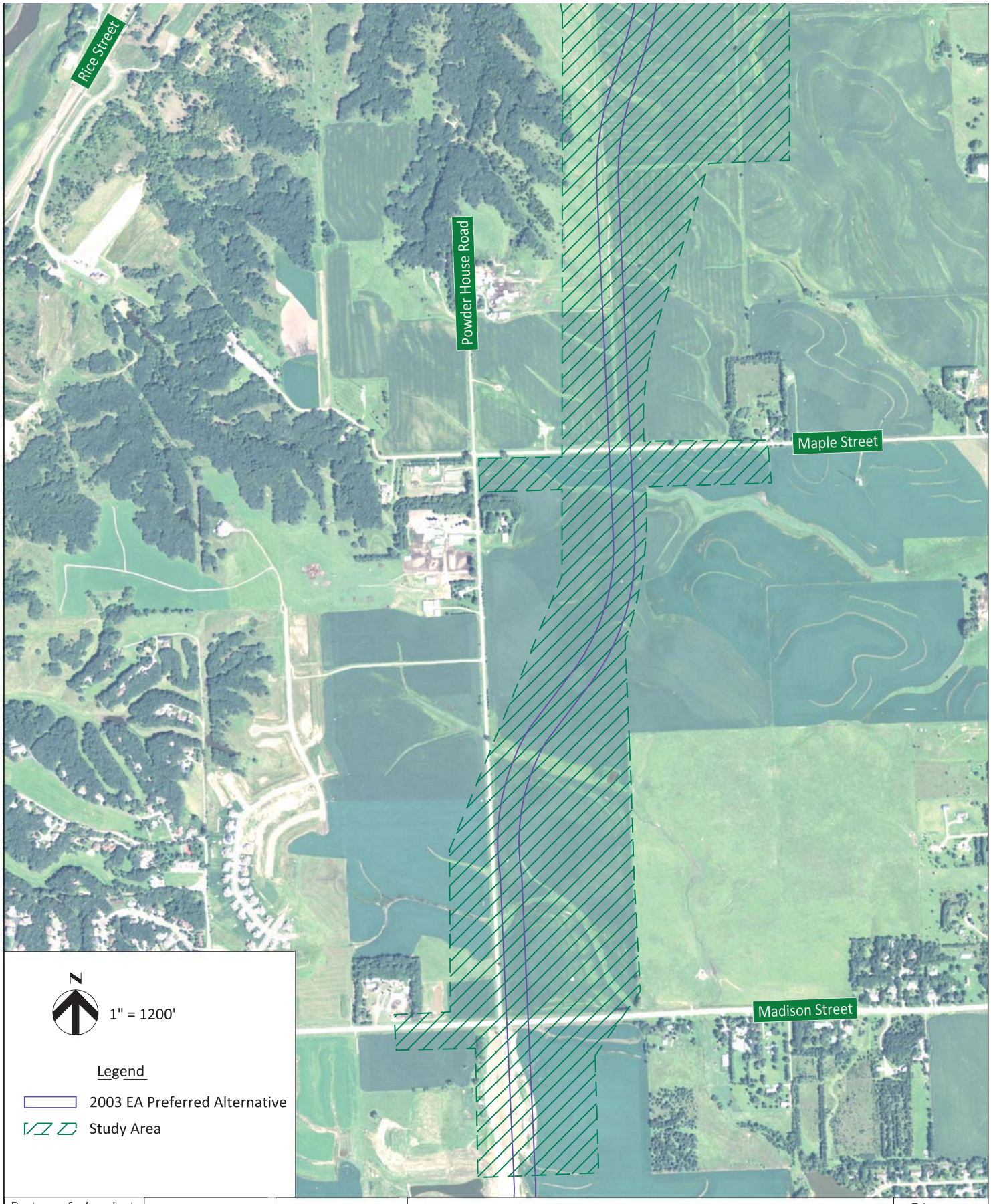

Date of Aerial Photography: 2012

Northern Segment Study Area

Northern Segment of SD100

Figure 1-3b

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CHAPTER 2
ALTERNATIVES

This chapter discusses the alternative solutions to meet the needs for and the purpose of the Project. Furthermore, it explains the reasoning for the creation of the build alternatives for the Northern Segment of SD100, presents rationale for selecting the alternatives to carry forward, and summarizes potential impacts of implementing each of the alternatives. Chapter 2 also presents the project design criteria and provides preliminary cost estimates for each alternative.

2.1 IDENTIFICATION OF ALTERNATIVES

The alternatives considered for this EA include the No-Action Alternative and the range of build alternatives.

2.1.1 No-Build Alternative

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. Under the No-Build Alternative, the construction of SD100 between I-90 and south of Madison Street would not be completed. The No-Build Alternative would not accommodate projected traffic growth or provide a limited access principal arterial roadway between I-29 and I-90; therefore this alternative would not meet the purpose and need for the Project.

2.1.2 Build Alternatives

The build alternatives were identified and developed as the Project progressed, utilizing input from the SDDOT, the City, utility companies, and public. The range of build alternatives considered for this Project includes: the 2003 EA Preferred Alternative, Revised Build Alternative, Alternatives 1-8, and Alternative 4a (see Appendix A). Alternatives 1-8 and Alternative 4a were developed in response to constructability issues resulting from conflicts with existing private utilities as previously discussed in Chapter 1. The following is a description of the desired components of the build alternatives. Evaluation and incorporation of exemptions are discussed within the document when necessary to mitigate environmental concerns.

- *Lanes of Traffic*-The 2003 EA Preferred Alternative would accommodate four lanes of traffic separated by a median with turning lanes at each full intersection. Following a traffic analysis and technical memorandum (HDR, June 2014), it was determined that four lanes of traffic would not provide an acceptable Level of Service[1] (LOS) at the forecasted year. Therefore additional lanes are required to satisfy the Purpose and Need. The Revised Build Alternative, Alternatives 1-8, and Alternative 4a would accommodate six lanes of traffic separated by a median with turning lanes at each identified full-intersection (see Figure 2-1).
- *Access*- Access to SD100 would be limited to minimum one-half mile spacing from south of Madison Street to Rice Street. From north of Rice Street to I-90, a variance from the one-half mile spacing would allow for 60th Street North realignment and I-90 interchange.

[1] Table 15-1 of Chapter 15 of the South Dakota Road Design Manual establishes the goals for operations of all roadways under SDDOT jurisdiction. The desirable level of service for Urban Principal Arterials, such as the SD100 Eastside Corridor, is LOS C, with a minimum of LOS D. Since this facility is planned to be primarily a new route on new alignment, LOS C was established as the goal for future year operations.

- *Design Speed*- The design speed for the build alternatives for stopping site distance and horizontal curves would be 60 miles per hour (mph) with the exception of the 2003 EA Preferred Alternative which has a design speed of 45 mph.
- *Typical Section*- Curb and gutter would be placed along each side of the median where raised. Curb and gutter would be constructed along the outside lanes. A shared-use pathway would be located on the west side from south of to approximately ¼ mile north of Madison Street. The remainder of the roadway the pathway would be along the east side of the roadway and would accommodate pedestrian and bicycle traffic.
- *Design Criteria*- The American Association of State Highway and Transportation Officials (AASHTO) Green Book and SDDOT Road Design Manual were used to develop the alignments of each build alternative.
- *Corridor Interchanges*- The existing interchange at Timberline Avenue and I-90 would need to be reconstructed (HDR, June 2014). See Appendix C for an evaluation of interchange alternatives. A traffic study (HDR, August 2014) for the entire corridor was completed to ensure an acceptable LOS was accommodated for the corridor and intersections along the corridor.
- *Rice Street*- Traffic analysis at a proposed intersection with Rice Street demonstrates that the intersection would accommodate an acceptable LOS through 2035 (see Appendix B). The City's Long Range Transportation Plan has identified an extension of Benson Road in the years between 2031 and 2035. In order to ensure that SD100 could accommodate a future Benson Road intersection, the intersection was considered during the development of the SD100 alignment (see Appendix A). If the City proceeds, the Rice Street intersection would potentially be eliminated and replaced by the Benson Road connection. Although the City did conduct a Benson Road Extension Feasibility Study, the extension would need to be handled through separate environmental documentation at a later date.

2.1.3 Evaluation of Build Alternatives

The following criteria/questions were utilized to narrow down the alternatives to those that should be considered further for this Project:

- Design Criteria: Does the alternative meet the criteria set forth by AASHTO and the SDDOT Road Design Manual?
- Purpose and Need: Does the alternative meet the purpose and need?
- Constructability: Will it be feasible to construct? How do the construction costs of the alternatives compare to each other?
- Section 4(f): Does the alternative impact section 4(f) properties[2]?
- Environmental Impacts: What impacts to other environmental resources will result?

2.1.4 Alternatives Eliminated From Further Analysis

A preliminary review of the build alternatives allowed the following build alternatives to be eliminated from further analysis:

2003 EA Preferred Alternative

The 2003 EA Preferred Alternative was designed as a limited access 17-mile long, 45-mph roadway with four-lanes and a single turning lane at intersections and would be located within a 200-foot wide corridor

[2] Section 4(f) properties are publicly owned public parks, recreation areas, and wildlife or waterfowl refuges, or any publicly or privately owned historic site listed or eligible for listing on the National Register of Historic Places.

(see Figure 2-2). The roadway section was comprised of two 12-foot wide lanes in each direction, a 20-foot wide median, 10-foot wide shoulders, two 10-foot wide boulevards, and two 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). This alternative was designed as a four-lane roadway; however traffic volumes for the forecast year (2035) identify volumes requiring a six-lane roadway. Therefore, the 2003 EA Preferred Alternative is eliminated from further analysis due to no longer meeting the purpose of and need for the Project.

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:

- Corridor Speed- The 2003 EA labeled the corridor as "High Speed" corridor. The public was concerned that with the proposed minimal accesses along the corridor, the proposed 50 mph design speed would not provide adequate safety both along the corridor and at the designated intersections as speeds could exceed the design speed.
- 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.
- Capacity- Following the meeting on February 7, 2006 a traffic analysis was performed and identified the need for a six-lane section for the corridor for design year traffic volumes.

The public concerns were addressed through refinements to the 2003 EA Preferred Alternative. The new alignment and design considerations were reflected in the Revised Build Alternative (see Table 2-1). In the northern segment, the Revised Build Alternative alignment is shifted east of the 2003 EA Preferred Alternative (see Figure 2-2). Revisions to address public concerns included in the Revised Build Alternative comprise of:

Table 2-1
Revisions to Address Public Concerns

Alignment Revisions	Issue Addressed	Details
Grade Separated Crossing at the BNSF Railroad	Safety	Avoids train/vehicle conflicts by taking SD100 over the BNSF RR.
Grade Separated Crossing at the E&E Railroad	Safety	Avoids train/vehicle conflicts by taking SD100 over the E&E RR.
Horizontal and Vertical Alignments	Speed Safety	Increased the design speed to 60 mph. Improved safety with larger curves and improved stopping site distance.
Six Lanes of Traffic (three per direction)	Capacity	Added an additional lane per direction (two lanes to three lanes per direction).
Realignment of 60th Street North and Redwood Boulevard	Safety Capacity	Provides for one full intersection instead of two T-intersections. Allows for multiple turning lanes to accommodate higher traffic volumes.
Thirty-two foot Median	Capacity	Provide adequate width to allow for dual left-turn lanes at full intersections.

The Revised Build Alternative travels through an area with a high density of major transmission lines owned by WAPA and Xcel Energy. Understanding the issues and conflicts between the transmission lines and the east side corridor, a significant amount of coordination occurred. Through the coordination (see Chapter 6), it was agreed upon by both companies that the impacts could be accommodated and was determined that this build alternative could be constructed with acceptable short term impacts.

Since the Revised Build Alternative preliminary design, several key issues have risen. Due to electrical shortages to the east, utility regulations have become more stringent which dictates a more stringent protocol to follow when powering down these lines during construction. In addition, the power lines are carrying higher electrical loads resulting in a significant increase in the sag of the lines affecting the vertical clearances required by regulations. Due to new regulations and additional load, the following are new issues for both WAPA and Xcel Energy to be addressed:

- Power down: In order to either relocate or adjust the height of the towers, the transmission lines would need to be de-energized. The protocol requires an early request and either a conditional approval or denial. If a conditional approval is received, a formal request must be submitted not less than two weeks from the scheduled construction at which time a final approval may or may not be provided.
- Additional electrical load: With additional load being carried by the transmission lines, the vertical clearance between the proposed road and the lines does not meet the minimum federal requirements necessitating adjustment and/or relocation of additional towers. This impacts multiple transmission routes versus the one route originally affected.
- Bridge Construction: The transmission line crosses over SD100 at the south end of the Revised Build Alternative's Big Sioux River Bridge. To construct the south bridge abutment and pier, a crane would be required to operate in close proximity to the existing transmission lines. With the additional line sag created from the additional electrical loads through the transmission lines, there is no longer enough clearance for the crane(s) to safely operate below the lines. To construct the bridge, adjustments or relocation of some towers would be necessary.

Due to the cost of adjusting or relocating towers and inability to predict the timing of de-energizing these transmission lines, the Revised Build Alternative was determined to be not reasonable or feasible and eliminated from further analysis.

Alternatives 1, 2, 3, 5, 6, and 8

Due to constructability issues associated with the Revised Build Alternative, as discussed above, Alternatives 1-8 and 4a were developed in attempt to minimize conflicts with the WAPA and Xcel transmission lines. For more details regarding the Alternatives 1, 2, 3, 4, 4a, 5, 6, 7, and 8, refer to the Evaluation of Build Alternative memorandum in Appendix A. During the preliminary evaluation of the Alternatives 1-8 and 4a, Alternatives 5, 6, and 8 were eliminated from further analysis as they did not meet the intersection spacing requirements or design standards. After preliminary evaluation, the Study Advisory Team met to discuss the benefits and disadvantages of each of the remaining build alternatives (Alternatives 1, 2, 3, 4, 4a, and 7). Following this discussion, Alternatives 1, 2, and 3 were eliminated from further analysis due to the existing WAPA and Xcel utilities conflicts causing major complications to the construction of the bridge crossing.

2.1.5 Alternatives Considered for Further Analysis

Alternatives 4, 4a and 7 were chosen to be carried forward for further analysis for the Project. As additional coordination took place for the build alternatives to further determine impacts to utilities, a more detailed discussion occurred with Xcel Energy regarding an existing high pressure natural gas transmission line that extends along Powderhouse Road from Madison Street to Maple Street (see Figures 3-1a and 3-1b). Xcel Energy indicated that the proposed alignments of Alternatives 4, 4a, and 7 were located directly over the existing gas line for approximately 1,500 feet. The roadway located over the gas line would be problematic for maintenance; therefore the build alternatives were reviewed to determine if relocation of the gas line was feasible (see Appendix A). The realignment was reviewed to identify costs and compare environmental impacts. If the gas line was not avoided, costs were up to 2.7 million dollars to relocate the gas line. The shifting of the alignment included similar environmental impacts as the

original alignment. Therefore, the alignment of Alternatives 4, 4a, and 7 were shifted to the east in order to avoid the relocation of the gas line.

Alternatives 4, 4a, and 7 are discussed further below.

Alternative 4 and 4a

Alternatives 4 and 4a have a similar alignment to the 2003 EA Preferred Alternative that was described previously in the document. The horizontal and vertical alignment was adjusted to accommodate a 60 mph design speed for Alternatives 4 and 4a (see Figure 2-3). Alternatives 4 and 4a include a grade separated crossing at both BNSF and E&E railroads. Due to factors such as the vicinity of the E&E line north of Rice Street and west of Timberline Avenue, Rice Street would be realigned to the south. The realignment of Rice Street would require a relocation of the at-grade crossing of E&E railroad south of the existing at-grade crossing. The existing at-grade crossing would be closed. 60th Street N. and Redwood Blvd would be realigned and joined with SD100 at a full intersection. Realignment of 60th Street N. would require an additional crossing of Slip-Up Creek. Alternatives 4 and 4a differ slightly south of Cactus Hills (see Figure 2-3).

Drawbacks of Alternatives 4 and 4a:

- Requires acquisition of 2 residences.
- Requires new access to WAPA and existing residential acreages.
- Encroaches on the portion of Cactus Hill's area that has been noted as remnant and native prairies and crosses the east draw (SHE, 2002a; SEH, 2002b)
- Potential closure of I-90/SD100 Interchange during construction.
- Requires relocation of existing at-grade crossing of E&E railroad.
- Requires relocation of 5,100 feet of Rice Street.
- Alternative 4 conflicts with a major gas line in the Cactus Hills area (Xcel Energy).

Benefits of Alternatives 4 and 4a:

- Avoids impacts to WAPA and Xcel Energy towers and transmission lines.
- Proposed I-90/SD100 interchange is located on the existing Timberline Avenue alignment.
- Crosses the Big Sioux River at an existing crossing location.

Alternative 7

Alternative 7 follows the Revised Build Alternative alignment throughout the southern portion of the Study Area (see Figure 2-4). The alignment curves west through the north portion of Cactus Hills and then curves north over the Big Sioux River, then connects to N. Timberline Avenue and continues to the I-90/SD100 interchange. Alternative 7 includes grade separated crossings over both BNSF and E&E railroads. In order to accommodate a proper approach for the grade separated crossing of E&E railroad, Rice Street would be realigned to the south. The realignment of Rice Street would require the relocation of the existing at-grade crossing of E&E railroad. The existing at-grade crossing would be closed. 60th Street N. and Redwood Blvd would both be realigned and joined at their intersection with SD100. Realignment of 60th Street N. would require an additional crossing of Slip-Up Creek.

Drawbacks of Alternatives 7:

- Requires acquisition of 2 residences.
- Potential closure of I-90/SD100 interchange during construction.
- Requires new access to WAPA and existing residential acreages.
- Requires relocation of existing at-grade crossing of E&E railroad.
- Requires realignment of 5,100 feet of Rice Street.
- Conflicts with a major gas line in the Cactus Hills area (Xcel Energy).

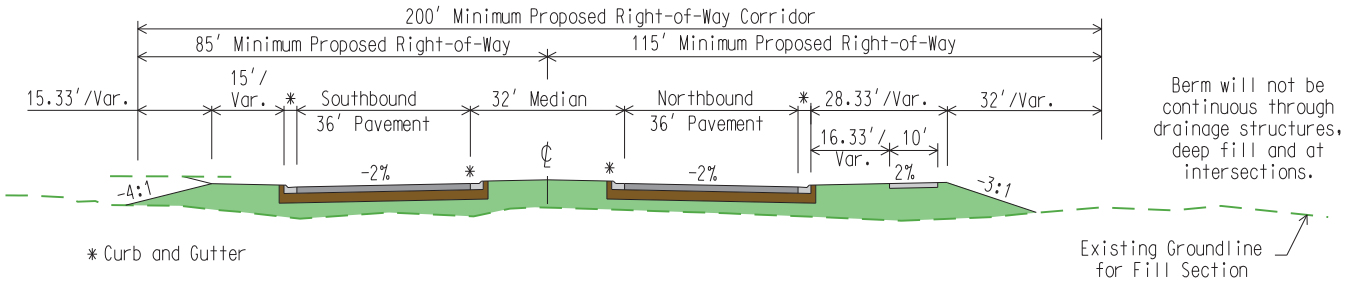
Benefits of Alternatives 7:

- Avoids impacts to WAPA towers and transmission lines.
- Proposed I-90/SD100 Interchange is located on existing alignment.

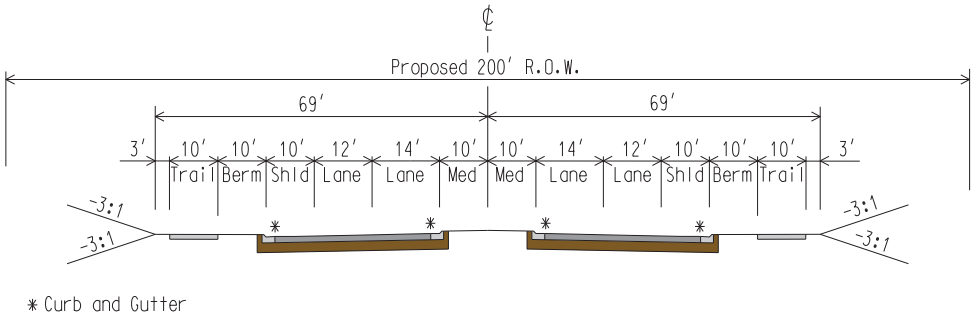
Table 2-2 presents a comparison of the build alternatives carried forward for detailed analysis. Chapter 3 contains a summary of potential impacts to environmental resources, as well as potential impacts to traffic and maintenance under the improved transportation system for the alternatives considered for further analysis. The build alternatives are also compared to the No-Build Alternative.

Table 2-2
Comparison of Build Alternatives

Criteria	Alternative 4	Alternative 4A	Alternative 7
Roadway Cost (million $)	30.93	24.45	21.46
Structure Cost (million $)	24.68	24.89	24.50
Subtotal Construction Cost (million $)	**55.61**	**49.34**	**45.96**
Utility Relocation Cost (million $)	10.98	3.54	13.52
ROW and Relocation Cost (million $)	8.44	8.35	8.05
Total roadway, structure, Right-of-way, Utility Relocation Costs (million $)	**75.03**	**61.23**	**67.53**
Meets all AASHTO design criteria	Yes	Yes	Yes
Rail Crossings (Active) • At Grade • Grade Separated	 1 2	 1 2	 1 2
Meets Purpose and Need of Project	Yes	Yes	Yes



Typical Section - Revised Build Alternative, Alternatives 1-8, and Alternative 4a



Typical Section - 2003 Preferred Alternative

SD DOT Connecting South Dakota and the Nation	HDR	Typical Roadway Sections Northern Segment of SD100	Figure 2-1

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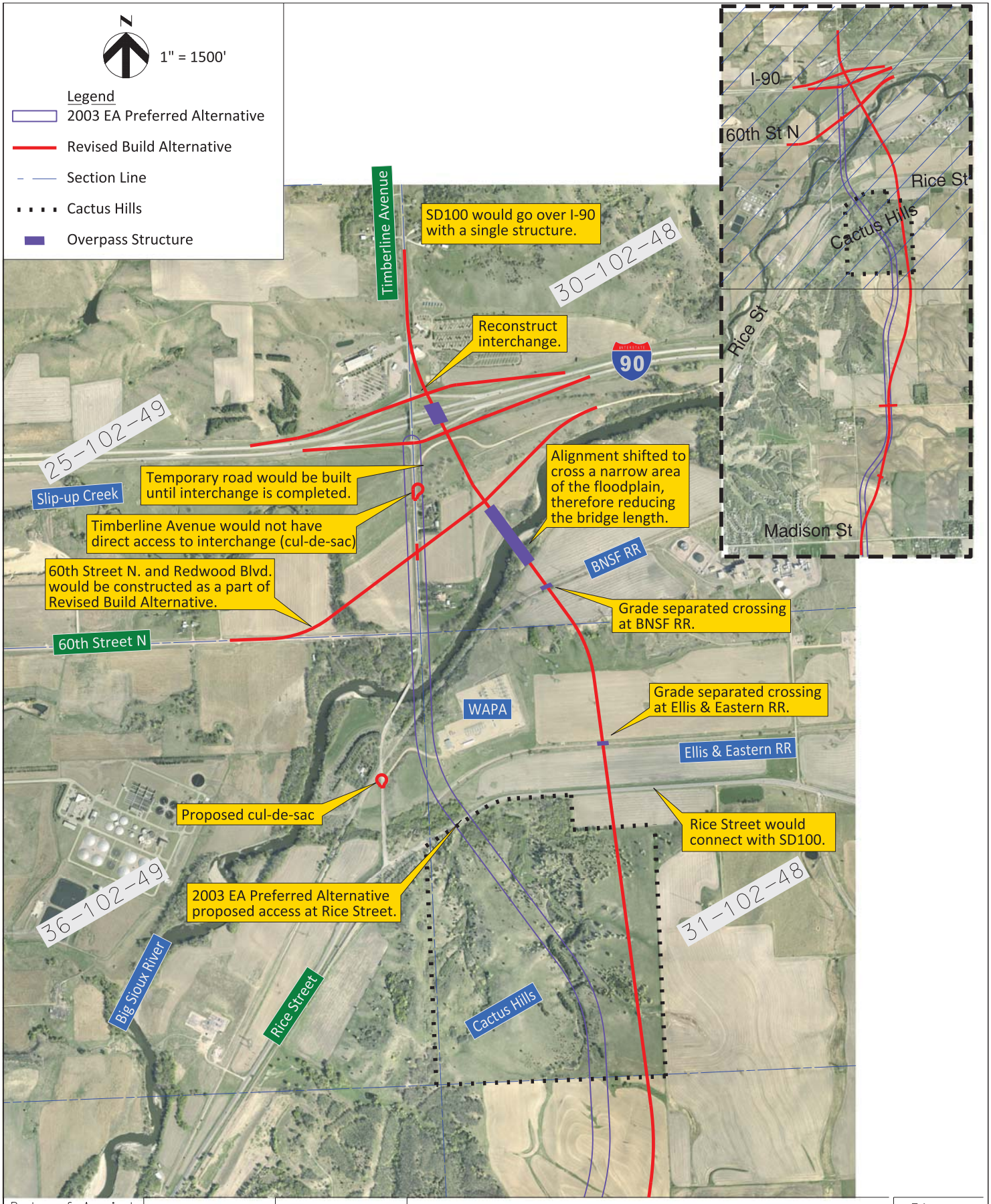

Date of Aerial Photography: 2012

SD DOT Connecting South Dakota and the Nation

HDR

2003 EA Preferred Alternative and Revised Build Alternative

Northern Segment of SD100

Figure 2-2

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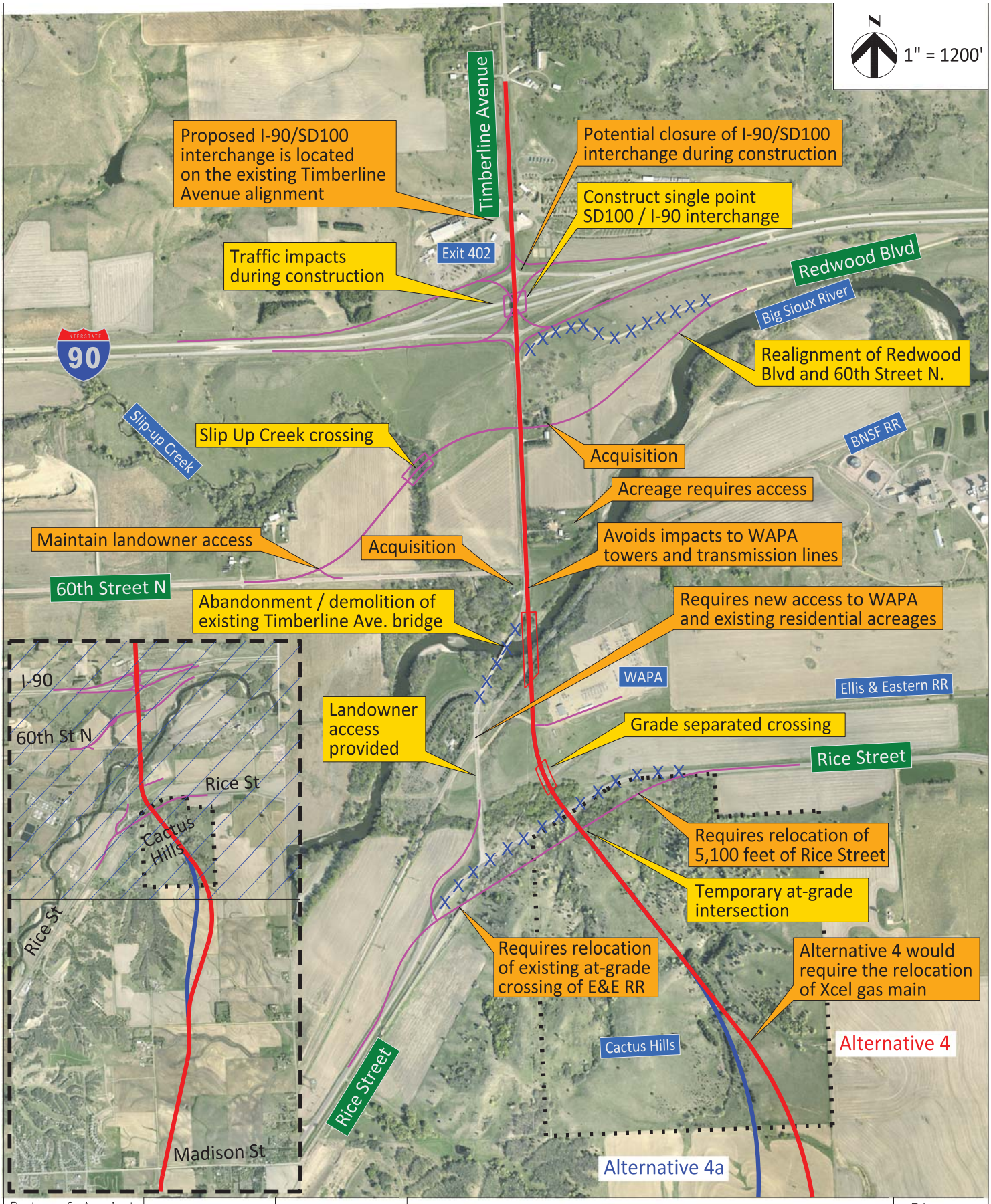

Date of Aerial Photography: 2012

SD DOT Connecting South Dakota and the Nation

HDR

Alternatives 4 and 4a

Northern Segment of SD100

Figure 2-3

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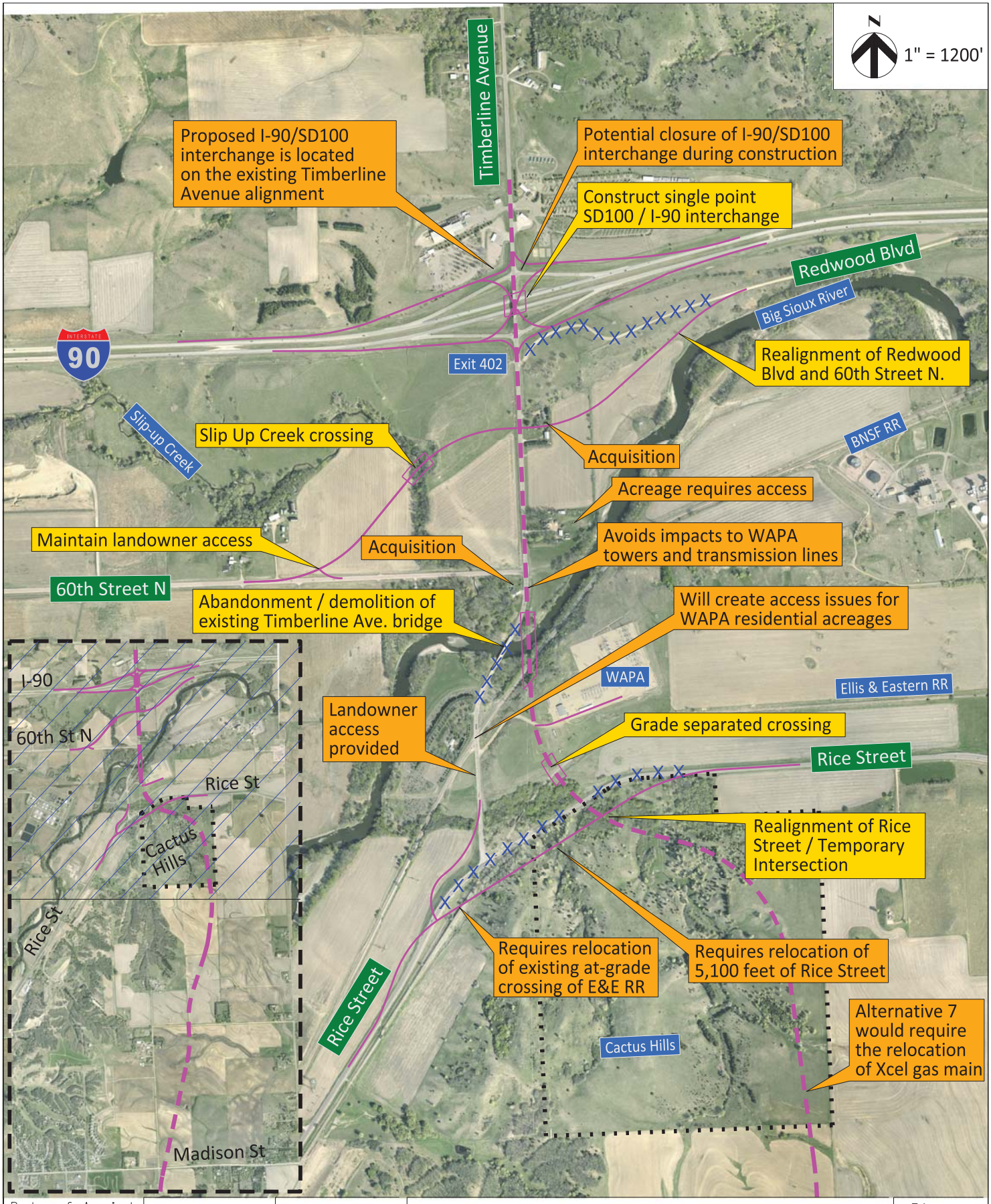

Date of Aerial Photography: 2012

SD DOT Connecting South Dakota and the Nation

HDR

Alternative 7

Northern Segment of SD100

Figure 2-4

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CHAPTER 3 ADDENDUM
AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This addendum is being included to ensure the public is informed with regard to the amount of fill material that may be required as a result of this Project and the potential for use of contractor furnished borrow sources outside the area being assessed within this document. This information is being added by addendum to Chapter 3 of the Environmental Assessment (EA) signed on September 23, 2014.

The build alternatives for SD100 currently require between 1.7 and 2.5 million yards of additional fill material in order to construct the Project. When there is a need for fill material, a combination of roadway design techniques are used to reduce the need for fill. In addition, it is standard practice in the highway construction industry to utilize off-site borrow sources to obtain additional fill material, when necessary.

The need for fill material to construct SD100 will be reduced by modifying the preferred build alternative design. This may include: lowering the elevation of the roadway, laying back cut slopes, and steepening fill slopes. Any modifications to the design would be limited to the area evaluated within this EA.

Contractor furnished borrow sources will be necessary for the construction of this project. Borrow areas are typically located within pasture or row crop agricultural lands however they may be located in other areas such as removal of hill tops. Although the locations of borrow sources are unknown at this time, it is likely the contractor would acquire borrow sources within close proximity of the Project to reduce the distance of haul between borrow source and the construction site. Contractor furnished borrow sources are considered commercial. Therefore, these sites would be permitted separately by the contractor, in accordance with all Federal, State and local laws, ordinances and regulations. In addition, once the locations are made know to the SDDOT and prior to removal of any material, the environmental commitments identified within Chapter 3 would be met.

Material is anticipated to be moved from any borrow source to the construction site by conventional trucking methods, utilizing the existing transportation network. This would require a large volume of truck traffic. To minimize local traffic disruption, designated haul routes would be established through a coordinated effort by the SDDOT, Minnehaha County, and City of Sioux Falls. Haul trucks would be subject to all laws and regulations associated with traveling on the public infrastructure. Temporary impacts during construction may include noise and air quality impacts for the loading and hauling of the material.

Please provide comments with regard to this addendum as well as any concerns with protection of natural and human resources in and around areas having a potential for use as a borrow site. Comments will be considered in determining the need for avoidance through special contract specifications or other means.

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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 build alternatives pulled forward for further analysis from Chapter 2. After describing the existing conditions for each affected resource, Chapter 3 will focus on the potential long-term impacts of the build alternatives for the Northern Segment of SD100 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 includes the potential impacts of the No-Build Alternative and build alternatives.

This chapter does not discuss the environmental resources that would not be impacted by the build alternatives, which includes energy and greenhouse gases, climate change, vibration, wild and scenic rivers, coastal barriers and zones, and air quality. The Project is not located in a Clean Air Act non-attainment or maintenance area. Therefore, no conformity determination is required under this assessment and air quality will not be discussed.

3.1 LAND USE

The Study Area includes primarily agricultural land use with scattered rural residences and industrial properties (see Figures 3-1a and 3-1b). Agricultural use in the Study Area includes corn and soybean crops, with some small areas of pasture. Light industrial land use includes the BNSF and E&E Railroads. An area referred to as Cactus Hills is also within the Study Area (see Figures 3-1a and 3-1b). This area is specifically noted due to the area being comprised of a mesic-dry remnant area (SEH, 2002a). This area is owned by Xcel Energy and since 2003 the use of the property has changed due to recent grazing. Several overhead utility lines exist within the property.

Development adjacent to the Study Area is expected to continue as described in the Sioux Falls Comprehensive Development Plan: Shape Sioux Falls 2035 (City of Sioux Falls, 2009) and Direction 2035: Sioux Falls Metropolitan Planning Organization (MPO) Long-Range Transportation Plan (Sioux Falls MPO, 2010). The Sioux Falls 2035 Comprehensive Development Plan indicates that future land use plans in the areas adjacent to the build alternatives include residential use with one school and three parks strategically placed within the developments (City of Sioux Falls, 2009). Three business parks are also anticipated, one business park located at the Madison Street, Maple Street, and Rice Street intersections along the build alternatives. The number of dwelling units in the City of Sioux Falls (City) was 82,500 in 2008 within the MPO area. Each year the City adds 1,000 to 1,500 new dwelling units (Sioux Falls MPO, 2010).

3.1.1 Impacts of Alternatives

The No-Build Alternative would not result in land use changes, but would be inconsistent with 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). These plans identify a north/south corridor connecting Madison Street to I-90.

The build alternatives are consistent with 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). The City, along with Minnehaha County, has 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 build alternatives would help accommodate the planned growth by providing controlled access locations. Access locations from south of Madison Street to Rice Street would be limited to a minimum of one-half mile spacing. Access from north of Rice Street to I-90 would vary to accommodate the realignment of 60th Street North and I-90 interchange (see Figures 3-1a and 3-1b). Exemptions to access are incorporated when necessary for mitigation or environmental concerns. The build alternatives would all result in similar losses to the Cactus Hills area (see Figures 3-1a and 3-1b).

3.2 UTILITIES

The Study Area includes the WAPA substation and Xcel Energy power plant (see Figure 3-1a and 3-1b). Numerous major transmission towers and power lines are located throughout the Study Area. Public utilities include East River Electric, L&O Power, Sioux Valley, WAPA, Xcel, and Prairie Rose. Coordination occurred with each of these companies during the preliminary design of the build alternatives. Currently, there is little public utility infrastructure within the Study Area; the City's plan is to construct future public utilities to serve new development proposed in the area.

3.2.1 Impacts of Alternatives

The No-Build Alternative would not involve the Project construction, therefore would not result in temporary or permanent impacts to public facilities, utilities, and services.

The build alternatives would cause impacts to private utilities within the Study Area during construction. In order to minimize impacts, close coordination with utility companies has been completed and would continue to be conducted throughout project design and into construction, if a build alternative is chosen as the preferred alternative (HDR, April 2013). Impacts on utilities are not avoidable because utilities are located near or within the existing ROW or ROW that would be acquired. To avoid impacts to the Xcel gas pipeline the south end of Alternatives 4, 4a, and 7, which originally followed the Revised Build Alternative, were shifted to the east near the intersection of Powderhouse Road near Madison Street (see Figures 3-1a and 3-1b).

Construction of the Project would likely require relocation of natural gas, sanitary sewer, storm water sewer, water, and telecommunications lines. It is anticipated that many of these utilities could be relocated within existing ROW or ROW that would be acquired for the construction of the build alternative, but permanent easements may be needed for the relocation of some utilities.

The build alternatives avoid all WAPA towers and transmission lines; however, conflicts remain with Xcel (transmission), L&O Power (distribution), East River Electric (distribution), and Sioux Valley Electric (distribution). For each of the build alternatives, a new permanent access road to the WAPA substation would be required.

3.3 RAILROADS

Two rail lines exist within the Study Area; BNSF and E&E railroads (see Figure 3-2).

An EA FONSI was recently approved by the FHWA for removal of the existing Sioux Falls rail yard currently located downtown (Downtown Sioux Falls Rail Yard Redevelopment Project). The FONSI identifies a preferred alternative including construction of a railroad switching yard located northwest of the proposed SD100 and Rice Street intersection (see Figure 3-2).

Coordination has occurred with both BNSF and E&E Railroad throughout the Project (E&E Railroad, 2014; BNSF Railroad, 2014).

3.3.1 Impacts of Alternatives

Under the No-Build Alternative, N. Timberline Avenue and Rice Street would continue to cross the rail lines in their present location. Both crossings are at-grade and would be a safety concern with the projected traffic volumes.

The build alternatives would be constructed with grade separated crossings over each of the railroad locations that intersect SD100. These structures would be able to accommodate additional track. The north structure would include an approximately 700-foot-long bridge that would span both the BNSF railroad and the Big Sioux River. Although the grade separated crossings would be more expensive to construct and maintain, a crossings provides for transportation safety by eliminating conflicts between trains and the traveling public. The crossings would also improve capacity of the facility by eliminating the need for traffic to stop when a train is occupying the at-grade crossing.

The alignments of the build alternatives avoid the area designated for the proposed Rail Yard Redevelopment Switching Yard. The Rice Street at-grade intersection with the E&E railroad would be adjusted slightly to the south to ensure Rice Street's approach meets the design standards (see Figure 3-2).

3.4 BICYCLISTS AND PEDESTRIANS

The City has a well-developed system of bicycle and pedestrian trails. The Sioux Falls MPO Bicycle Plan (Sioux Falls MPO, 2009), includes future routes that are adjacent to or within the Study Area (see Figure 3-2).

3.4.1 Impact of Alternatives

The No-Build Alternative would not provide for a pedestrian/bike side path adjacent to the roadway (which would only be built if Hwy 100 were constructed in this area), resulting in a less cohesive bike path network than currently planned.

The build alternatives would provide a 10-foot wide side path along the western side from south of to approximately ¼ mile north of Madison Street. The remainder of the pathway would be along the eastern side of the main alignment. This side path is shown along Alternative 7 on Figure 3-2 for illustrative purposes only, but would occur on all build alternatives. The trail design follows the guidelines set forward for the City trails including a 10-foot wide shared use path following natural drainage ways linking the SD100 trail to the existing and future trail system (City of Sioux Falls MPO, 2009). The construction of the side path would require minimal ROW, while providing an overall community benefit by expanding the current bike trail system to this growing area of the City.

The build alternatives provide grade separated crossings, both overpasses and underpasses, for the existing and future developments of the bike trail system. Exact locations of access points from developments to the SD100 side path would be determined during the final design phase. In addition to the overpasses and underpasses, signalization at intersections along the corridor would provide a location where pedestrians/bicyclists to cross SD100. Pedestrian buttons at these intersections would allow the timing to adjust and allow pedestrians/bicyclists to cross safely. Phased construction of the Northern Segment of SD100 would include construction of the side path concurrent with each section of roadway. Constructed segments would provide for ADA accessibility and continuity at all phased termini.

3.5 VISUAL IMPACTS AND AESTHETICS

The Study Area is located in a rural setting that is characterized primarily by agricultural farmland with scattered rural residences and industrial properties. The different landscapes within the Study Area including the Big Sioux River floodplain, a bluff area leading into the Big Sioux River, upland area including agricultural land, and Cactus Hills (see Figures 3-1a and 3-1b).

3.5.1 Impacts of Alternatives

The No-Build Alternative would not involve the construction of the Project. Therefore, there would be no direct visual or aesthetic impacts. However, future development unrelated to the Project could continue based on the Sioux Falls Comprehensive Development Plan: Shape Sioux Falls 2035, which would diminish aesthetics and potentially affect the visual landscape of the area.

The build alternatives would alter the landscape from a rural, agricultural setting to a sub-urban setting adjacent to a limited access roadway. The build alternatives would have similar impacts due to the proximity of the alignments and would have similar visual impacts for the Cactus Hills rural area (see Figures 3-1a and 3-1b). For the build 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. Future development within and adjacent to the Study Area is being planned by the City and MPO with the assumption that SD100 would be constructed. SD100, as part of the planned future development, would provide a roadway network. The planning efforts for the future development and roadway network would allow for a more orderly growth pattern for this area, therefore minimizing the impacts to aesthetics.

3.6 ARCHEOLOGICAL AND HISTORIC RESOURCES

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).

Archeological and historical resources were surveyed and their eligibility to be listed to the NRHP was evaluated. The following Level III surveys, pedestrian surveys, were conducted for the Northern and Southern Segments of the Project:

- In January 2007, a minimum of a 200-foot wide corridor was examined along nearly the entire length of the proposed Revised Build Alternative; however, landowner permission was not granted along several sections of the alignment (Augustana College Archeology Laboratory, February 2007).
- In May 2007, a second survey was initiated due to the design of the interchanges and project alterations (Augustana College Archeology Laboratory, July 2007). 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.
- In April 2010, a third survey was completed to survey areas that were previously not granted landowner permission for access (Augustana College Archeology Laboratory, April 2010). After this survey was complete, the entire Study Area for the North Segment of the Revised Build Alternative had been surveyed.
- In August 2013, a survey was completed for the Additional Study Area required to evaluate Alternatives 4, 4a, and 7 (HDR, September 2013a).

- In December 2013, two additional properties were documented in an addendum report (HDR, December 2013a).
- In April 2014, a survey was conducted on portions of additional Study Area that were necessary for an alignment shift from Madison Street to Maple Street to avoid the Xcel Energy gas line (HDR, April 2014)

During the Level III surveys, the sites listed in Table 3-1 were identified within the Study Area for the Project. The surveys were coordinated with the South Dakota State Historic Preservation Office (SHPO) which commented on both the proposed eligibility status of the sites and the potential effects. Table 3-1 displays the list of sites that are within the Study Area, as well as their eligibility status to the NRHP. These sites are not noted on any figure, as state law SDCL Section 1-20-21-2, and Section 304 of the NHPA direct that the location of specific sites be withheld as confidential to protect their integrity and cannot be specifically referred to in public documents or figures. However, the railroads listed in Table 3-1 can be found on Figure 3-2.

Table 3-1
Cultural Resources Sites in the Study Area

Site	Brief Description of Site	Eligibility Status to the NRHP
Archeological Sites		
39MH294	Artifact scatter site that lacks physical integrity.	Not Eligible
39MH145	Lithic artifact scatter	Not Eligible
39MH148	Lithic artifact scatter that lacks physical integrity.	Not Eligible
39MH2000	Great northern railroad, currently owned by BNSF	Eligible
39MH2003	Chicago and northwestern railroad, currently Ellis & Eastern	Eligible
39MH161	Prehistoric lithic scatter that lacks physical integrity.	Not Eligible
39MH0210	Previously recorded	Not Eligible
39MH231	Previously Recorded	Eligible
Historic Structures		
MH02000001	Residence at 5400 N. Timberline Avenue	Not Eligible
MH03000001 through MH03000010	Residence at 5100 N Timberline Avenue	Eligible
MH03100001 through MH031000002	Buildings at 5705 East 60th Street North	Not Eligible
MH00002268	Building at 5701 East 60th Street North	Not Eligible
MH00001672	Xcel Energy Radio Tower	Not Eligible
No Site Number Assigned	North Timberline Avenue Bridge	Not Eligible
MH00002269	Residence at 4901 N. Timberline Avenue	Not Eligible

3.6.1 Impacts of Alternatives

The No-Build Alternative would not impact cultural resources in the Study Area. However, other anticipated development in this area would have the potential to affect cultural resources.

The FHWA and SDDOT made a determination of No Adverse Effect to historic properties. SHPO reviewed the proposed Project for conformity with Section 106 of the NHPA. SHPO

concurrence was received on November 6, 2007 for both the Northern and Southern segments. SHPO concurred that the proposed Project would have no adverse effect on the two railroads, Sites 39MH2000 and 39MH2003.

On May 6, 2010, FHWA and SDDOT made a determination of No Adverse Effect for SHPO's review for the additional land parcels that were not originally investigated. On May 10, 2010, SHPO concurred with a finding of No Adverse Effect for this undertaking.

On October 18, 2013, FHWA and SDDOT made a determination of No Adverse Effect for SHPO's review based on the recent preliminary design and surveys completed for the Additional Study Area. On November 25, 2013, the SHPO concurred with a finding of No Adverse Effect for this undertaking. For the residence at 5100 North Timberline Avenue, this effect determination is based on the following stipulations:

- All construction and project activities avoid eligible structures MH03000001-10. This includes all staging and borrows areas.
- Activities occurring in areas not identified in the original request, including all staging and borrow areas, will require the submission of additional documentation pursuant to 36 CFR Part 800.4.

On March 5, 2013, FHWA and SDDOT made a determination of No Adverse Effect for properties examined in the addendum report prepared on December 31, 2013. The two sites included in this determination are North Timberline Avenue Bridge and the residence at 4901 North Timberline Avenue. SHPO concurred with this finding on March 26, 2014.

In April 2014, an additional survey examined a previously recorded site, Site 39MH231, within the additional Study Area. A determination of No Adverse Effect was made. SHPO concurred with this finding on April 17, 2014. For Site 39MH231, the effect determination is based on the following stipulation:

- Work associated with the Project would not extend beyond the existing road ROW in the vicinity of Site 39MH231. If work associated with the Project must extend beyond the ROW in the vicinity of Site 39MH231, archaeological monitoring during construction is recommended. For any features identified during monitoring, data recovery would also be recommended. If Site 39MH231 can be avoided, no further cultural work is recommended and cultural resource clearance for the proposed project is recommended.

In addition, SDDOT will incorporate an environmental commitment referred to as Commitment P into the final design plans, which states:

- Coordination with State Archeological Research Center (SARC) will also be incorporated into the Project. Prior to construction, the Contractor shall contact Jim Donohue, SARC at 605-394-1936 to coordinate the installation of orange plastic safety fence at the existing road ROW within the vicinity of Site 39MH231. Work within the vicinity of Site 39MH231 shall not begin until the safety fence is installed. Work, equipment, or material storage will not be allowed beyond the ROW in the vicinity of the site which will be marked by safety fence.

As a result of this coordination and the incorporation of the stipulations, the build alternatives would have No Adverse Effect on historic properties. Although the entire area proposed for disturbance for this Project has been surveyed, in the event that additional land is needed based on final design, the area would be surveyed prior to construction and additional documentation and coordination with FHWA and SHPO would be required.

If evidence for cultural resources is uncovered during project construction activities, then such activities shall cease and the Project Engineer shall be immediately notified. The Project Engineer

will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action.

3.7 ECONOMIC RESOURCES

This section addresses the economic character of the Study Area. The source used for this 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).

3.7.1 Population

The population of the City 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 the City a regional urban center (City of Sioux Falls, 2009; Sioux Falls MPO, 2010). The City has experienced a steady growth of population. The City's population has grown from 100,836 in 1990 to 123,975 in 2000 and 153,888 in 2010 (Sioux Falls MPO, 2009). The current and projected population in the City is shown in Table 3-2 (City of Sioux Falls, 2009; Sioux Falls MPO, 2010).

Table 3-2
Current and Future Population of Sioux Falls

Year	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

3.7.2 Income and Employment

Employment has been projected to increase through population increases and job expansion. In the 2035 planning document, the Sioux Falls 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, 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 from 2006 through 2010 was approximately $50,727 for the City. This is above the statewide median household income during the same timeframe of $46,369 (U.S. Census Bureau, 2010).

3.7.3 Impacts of Alternatives

Under the No-Build Alternative, economic resources would change in response to the future development in the area.

Design techniques were utilized to minimize, to the extent possible, impacts to the businesses adjacent to the build alternatives. No permanent business acquisitions are anticipated though the build alternatives would require the minor ROW acquisition of six businesses including BAAAD,

LLC, Allied Oil and Supply Inc., Interstate Auction Center, Blackjack Fireworks, Lantis Fireworks, and Yogi Bear's Jellystone Park Camp Resort (see Figure 3-3b). The build alternatives also require ROW on land owned by Xcel Energy, a majority of which is within the Cactus Hills area (Figures 3-1a and 3-1b). All businesses north of the I-90/N. Timberline Avenue Interchange and WAPA would be temporarily impacted during construction, due to potential modifications of their existing access and potential impacts to their existing landscaping.

The Project would improve the existing I-90 Interchange and construct SD100. This would provide for better access to businesses through increased level of service within the Project area (HDR, February 2014).

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.

3.8 ENVIRONMENTAL JUSTICE

To determine if there would be any disproportionately high and adverse human health or environmental impacts from the Project, the percentages of minority, vulnerable age group, and low-income populations within the Study Area were compared to the percentage of these populations residing in Minnehaha County and the City as a whole to determine if the population that could be affected by the Project is substantially[1] higher in minority, vulnerable age groups, and low-income populations than the total population of Minnehaha County or the City. Populations were analyzed with 2010 US Census data at the smallest geographical unit available (Census blocks for minorities and age, and Census block groups for income). Table 3-3 lists the percentages of racial minorities and ethnic minorities in the City, Minnehaha County, and the Study Area.

Table 3-3
Census Data for the Build Alternatives

Demographic Group[2]	Build Alternatives[1]		Substantial Thresholds	Minnehaha County		Sioux Falls	
	No.	**%**	**%**	**No.**	**%**	**No.**	**%**
Total Population	421	100		169,468	100	153,888	100
White	375	89.1		149,220	88.1	133,572	86.8
Black or African American	1	<1	5.9	6,407	3.8	6,494	4.2
American Indian and Alaska Native	0	0	3.7	4,197	2.5	4,092	2.7
Asian	9	2.1	2.5	2,509	1.5	2,743	1.8
Native Hawaiian and other Pacific Islander	0	0	0.1	133	0.1	131	0.1

[1] Substantial is defined as statistically significant, that is, one standard deviation (approximately 40 percent) above the general population of the area (in this EA, the population of Sioux Falls).

Demographic Group[2]	Build Alternatives[1]		Substantial Thresholds	Minnehaha County		Sioux Falls	
	No.	**%**	**%**	**No.**	**%**	**No.**	**%**
Other Race	35	8.3	2.7	3,114	1.8	3,021	2
Two or More Races	1	<1	3.5	3,888	2.3	3,835	2.5
Hispanic or Latino Race	55	13.1	6.2	6,982	4.1	6,827	4.4
Persons Below Poverty[2] (%)	1,047	14.9	14.7%	16,825	10.3	16,458	10.5

[1] All build alternatives were located within similar Blocks and Block Groups.
[2] Racial demographic population data was taken from the 2010 US Census Bureau block data (P3 and P4).
[2] Poverty data was taken from the 2007-2011 ACS 5-year estimates data, which is the most recent data available for the area. Block group information was utilized for the build alternatives.

The 2010 U.S. Census Bureau (P3 and P4 datasets) indicated a population of 421 persons within the census blocks of the build alternatives. Table 3-3 lists the percentages of racial minorities and ethnic minorities in the City, Minnehaha County, and the build alternatives. The City was chosen as the baseline to determine thresholds for an Environmental Justice population in this assessment. Ethnic minorities exceeded the "substantial" threshold (40 percent above the percentage of each minority in the City) for Black or African American, Asian, Native Hawaiian and other Pacific Islander, "other race", and two or more races demographic groups. Block 1001 of Block Group 1, Census Tract 4.08 contained a Hispanic and an "Other Race" population which exceeded the threshold of the City.

Socioeconomic factors including persons below poverty level were evaluated to address low-income populations within the Study Area at the block group level. The 2010 Census indicates that block groups within or near the Study Area have 14.9% of individuals living below the poverty level which is above the 10.5% poverty rate within the City (U.S. Census Bureau, 2010). Block Group 1 of Census Tract 4.05 has 16.5% of its population living below the poverty level and Block Group 1 of Census Tract 4.08 had 23.1% of its population living below poverty, both of which are above the City's poverty threshold. The remaining three block groups have between 1.5% and 2.4% of the population living below the poverty level which is far lower than that of the City (U.S. Census Bureau, 2010) (see Figures 3-3a through 3-3c).

Consequently, both substantial minorities and low-income populations exist in the Study Area.

3.8.1 Impacts of Alternatives

Under the No-Build Alternative, minority and low-income populations would continue to be affected by baseline conditions and future activities unrelated to the Project.

The build alternatives include blocks that contain minority populations in excess of the City threshold. However, within the Study Area, there are no residences located within these blocks. The census block data also indicates the presence of two low-income populations above the City's threshold. However, there are no residences located in the portion of these block groups within the Study Area. Consequently, environmental justice populations would not be adversely and disproportionately affected by any of the build alternatives due to direct impacts of property acquisition. The improved access to industrial and commercial sites would benefit the local population regardless of minority or income status.

Environmental justice is grounded in the practice of making sure that both benefits and burdens of transportation investments are shared as equitably as possible among all affected communities (FHWA, 2011). Therefore, the following indirect impacts were taken into consideration as well.

- Access to jobs, schools, health care facilities, and shopping is a consideration for the build alternatives. Racial minorities in or near the Project would be affected to the same or lesser extent as other populations, so there would not be any disproportionate impacts. The build alternatives would provide traffic with a throughway to future public services minimizing disruption to the EJ populations, as well as the non-EJ populations.
- Relocations were considered for the build alternatives. The EJ populations, as well as the non-EJ populations, located next to the existing I-90/Timberline N. Interchange would be impacted similarly. The need for property acquisition was minimized by avoiding and reducing impacts to private property to the extent possible during design. See Section 3.10, Relocations, for a discussion of the specific residences.

3.9 NOISE

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. Noise levels from highway traffic are affected by three factors: (1) the volume of the traffic (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Sound is also composed of various frequencies.[2] 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. Noise is measured in decibels (dB) - a logarithmic scale. The type of scale that best approximates the frequency response of the human ear is called the A-scale. Therefore, noise levels are measured as and reported in A-weighted decibels (dBA). Table 3-4 provides noise levels (in dBA) common to everyday activities.

Table 3-4
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 3-5). 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

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

Abatement Guidelines/Policy (SDDOT, 2011) 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. Consequently, a predicted noise level of 66 dBA for residential receptors and 71 dBA for commercial receptors would represent a noise impact.

Table 3-5
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 build alternatives, a noise study was performed with the traffic noise model as part of this Project. A total of four receptors were analyzed within the noise study. The four receptors represented the three residences and one campground that were located within 500 feet of the proposed build alternatives. The study was updated to analyze the noise levels utilizing the 2035 traffic volumes (HDR, February 2014).

3.9.1 Impacts of Alternatives

Under the No-Build Alternative, noise levels would remain at baseline conditions unless other projects would occur in the area.

Impacts were predicted for Receptors 1 and 2 as a result of the build alternatives. A receptor is a discrete or representative location of a noise- sensitive site or area. Impacted Receptors 1 and 2 are residences that both have direct driveway access to proposed build alternatives (see Figures 3-3a through 3-3c). As stated in the SDDOT Noise Guidance (SDDOT, 2006), a noise abatement measure is not feasible if to the driveways cannot be maintained. Therefore, noise mitigation is not proposed as part of the Project.

As noted in the SDDOT Noise Policy (SDDOT, 2011), SDDOT will provide information to local officials on future noise levels along the Project. This will be accomplished by providing a copy of the noise analysis report to the City of Sioux Falls and Sioux Falls MPO.

3.10 RELOCATIONS

A field survey and aerials were utilized to identify business and residence locations in the Study Area for this EA.

3.10.1 Impacts of Alternatives

The No-Build Alternative would not change or result in relocation of existing businesses, residences and structures. However, future planned development as discussed in the Sioux Falls 2035 Comprehensive Development Plan could potentially involve relocations within the Study Area.

The build alternatives would require the minor ROW acquisition of six businesses (Baaad LLC., Allied Oil and Supply Inc., Interstate Auction Center, Blackjack Fireworks, Lantis Fireworks, and Yogi Bear's Jellystone Park Camp Resort). The build alternatives also require ROW on land owned by Xcel Energy, a majority of which is within the Cactus Hills area (Figures 3-1a and 3-1b). A residence and pole barn located at 5400 N. Timberline Avenue would be acquired due to the realignment of 60th Street North. A residence at 4901 N. Timberline Avenue would also be acquired due to the realignment of 60th Street North.

All ROW and relocation impacts would be mitigated in conformance with the 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 ROW Program is responsible for acquiring the property necessary for highway purposes and performing services related to acquisition per the UA.

3.11 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.

3.11.1 Impacts of Alternatives

The No-Build Alternative would not convert agricultural lands, but the area would still experience future development that would convert agricultural lands.

A total of 115 acres of farmland would be directly converted by Alternative 4a and a total of 105 acres of farmland would be directly converted by Alternatives 4 and 7. Farmland Conversion Impact Ratings were completed for each of the alternatives. Based on these ratings, it was determined the build alternatives have no potential to adversely affect important farmlands (USDA NRCS, 2013). Based on this determination, no further analysis is required under the Farmland Protection Policy Act.

3.12 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 U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act.

Wetlands and other waters of the US within the Study Area were delineated in accordance with USACE current methodology (see Figure 3-4a through3-4c). The identified wetlands within the Study Area consist of both desktop and field delineated boundaries. Wetlands that have been desktop delineated will be confirmed with a field delineation in the summer of 2014. The USACE completed a jurisdictional determination on February 18, 2014 for the field delineated wetland boundaries. The other waters of the U.S. identified within the Study Area include the Big Sioux River, Slip-Up Creek, and an unnamed intermittent stream within the Cactus Hills area (HDR, December 2013b).

3.12.1 Impacts of Alternatives

Under the No-Build Alternative, the Project would not be constructed and wetlands and other waters of the U.S. would not be impacted. However, other future projects could cause impacts to these resources.

During the preliminary design of the build alternatives, preliminary wetland impacts and crossings of other waters of the US were identified. The alignments of the build alternatives were shifted when possible to avoid or minimize impacts to wetland areas and other waters of the U.S. The wetland impacts and linear feet of crossing for the other waters of the U.S. for the build alternatives were calculated with the preliminary construction limits which include the realignments of 60th Street N., Redwood Boulevard and Rice Street, and the reconstruction of the I-90/N. Timberline Interchange.

Table 3-6 displays the total wetland impacts that are unavoidable for each build alternative. The build alternatives would also require crossings, including culverts and bridges, across the Big Sioux River, Slip-Up Creek, and an unnamed intermittent stream. Table 3-6 displays the total linear feet of other waters of the US within the preliminary working limits of the build alternatives. Table 3-6 lists the type of impact due to the build alternatives: culvert crossings, bridge crossing, or fill of the alignment which in some locations would require the realignment of the intermittent stream.

For the build alternatives, the realignment of Rice Street would cross a small intermittent stream. The crossing would encroach on portions of the intermittent stream that would require a realignment of the channel. During final design, minimization efforts for this realignment and coordination with USACE would need to occur to gain approval on the mitigation plan.

Table 3-6
Total Wetlands and Other Waters of the U.S. Impacts

Build Alternative	Total Number of Acres of Wetland Impact	Linear Feet of Other Water of the US- Culvert Crossing	Linear Feet of Other Water of the US- Bridge Crossing	Linear Feet of Other Water of the US- Realignment
Alternative 4	4.86	725	145	375
Alternative 4a	5.03	725	145	375
Alternative 7	4.33	560	145	1,150

Section 404 of the Clean Water Act (CWA) requires a permit for the discharge of "dredged or fill materials" into "waters of the United States." To issue this 404 permit, the USACE must ensure that the activity complies with EPA's 404(b)(1) Guidelines, set out in 40 C.F.R. section 230. These Guidelines require there to be no practicable alternatives to the proposed discharge that would have a less adverse effect on the aquatic environment, therefore the permitted alternative must be shown to be the Least Environmentally Damaging Practical Alternative (LEDPA).

As noted earlier in this EA, three build alternatives were pulled forward in the NEPA process to be analyzed as possible preferred alternative and the preliminary LEDPA for the Northern Segment of SD100. While other build alternatives were initially considered, Alternatives 4, 4a, and 7 were the only build alternatives determined to be practicable, with practicable being defined as “available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.” For additional discussion of the selection of the preferred alternative and preliminary LEDPA, refer to Chapter 4, Preferred Alternative.

As the lead Federal agency, FHWA must have reasonable assurance the project will be permitted under Section 404. Through project coordination with the USACE, impacts to waters were discussed and a preliminary LEDPA review memo was provided. Refer to the Northern Segment of SD100 Environmental Assessment Preliminary LEDPA Evaluation for additional information (HDR, March 2014). Preliminary alternatives were modified based on comments received from the USACE and further refinements would be made during the final design to avoid, if feasible, and minimized to the extent possible impacts to these aquatic resources.

A wetland finding has also been prepared for the recommended preferred alternative in order to comply with Executive Order (EO) 11990, Protection of Wetlands (see Appendix E). FHWA is required to comply with EO 11990 for all wetland impacts, including those under the jurisdiction of the USACE. For any fill activities in jurisdictional wetlands or other waters of the U.S that cannot be avoided, in addition to the USACE Section 404 permit, a Section 401 Water Quality Certification is required from the South Dakota Department of Environmental and Natural Resources (SDDENR). A permit application would be received from the USACE prior to commencement of construction activities for the Project.

A mitigation plan would be prepared through coordination with the resource agencies for the 404 permit and the 401 certification. For wetlands found not to be under the USACE jurisdiction, FHWA regulations (23 CFR 777.9) would apply and mitigation for permanent impacts to these wetlands would be required. All mitigation would occur through on-site, off site, or a mitigation bank as approved by the USACE.

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.

3.13 WATER QUALITY

Water resources within the Study Area include intermittent streams, perennial streams, ponds, and groundwater. The largest hydrological features within the Study Area are the Big Sioux River and Slip-Up Creek. The Big Sioux River is a tributary to the Missouri River beginning in northeast South Dakota and drains approximately 5,382 square miles. Slip-Up Creek is a perennial stream and flows into the Big Sioux River near N. Timberline Avenue and 60th Street N. One unnamed intermittent stream was identified, during the wetland delineation, within the Cactus Hills area (HDR, December 2013b) (see Figures 3-4a through 3-4c).

Streams in the State of South Dakota (the State) which have sufficient quantities of water for a sufficient duration are assigned the beneficial uses of irrigation, fish and wildlife propagation, recreation, and stock watering. Slip-Up Creek is not noted in the 2012 South Dakota Department of Environment and Natural Resources Integrated Water Quality Report; however, it is a tributary to the Big Sioux River, which is impaired due to E. coli, fecal coliform, and total suspended solids (SDDENR, 2012a).

Public water supplies in the City area rely on surface water and groundwater coming from 55 groundwater wells and one surface water pump station. The Big Sioux Aquifer is the primary source of water for the City. Minnehaha County has defined the entire aquifer within the County to be the water source protection area, without defining individual WHPAs (EDWDD, 2013). The Study Area lies within the water source protection area. Residents in the Study Area who are not on a public system rely on private wells for potable water. The City's residents receive approximately 54 million gallons per day (MGD) of potable water from the Sioux Falls Water Purification Plant (SFWPP) which has the capacity to deliver up to 75 MGD (City of Sioux Falls, 2013). For additional water supply needs, the City would be purchasing drinking water from Lewis and Clark Rural Water System to support the growing area.

3.13.1 Impacts of Alternatives

Under the No-Build Alternative, increased disturbance from site clearing, excavation, and construction activities would not occur, resulting in less opportunity for water quality impacts in the Study Area. However, existing roads in the Study Area may currently be affecting water quality in the form of runoff and surface erosion, and future development unrelated to the proposed action could cause water resource impacts.

For the build alternatives, the amount of sedimentation from soil erosion would not increase substantially due to the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity requirements 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 Slip-Up Creek, Big Sioux River, and the unnamed intermittent stream. In addition, best management practices (BMPs) would ensure the water source protections areas are accounted for during the Project. Any groundwater wells would be confirmed during physical survey, and if impacted, would be properly capped and sealed. Any impacted wells and connections would be replaced for properties that were not fully acquired. It is anticipated that the build alternatives would not impact the water resources in the area due to the incorporation of BMPs into final design and construction.

3.14 FLOODPLAIN

Executive Order 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with fill and modification of floodplains. Federal Emergency Management Agency (FEMA) has jurisdiction over designated floodplain areas. 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 and Minnehaha County participate in this program.

The current Flood Insurance Study (FIS) for Minnehaha County including Sioux Falls is dated September 2, 2009. The Big Sioux River and Slip-Up Creek floodplain boundaries are delineated in the Study Area (FEMA, 2009). The Big Sioux River also has delineated floodway boundaries. The Project occurs within the jurisdiction of the Minnehaha County floodplain administrator.

3.14.1 Impacts of Alternatives

The No-Build Alternative would not alter the 100-year floodplain because the Project would not be constructed.

The build alternatives would include construction of bridge structures across the Big Sioux River and Slip-Up Creek and removal of the Timberline Road bridge structure over the Big Sioux River (FEMA, 2009). To comply with both FEMA regulations and Executive Order 11998, a preliminary hydraulics analysis was conducted for the build alternatives to assess the potential for floodplain impacts (see Appendix D).

The proposed alignments are located within a designated FEMA floodplain along the Big Sioux River which is sensitive to changes in water surface elevations. With all build alternatives requiring fill within the floodway, a preliminarily hydraulics analysis was run to assess the impacts of Alternatives 4, 4a, and 7, with and without the existing Timberline Road bridge and embankment. With the bridge crossing and Timberline Road Bridge remaining in place, the increased 100-year water surface elevation was 0.26 feet with impacts projecting 6.0 miles upstream of the proposed structure. With the bridge crossing and Timberline Road bridge removed, the increased 100-year water surface elevation was 0.22 feet with impacts projecting 5.8 miles upstream of the proposed structure. Impacts for all build alternatives had similar impacts to the floodway that are partially mitigated with the removal of Timberline Road Bridge. These results were coordinated with the Minnehaha County floodplain administrator who concurred with findings that all build alternatives would have minimal rise and no cumulative effect to water elevations in this area.

The preferred alternative would require removal of Timberline Bridge and a detailed hydraulics analysis. The SDDOT would be required to coordinate with the Minnehaha County Floodplain Administrator to complete a floodplain development permit or County LOMR, if needed, before construction.

3.15 VEGETATION, FISH, & WILDLIFE

During the development of this EA, coordination occurred with the South Dakota Department of Game, Fish, and Parks (SDGFP) and U.S. Fish and Wildlife Service (USFWS) as the Project progressed. This coordination was an effort to characterize the habitats for the vegetation, fish, and wildlife located within the Study Area, and to understand resource agency issues concerning the Project.

During agency coordination in 2007, SDGFP was contacted for comments regarding a shift in the alignment and in their response, noted that a bald eagle nest was observed along the Big Sioux River near the Study Area (USFWS, 2007a). 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.

3.15.1 Impacts of Alternatives

The No-Build Alternative would not involve Project construction, therefore would not directly impact any vegetation, fish, and wildlife.

The build alternatives have similar effects to the species and habitats in the Study Area. Table 3-7 identifies these habitats and lists the potential impacts to these areas among build alternatives.

Table 3-7
Habitat Types

Habitat Type	Description	Impact Type
Agricultural Lands	Agricultural lands include cropland and pasture land.	Farmland areas would be directly impacted due to the acquisition of ROW. Minimal construction impacts outside the acquired ROW would occur.
Forested Corridor	Forested corridors parallel the Big Sioux, Slip-Up Creek and a portion of the unnamed intermittent stream. Migratory birds potentially occur within both corridors.	A portion of these forested corridors would be required for ROW with all build alternatives. Avoidance of these corridors are not possible due to a required Big Sioux River crossing. Direct impacts would be kept to a minimum by utilizing BMPs during final design and construction.
Wetlands	Wetlands occur within the Study Area as drainage ways, intermittent streams, and prairie potholes.	Direct impacts of wetland acres would be mitigated. The types of wetlands vary within the Study Area. Before construction, a USACE 404 permit would be obtained for any required fill areas within wetland areas.
Big Sioux River	The Big Sioux River is a dominant feature in the northern portion of the Study Area and is designated by the USFWS as a Substantial Fishery Resource. The Big Sioux River contains	The construction of a bridge crossing and the removal of the Timberline Bridge would cause temporary impacts to fish populations. Any construction impacts would also be minimized through the use of BMPs.

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

Habitat Type	Description	Impact Type
	many species of fish including walleye, northern pike, and several other game species.	
Slip-Up Creek	Slip-Up Creek is a tributary to the Big Sioux River. Slip-Up Creek provides habitat for several different fish populations.	The construction of a bridge or culvert for the crossing of Slip-Up Creek would temporarily impact the fish population.
Roadside Ditches	Roadside ditches provide habitat such as grassland and in some cases wetland areas.	Existing and new roadside ditches would be maintained along SD100 corridor.
Cactus Hills	Cactus Hills is owned privately by Xcel Energy. The SDGFP provided a list of possible species found within the Cactus Hills which includes: champion eastern cottonwood, bush clover, downy gentian, white water-lily, ringneck snake, and wood thrush (City of Sioux Falls, 2003). An additional survey was conducted for this EA, and noted that overgrazing has now taken place in this area since the previous survey. Invasive species are now present and portions of the area are now considered marginal habitat (HDR, September 2013b).	Alternatives 4, 4a, and 7 alignments pass directly through the Cactus Hills area. All build alternatives would encroach on this marginal habitat. See Section 3.16 for further discussion of this area.

The National Bald Eagle Management Guidelines 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. Pre-construction surveys are recommended prior to construction to determine if any active bald eagle nests are located in the Study Area. SDDOT would notify the USFWS if a bald eagle nest is located within 1-mile of the project at time of construction. According to coordination with the SDGFP, no new rare threatened or endangered species were found concerning the Project, however there are bald eagle nests present outside the area that have been noted (SDGFP, 2007; SDGFP, 2010a; SDGFP, 2010b).

Coordination with USFWS indicated that no migratory bird surveys are necessary in non-suitable habitat (USFWS, 2011b). If construction would be occurring within the nesting season, surveys for migratory birds would occur in suitable areas that have not been mowed or cleared prior to April 1st to determine if there are current nests. This would also be done to determine offsetting measures to compensate for impacts to migratory birds. SDDOT would coordinate with the USFWS to determine appropriate offsetting measures for impacts to migratory birds after potential impacts have been identified. Surveys would be conducted within the same year, but prior to construction start in order to capture the current conditions and address possible effects more concisely. Surveys would be completed in areas containing suitable habitat where the vegetation has not been cleared prior to migratory bird nesting season.

For the culvert crossings, a regional condition under the USACE Nationwide Permit would require, when applicable based on culvert type and drainage area, culvert countersink depths to

allow for aquatic organism passage. This condition would be incorporated into final design during the 404 application process.

3.16 THREATENED OR ENDANGERED SPECIES

Federal threatened and endangered (T&E) species are regulated by Section 7(c) of the Endangered Species Act of 1973 (16 USC 1531 et seq.). USFWS maintains a list of species determined to be threatened or endangered. 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.

Coordination for this EA has continued throughout the Project for Alternatives 4, 4a, and 7 (see Table 5-1). Table 3-8 lists the threatened and endangered species potentially within the area.

Table 3-8
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, 2011a). A recent survey has shown the Study Area has marginal habitat for the Western prairie fringed orchid (see Figure 3-5).
Topeka Shiner (*Notropis topeka)*	Federal Endangered	Yes	Species could potentially occur within the reaches of Slip-Up Creek and within the portion of the Big Sioux River that Alternatives 4, 4a, and 7 intersect.
Red Knot *(Calidris canutus rufus)*	Proposed Federally Threatened	No	The red knot may utilize areas within South Dakota as stopover habitat during migration. No known occurrences have been recorded for the Study Area. Red knots will utilize sand or gravel shorelines as stopover habitat. No suitable stopover habitat exists within the Study Area.
Northern Long-eared Bat *(Myotis septentrionalis)*	Proposed Federally Endangered	Potentially	Winter habitat of the northern long-eared bat typically consists of caves or mines, while summer habitat can consist of live or dead tree snags and, less commonly, man-made structures. Potential summer roosting habitat within the Study Area includes forested areas, especially those that occur along water bodies such as the Big Sioux River.
Lined Snake (*Tropidoclonion lineatum)*	State Endangered	Yes	Species has been recorded in areas near the Project.
Peregrine Falcon (*Falco peregrinus)*	State Endangered	Potentially	The Study Area is within the migratory area of this species. See Section 3.15 for discussion on migratory birds.
Osprey (*Pandion haliaetus)*	State Threatened	Potentially	The Study Area is within the migratory area of this species. See Section 3.15 for discussion on 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 would contact SDGFP.
Trout perch (*Percopsis omiscomaycus)*	State Threatened	Yes	Trout perch could potentially occur in the Big Sioux River and Slip-Up Creek within the Study Area.
Northern River Otter	State	Potentially	This species is noted to exist in the Big Sioux River, but has not been documented within the specific reach of the

Species	Status	Present in Study Area	Comments
(*Lontra canadensis)*	Threatened		Big Sioux River within Alternatives 4, 4a, and 7. If found within the Study Area, SDDOT would contact SDGFP.

3.16.1 Impacts of Alternatives

The No-Build Alternative would not result in the conversion of land to highway and related uses for this Project, although future development may result in land conversion.

The following paragraphs discuss potential impacts from habitat disturbance for the species that are present within the Study Area. Species that could potentially be found but have not been located and are not anticipated to be found within the Study Area include Blanding's turtle and northern river otter, therefore these species are not discussed below. The peregrine falcon and osprey are included in Section 3.15 as migratory birds. The following is a discussion of the requirements for the species potentially found within the impact area of Alternatives 4, 4a, and 7:

- Western prairie fringed orchid – Coordination with USFWS occurred regarding the build alternatives. The USFWS recommends consideration of additional future surveys for the western prairie fringed orchid during its flowering period, generally in June or July. The SDDOT would conduct surveys during the flowering period for the western prairie fringed orchid in areas that were noted as marginal habitat prior to construction (HDR, September 2013b) (see Figure 3-5). Coordination would take place with USFWS prior to the survey and results of the survey would be forwarded to USFWS and FHWA. Based on the low-quality of habitat and the planned survey for the western prairie fringed orchid, the Project's effect determination for this species is a may affect, not likely to adversely effect.
- Topeka shiner - The build alternatives would include crossings over the Big Sioux River and Slip-Up Creek. As noted from agency coordination, Big Sioux River and Slip-Up Creek have the potential to be inhabited by Topeka shiners, a Federally endangered species. FHWA and SDDOT worked with USFWS to address impacts to the Topeka shiner under a Programmatic Biological Opinion (BO) for stream-crossing Projects administered and funded by SDDOT and FHWA that would cross streams inhabited by the species in South Dakota (USFWS, 2008). The Programmatic BO determined that stream crossing project actions may affect, is likely to adversely affect the Topeka shiner (FHWA, 2008). As stated in the USFWS response letter dated November 4, 2013, "The Project meets criteria for inclusion under the August 11, 2008, programmatic biological opinion."

  For short-term impacts, the conditions of the Special Provision for Construction Practices in Streams Inhabited by the Topeka Shiner would be implemented as well as the reasonable and prudent measures of the Programmatic BO. The final design of the structures would be required to allow for fish passage for the proposed crossings of Big Sioux River and Slip-Up Creek. The structures would avoid long-term degradation and fragmentation of the Topeka shiner's habitat. The Project would 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 no build alternatives would affect critical habitat.
- Red knot – The red knot is not anticipated to occur within the Study Area. The red knot may utilize areas within South Dakota as stopover habitat during migration. The species will utilize sand or gravel shorelines as stopover habitat. No known occurrences have been recorded for the Study Area and suitable stopover habitat does not exist within the Study Area.

- Northern long-eared bat - While the Study Area doesn't contain caves or mines that would serve as winter hibernacula, the potential for summer roosting sites exists within the area. Live and dead tree snags are prevalent within the Study Area and several man-made structures could serve as appropriate roosting habitat. All build alternatives would require some tree removal.

  Clearing and grubbing of vegetation would occur as part of the requirements of the Migratory Bird Treaty Act. Clearing and grubbing activities would occur outside of migratory bird nesting season, which coincides with bat roosting time frames. Clearing of trees may occur after October and before April. Therefore, potential bat roosting habitat would be removed prior to their use of the area.

- Lined snake- Though the lined snake has not been observed within what has been referred to in this EA as Cactus Hills, the species has been recorded in areas near the Project. In 2002, Short Elliot Hendrickson surveyed the Cactus Hills extensively for the species and none were located, though it was noted that habitat would be suitable for the lined snake (SEH 2002a). During a general visual habitat survey conducted in September 2013 by HDR, Cactus Hills was noted to be heavily grazed with large areas of invasive plant species present (HDR, September 2013b). Because habitat has been identified in past surveys, but land use has degraded the quality within the Cactus Hills, the presence of lined snake use or potential habitat in the area needs to be confirmed. Therefore, the following commitments developed through consultation with SDGFP (SDGFP, 2014a) would be made for the Project:

  Survey- A survey would be conducted during final design to determine if the lined snake is present or if suitable habitat for the lined snake is present. Surveys are typically conducted in spring or fall when the species are known to begin their migration from or to their hibernation areas. Surveying during this time would increase the likelihood of observing the species during migration. The specific survey protocol would be provided to the SDGFP for approval prior to conducting surveys.

  - If the lined snake is not observed during the surveys and no suitable habitat is present within the area, no further action is necessary by the SDDOT.
  - If the lined snake or suitable habitat is observed during the surveys, mitigation measures would be implemented in design of the roadway through Cactus Hills. Mitigation for the lined snake would include two means of mitigation: prevention of an incidental take and habitat protection. The mitigation measures would be incorporated during the final design of the preferred alternative.
    - *Mitigation Measure- Prevention of Incidental Take*: For the prevention of incidental take, the design would include:
      1. Approved culvert crossings, such as an arch pipe or Reinforced Concrete Pipe (RCP), to allow for the lined snake passage across the roadway, and
      2. An approved exclusion barrier would be incorporated into the design of the roadway. An exclusion barrier is defined as a continuous obstruction alongside the roadway within habitat to prevent the snake from crossing or to direct them to a specific crossing point. The exclusion barrier would be included within the ROW to prevent the lined snake from crossing the roadway and lead the lined snake to the dry culvert crossings.
      3. During final design, details of these mitigation measures will be evaluated and approved by a qualified herpetologist and approved by the SDGFP.

- *Mitigation Measure- Habitat Conservation*: For habitat conservation, the City would initiate the process to develop and implement a conservation easement or a similar agreement that protects habitat at a 1:1 ratio of habitat removed for the SD100 ROW. If establishing an easement within Cactus Hills is not feasible, the City would pursue protecting lined snake habitat within Minnehaha County for conservation. If locating and conserving habitat for the lined snake is not possible or becomes cost prohibitive, the City would work with the SDGFP to determine another appropriate mitigation strategy, such as providing funding for SDGFP lined snake habitat preservation, research for the species, or habitat enhancements. The City would request guidance, participation and consultation from the SDGFP and other resource agencies to assist with the negotiations, design, and implementation of these measures.

- Trout perch - The trout perch is assumed to occur in Slip-Up Creek and the Big Sioux River within the Study Area of all build alternatives. 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 any of the build alternatives.

3.17 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 project would adversely affect a Section 4(f) resource. If a program or project would affect a Section 4(f) resource, all feasible and prudent ways of avoiding this impact must be evaluated. However, if FHWA determines that the use of the 4(f) property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) would have a *de minimis* impact, evaluation of feasible and prudent avoidance alternatives would not be required.

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 (NPS, 2008). 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 would 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).

There are 76 city parks and recreation areas within the City (City of Sioux Falls, 2013). Of the 76 city parks, only one, Great Bear Recreational Area, is near the Study Area. In addition to City owned parks, the Big Sioux Recreational Area is state-owned property located approximately 2 miles east of the Study Area and southwest of the City of Brandon. No wildlife or waterfowl refuges are in the vicinity of the Study Area. Although Cactus Hills is noted for its habitat, it is privately owned and does not qualify as a Section 4(f) resource.

Archeological and historical properties in the Study Area were previously discussed in Section 3.6, and could in some circumstances be considered Section 4(f) resources. The following would qualify as Section 4(f) properties:

- The Great Northern Railroad, Site 39MH2000
- The Chicago, St. Paul, Minneapolis, and Omaha, Site 39MH2003
- Residence located at 5100 North Timberline Avenue, Site MH03000001 – MH030000010
- Archeological Site 39MH231

3.17.1 Impacts of Alternatives

For the No-Build Alternative, no Section 4(f) or 6(f) resources would be affected.

There are no publicly owned public parks, recreation areas, and wildlife or waterfowl refugees that would be directly or indirectly impacted by any of the build alternatives.

The following describes the build alternatives impacts to the four identified Section 4(f) properties:

- Alternatives 4, 4a, and 7 would require modifications to the existing railroad crossings in order to maintain highway crossings of the two rail lines identified as Site 39MH2000 and 39MH2003. The rail lines are considered eligible for the NRHP under two criterion, Criterion A (significance associated with the overall history of the region) and Criterion C (significance as a representation of the transportation, technology, and engineering of the time period). Realignment of the roadway would require removal of the existing at-grade railroad crossing at Rice Street and construction of a new crossing. All build alternatives would also include construction of two grade separated railroad crossings to eliminate two other existing at-grade crossings. These modifications would not alter the characteristics that make the sites eligible for the NRHP; therefore, there is no adverse effect to these resources.
- The residential structures at 5100 Timberline Avenue are recommended as eligible for the NRHP under Site MH030000001-10. This Site is considered eligible for its contribution to the early twentieth century agricultural expansion of Minnehaha County and Brandon, and the settlement of Swedes in the area (HDR, September 2013a). While the preliminary design shows a portion of the front yard may be impacted by the project, all construction and project activities, including staging and borrow areas, will avoid the structures. Therefore there with be no affect to this historic property.
- The limits of archeological Site 39MH231 were previously mapped and recorded as eligible for the NRHP. For this Project, the Site was reevaluated. Alternatives 4, 4a, and 7 would disturb the southeast corner of this site which is part of the existing SD100 roadway ROW just south of Madison Street. This area has been previously disturbed by roadway construction and no longer retains the characteristics which make the site eligible for the NRHP. Therefore, there would be no affect to this historic property.

In making a "No Adverse Effect" determination, all measures were considered to avoid, minimize, mitigate, and enhance the Section 4(f) historic properties as stated above. SHPO concurred with this determination as discussed in Section 3.6. Therefore, in accordance with 23 CFR 774.3(b), use of these resources is determined to be a *de minimis* Section 4(f) impact.

Because no Section 6(f) resources exist in the Study Area, the build alternatives would not impact Section 6(f) resources (SDGFP, 2014b).

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

For the purpose of this EA, a file search for Alternatives 4, 4a, and 7 was conducted to identify sites with recognized environmental conditions (RECs).[3] Environmental Data Resources, Inc. (EDR) was contracted to conduct a file search 2.5 miles from the center of the build alternatives (EDR, September 2013). HDR conducted a field survey 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. A review of both file searches and the field survey indicated the presence of the following RECs within the Study Area.

EDR Listed Sites

Site 1 is Allied Oil Supply and is located at 26043 478th Avenue, City of Brandon. The site is listed for an aboveground storage tank (AST). This site is also listed on the Integrated Compliance Information System (ICIS) and Facility Index System (FINDS) database as a facility that holds a NPDES permit. The site is identified as having a Conditionally Exempt Small Quantity Generator (CESQG) that generates less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

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

Site 2 is Yogi Bear's Jellystone Park Camp Resort and is located at the I-90/ N. Timberline Avenue interchange (Exit 402). The property was noted during the field survey. Three above ground storage tanks (AST) are located on the property.

Site 3 is Lantis Fireworks located on the east and west side of the interchange I-90/ N. Timberline Avenue (Exit 402). The property was noted during the field survey for the potential use of hazardous materials. These fireworks stands appear to be seasonal and were noted as storing Class 1.3 explosives (also known as Class C explosives) and presenting a fire hazard. No releases or environmental events have been identified at this location (SDDENR, 2006). However, many commercial fireworks contain black powder that could spill to the ground, and other fireworks could be dropped and dislodge ignitable or explosive materials on the ground.

Site 4 is located on a private residence at 5400 N. Timberline Avenue and south of the interchange I-90/N. Timberline Avenue (Exit 402). Although not listed during the database search, this property was found to host an AST (approximately 250-300 gallons in size) adjacent to the residence. This property was reviewed from an off-site location.

Site 5 is located on a private residence at 5100 N. Timberline Avenue and north of the Big Sioux River. The field survey identified an AST near the residence's outbuildings and a refuge pile near the Big Sioux River. This property was reviewed from an off-site location.

[3] 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.

Table 3-9
Sites with Potential RECs in the Study Area

Map ID	Facility Name	Reason for Listing	Location
EDR Listed Sites			
1	Allied Oil Supply	AST/ICIS/FINDS/ RCRA-CESQG	26043 478th Avenue Brandon SD
Non EDR-Listed/ HDR Field Identified Sites			
2	Yogi Bear's Jellystone Park Camp Resort	AST	I-90/N. Timberline Avenue Exit 402
3	Lantis Fireworks	Potential use/storage of regulated materials	I-90/N. Timberline Avenue Exit 402
4	Residence	AST	5400 N. Timberline Avenue Sioux Falls, SD
5	Residence	AST	5100 N. Timberline Avenue Sioux Falls, SD

Notes: AST= Aboveground Storage Tank ICIS= Integrated Compliance Information System FINDS= Facility Index System, RCRA-CESQG= Resource Conservation and Recovery Act- Conditionally Exempt Small Quantity Generator

3.18.1 Impacts of Alternatives

The sites listed in Table 3-9 are within or near Alternatives 4, 4a, and 7. The following description lists each site, identifies the potential for impact, and, if applicable, provides recommendations for further investigation:

- Site 1, Allied Oil Supply - The site is approximately 200 feet from the proposed construction limits for Alternatives 4, 4a, and 7 and would not affect nor be affected by the Project.
- Site 2, Yogi Bear's Jellystone Park Camp Resort- Alternatives 4, 4a, and 7 would avoid the AST tanks. There has been no reported contamination at the site. If SDDOT does impact the ASTs, the ASTs would be relocated and the ground checked for visible contamination. The risk for contamination from the REC is likely minimal and the Project would not be affected by this REC site.
- Site 3, Lantis Fireworks- The site is located within the preliminary limits of Alternatives 4, 4a, and 7. Before construction, any fireworks located within the building would be removed. Sampling for explosive residues should be performed prior to construction activities on site, and remediation should occur as needed prior to the introduction of spark-producing construction equipment.
- Site 4, Residence- The site is located at 5400 N. Timberline Avenue. An AST tank is located on the property. There has been no reported contamination at the site. Alternatives 4, 4a, and 7 would result in the acquisition of 5400 N. Timberline Avenue and require the AST to be removed and ground checked for visible contamination. The risk for contamination from the REC is likely minimal and the Project would not be affected by this REC site.
- Site 5, Residence- The site is approximately 100 feet from the preliminary construction limits for Alternatives 4, 4a, and 7 and would not affect, nor be affected, by the Project.

The build alternatives have two businesses and one residence that were identified as RECs within the limits of construction. 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 underground storage tanks (USTs), and coordinate with SDDOT and SDDENR if any obvious contamination is found prior to continuing work in those areas.

3.19 CONSTRUCTION

The impacts of construction would primarily be temporary and limited to the period of construction. Detailed discussion of construction impacts is not feasible until final design has been completed for the preferred alternative, if a build alternative is selected; general practical precautions to minimize these impacts are presented in the following list:

- Previously defined BMPs, in accordance with SDDOT construction manuals, would be used to mitigate construction-related 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.
- The amount of sedimentation from soil erosion would not increase substantially due to the NPDES General Permit for Storm Water Discharges Associated with Construction Activities requirements 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 Slip-Up Creek, Big Sioux River, and the unnamed intermittent stream.
- Native vegetation would be planted along areas disturbed by the selected alternative to minimize the establishment of invasive plant species. The selected alternative ROW would be maintained to prevent the spread of invasive species (e.g., spraying and mowing of invasive species).
- 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).
- If buried prehistoric or historic cultural materials are encountered during construction, work should cease in that area and the SHPO should be contacted immediately.
- A Section 404 permit and associated 401 Water Quality Certification would be required from USACE and the SDDENR for any impacts on wetlands and other waters of the U.S. During preliminary design of the build alternatives, 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.
- Impacts on fisheries in the Big Sioux River and Slip-Up Creek would be reduced by implementation of BMPs to minimize impacts on the water quality of these streams. These BMPs would be employed during the project construction. The FHWA and SDDOT developed a special provision for construction practices in streams inhabited by the Topeka shiner. The special provision would employ BMPs for a stream-crossing structure in Big Sioux River and Slip-Up Creek to minimize adverse impacts on the federally endangered Topeka shiner.
- A traffic control plan would be developed during final roadway design. As part of this process, the traffic control plan developed during final design would minimize the amount of disruption to traffic while ensuring the safety of motorists. Due to the roadway being a new alignment, any traffic detours are anticipated to be minimal. Arterial roadways would remain open or closed for short durations throughout construction. Therefore, the amount of traffic to be detoured for the Project is anticipated to be minimal. Due to the location of the Project in an undeveloped area, the detour routes would have minimal sensitive noise receptors (i.e. schools, residences) located adjacent to the routes. This factor as well as the anticipation of the detours to be for a

short duration and short length, the impacts to sensitive receptors would be minor and short term. Regarding economic impacts due to traffic detours, the businesses located within the Study Area that rely upon the traveling public are located north of I-90. In order to provide access, temporary connections would be maintained during construction from the I-90 west bound ramps to the north side businesses to allow customers to continue to access the businesses. Eastbound I-90 traffic would access the north side businesses by going to the next interchange east or west of Timberline Road and then using the westbound I-90 lanes and ramps. Therefore, impacts to these businesses during construction are anticipated to be minimal.

- If the lined snake or suitable habitat is observed during the surveys (see Section 3.16.1), the following would be incorporated into the final design of the preferred alternative:
    - Erosion control measures, such as silt fencing, would be properly installed around the project's disturbance boundary within lined snake habitat. This fence would assist in limiting lined snakes from entering the construction area, thus limit the possibility of injury or mortality.
    - To prevent entrapment of the lined snake during construction, all excavated, steep walled holes or trenches would either be covered by plywood at the end of each day or provided with one or more escape ramps constructed of earth fill or wooden planks.
    - Each morning before construction activities resume and before such holes or trenches are filled, they will be inspected for trapped animals, including the lined snake. Upon the discovery of a lined snake the reptile will be allowed to escape voluntarily (by escape ramps) or a person trained to handle the snake will be contacted to remove the snake.
- If dewatering is found to be necessary during construction, the effects on the water tables of aquifers would be localized and short term. Dewatering groundwater would be properly discharged to minimize erosion and facilitate infiltration back into the ground. Construction activities would adhere to local, state, and Federal water quality regulations.
- Methods would be implemented to minimize the spill of chemicals used in vehicles during construction activities such as petroleum, oils and lubricants. If discharge does occur, containment procedures such as banking or diking would be used to prevent entry of these materials into the waterway.

Construction-related impacts for the Project are not considered to be significant due to planned compliance with the most recent SDDOT Construction Field Manual during construction.

3.20 CUMULATIVE IMPACTS

This section addresses potential cumulative impacts associated with the Project. 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 most recent South Dakota STIP (SDDOT, 2013).

3.20.1 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-90/N. Timberline Avenue Interchange.
- 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 would minimize and mitigate impacts.

3.20.2 Present Actions

Present actions near the Project corridor include continued residential development independent of the proposed roadway improvement. As addressed in Chapter 1, Purpose of and Need for Proposed Action, the Project is needed to help accommodate traffic growth in the northeastern area of Sioux Falls, address capacity and access issues, and be consistent with planning decisions. Development is occurring without the SD100 improvement but is causing increase traffic and access problems. Development activities are subject to compliance with various environmental requirements, with methods for avoiding, minimizing, or mitigating for impacts. Several areas adjacent to 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 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. Increased traffic volumes would also have an impact on increased emissions in the Study Area. The conversion of cropland to urban development would also cause additional stormwater 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 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.

3.20.3 Reasonably Foreseeable Future Actions

- As noted in Section 1.6, Other Transportation Projects, several projects would occur within the Study Area during the timeframe of construction of the Project. In addition, other projects could develop within the area that may affect resources within the Study Area. Included in these reasonably foreseeable actions are the development of additional public services in the Study Area such as schools, fire stations, and libraries.
- Improvement and widening of arterials such as Benson Road are planned to occur in the Study Area.
- Sanitary sewer lines are planned to be extended through the Study Area. The SD100 Project would intersect basin sanitary sewer projects proposed by the City.

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, City of Brandon, Minnehaha County, 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 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 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 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).

3.20.4 Cumulative Impact Conclusion

The cumulative impacts of past activities have not led to significant adverse impacts in the Study Area. Considering the present and reasonably foreseeable future activities and their limited impact in consideration of impact avoidance, minimization, and mitigation, and considering the plans governing the activities and the regulatory environment, adverse cumulative impacts are not anticipated to be significant.

Cumulatively, these present and future 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 given the effort to avoid, minimize, and mitigate for

environmental impacts. 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 adverse cumulative impacts are projected to occur with the Project in conjunction with other projects.

The Project would cause some beneficial cumulative impacts in consideration of the traffic and congestion created through other planned developments. SD100 as part of the planned future development would provide a roadway network. The planning efforts for the future development and roadway network would allow for a more orderly growth pattern for this area, therefore minimizing the impacts to aesthetics. This Project would likely reduce vehicular air emissions that would occur without the project by providing more efficient traffic operations. The Project would also mitigate traffic congestion on the existing roadways. Specifically, the two railroad overpasses would eliminate the need for traffic to stop when a train is crossing the rail line, thereby improving traffic flow in the area. The Project would provide a side path that would connect pedestrians within the planned residential areas to the City's bike trail system.

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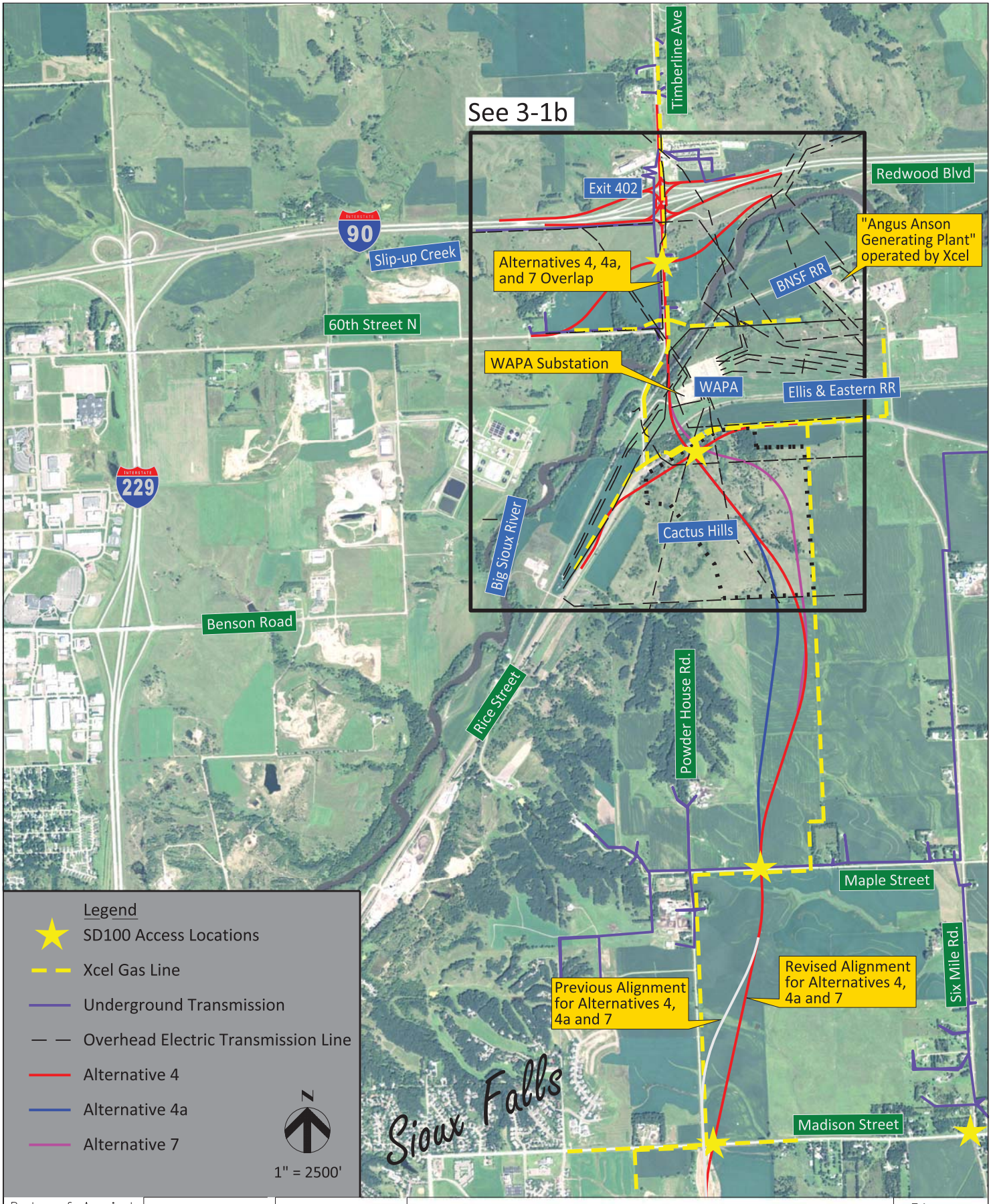

Date of Aerial Photography: 2012

Land Use and Utilities

Northern Segment of SD100

Figure 3-1a

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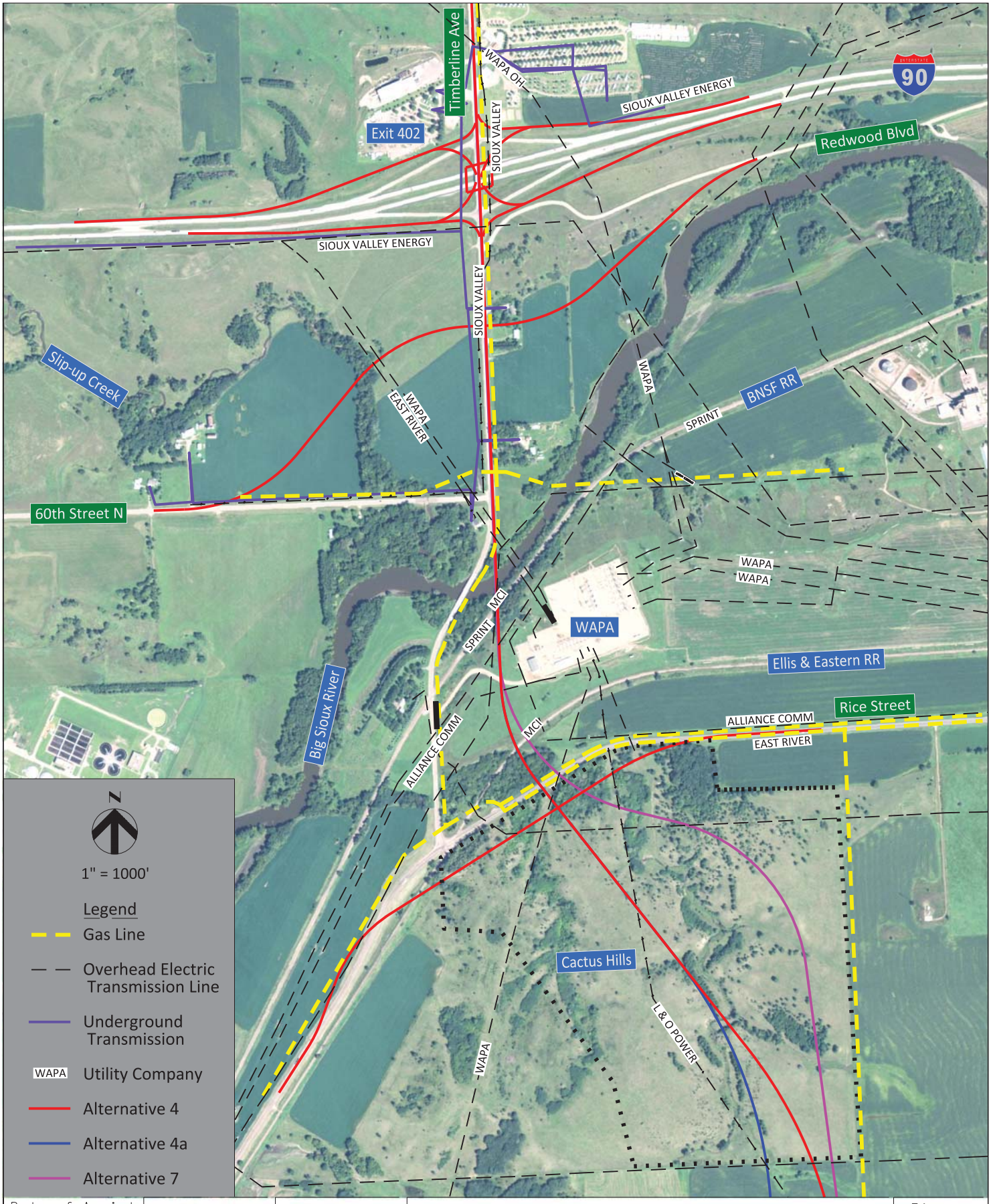

Date of Aerial Photography: 2012

Land Use and Utilities

Northern Segment of SD100

Figure 3-1b

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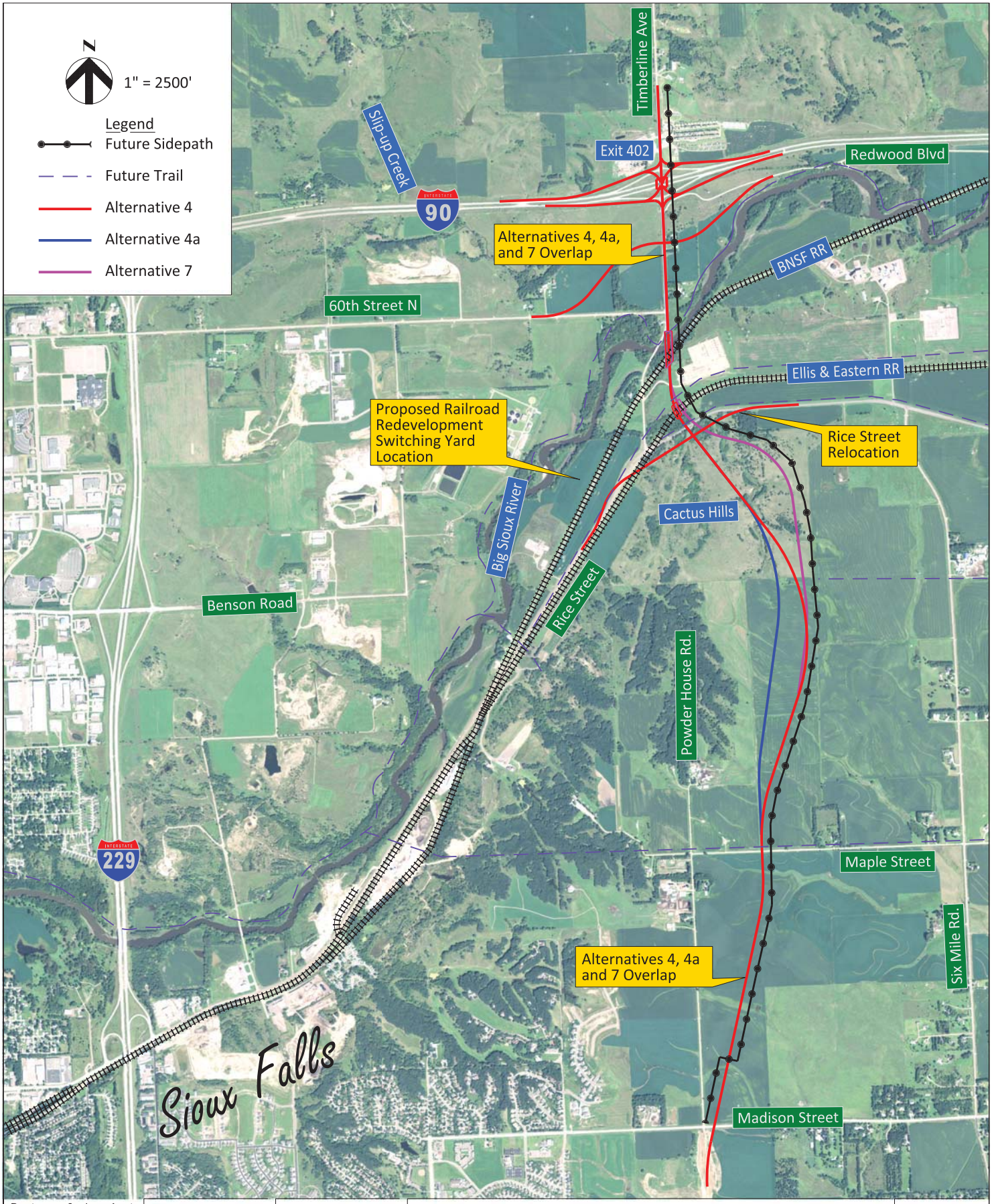

Date of Aerial Photography: 2012

Railroads and Bike Paths

Northern Segment of SD100

Figure 3-2

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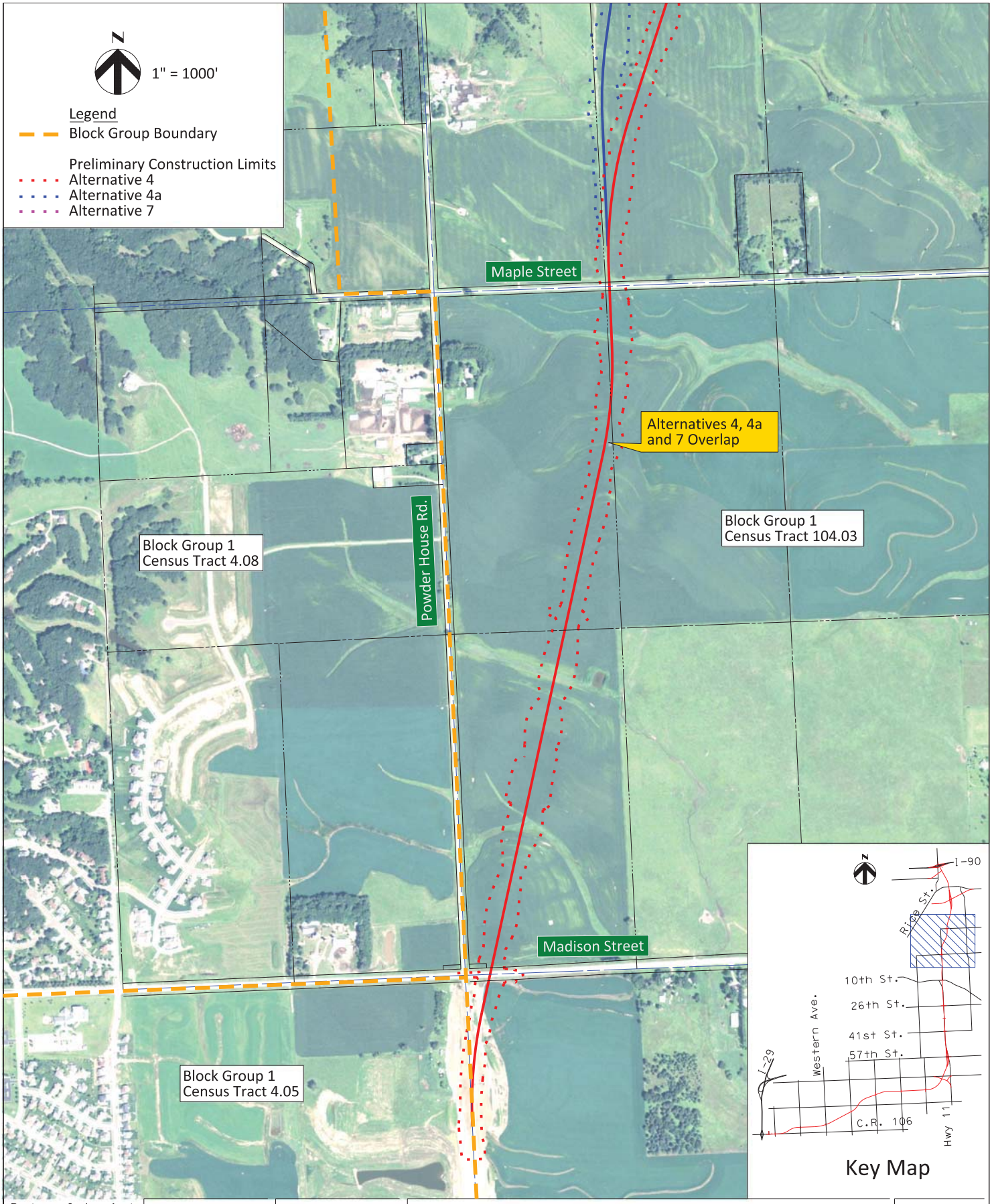

Date of Aerial Photography: 2012

Economic Resource, Environmental Justice and Noise

Northern Segment of SD100

Figure 3-3a

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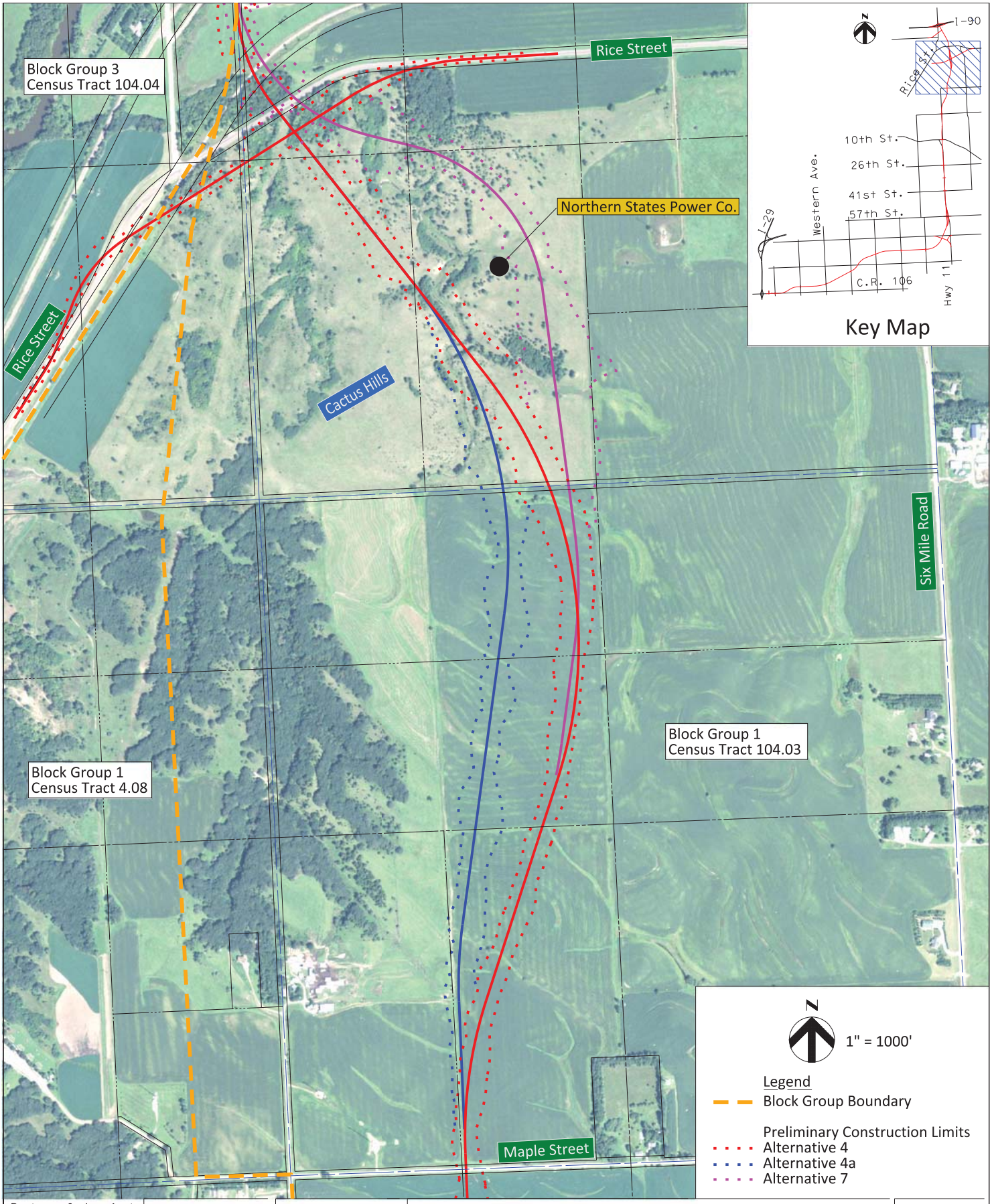

Date of Aerial Photography: 2012

SD DOT Connecting South Dakota and the Nation

HDR

Economic Resource, Environmental Justice and Noise

Northern Segment of SD100

Figure 3-3b

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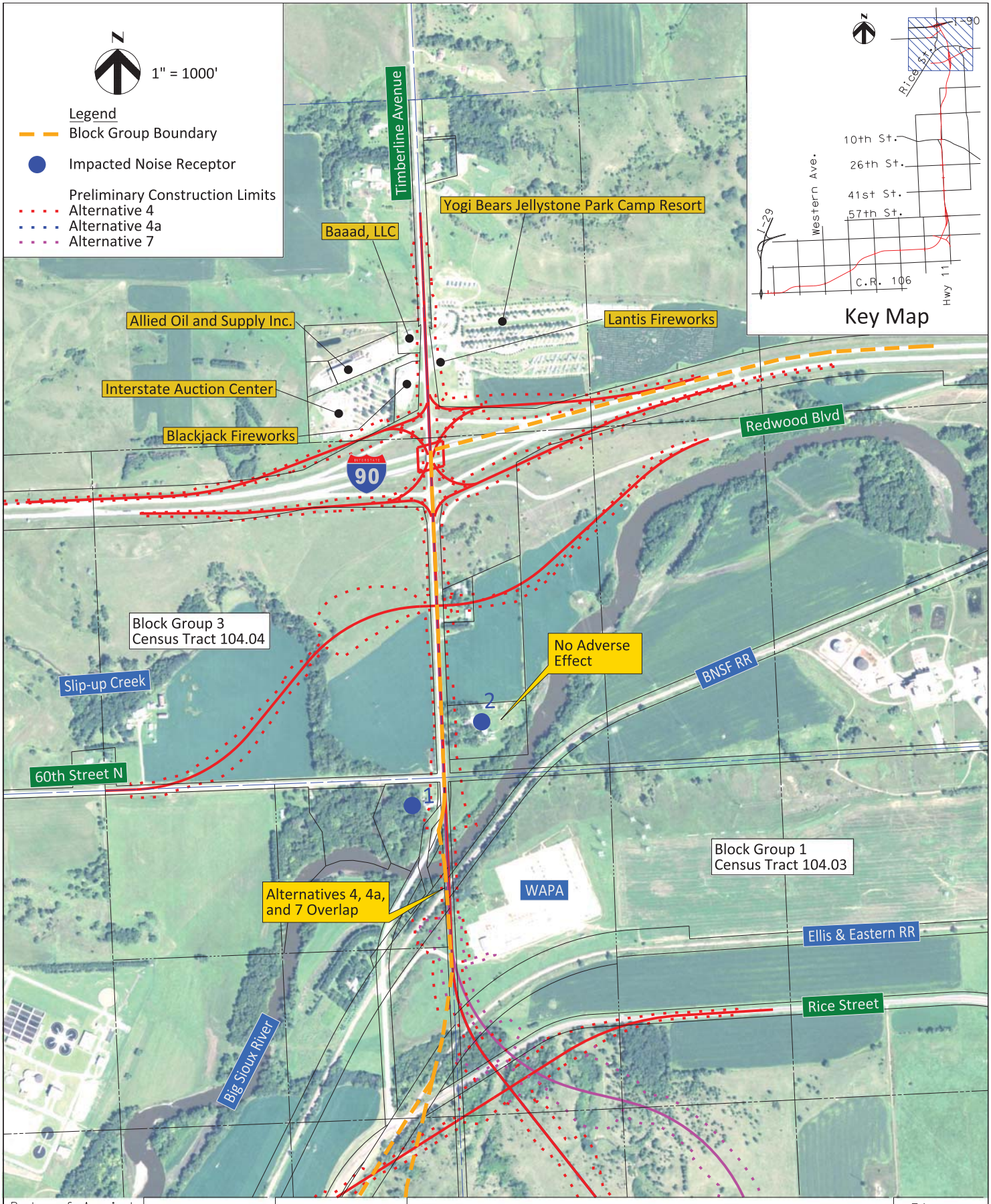

Date of Aerial Photography: 2012

Economic Resource, Environmental Justice and Noise

Northern Segment of SD100

Figure 3-3c

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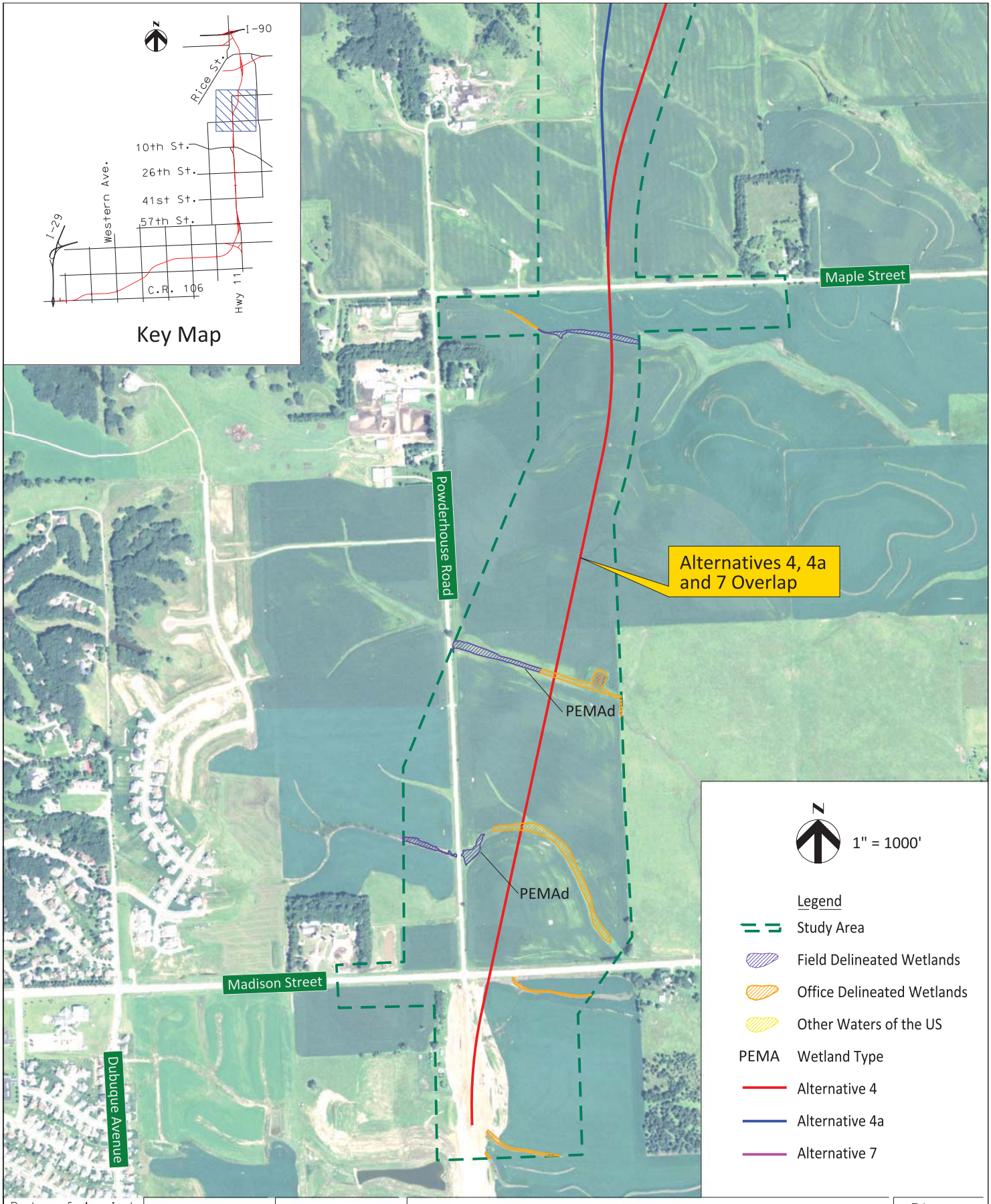

Date of Aerial Photography: 2012

Wetlands and Other Waters of the U.S.

Northern Segment of SD100

Figure 3-4a

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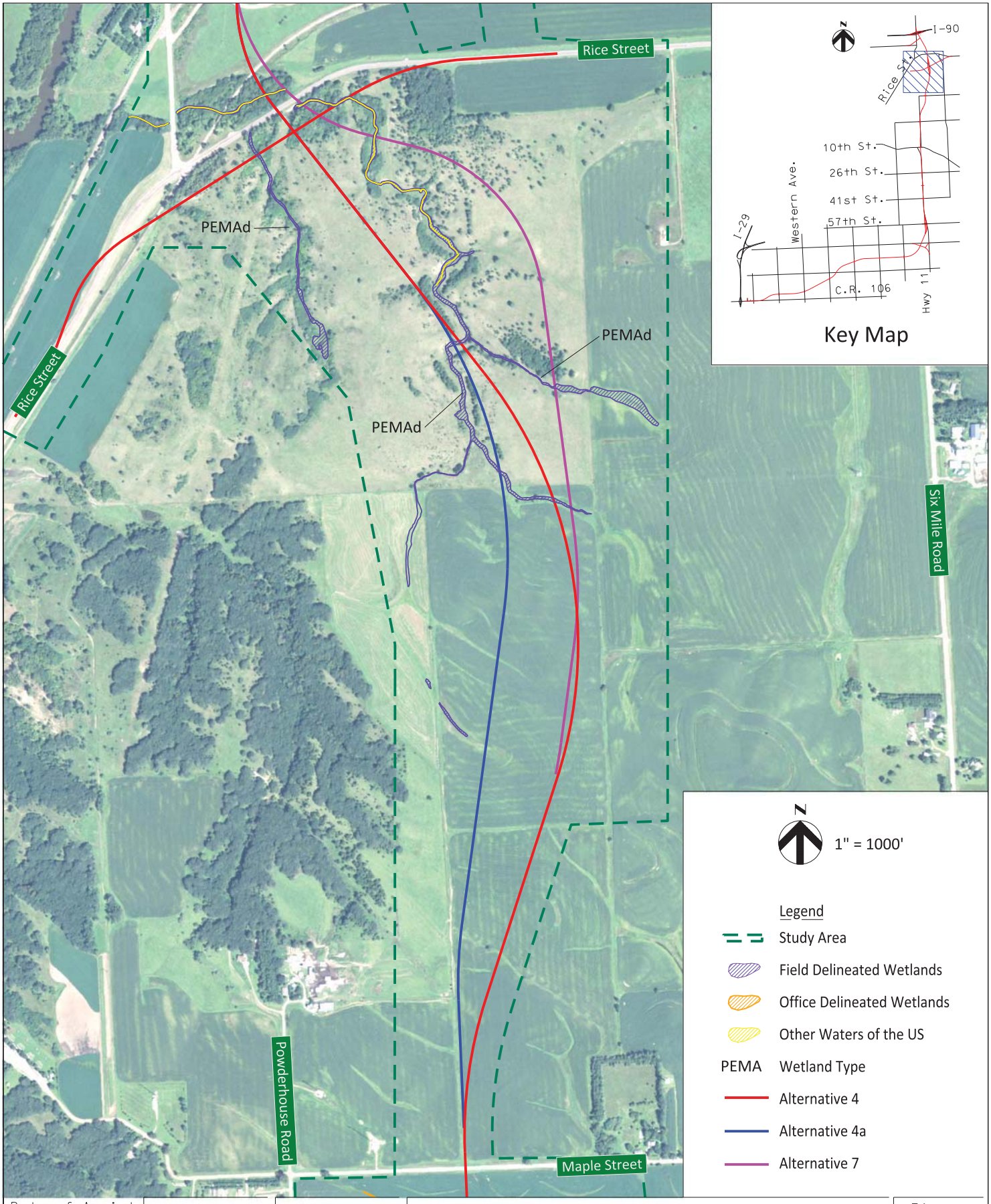

Date of Aerial Photography: 2012

Wetlands and Other Waters of the U.S.

Northern Segment of SD100

Figure 3-4b

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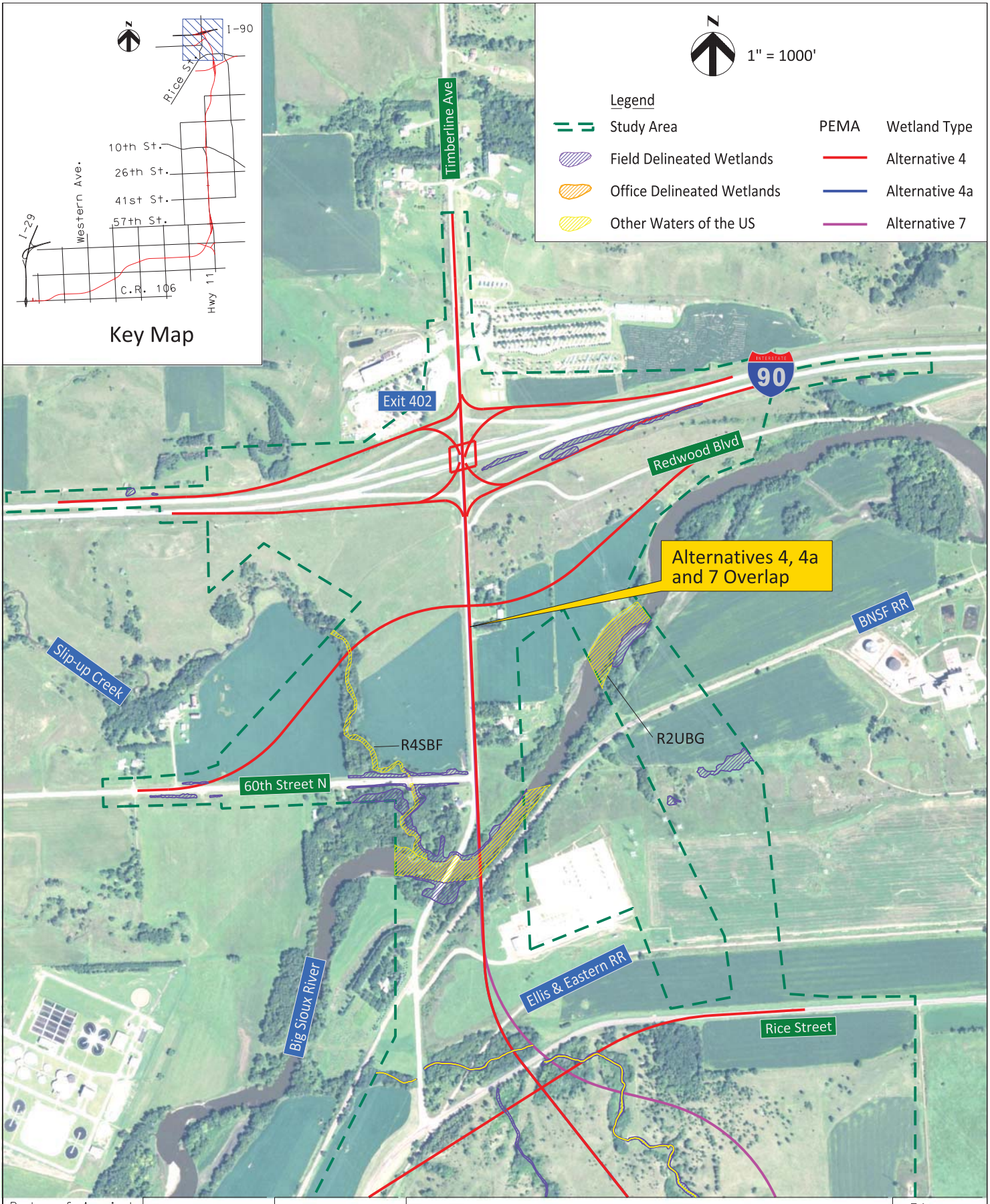

Date of Aerial Photography: 2012

Wetlands and Other Waters of the U.S.

Northern Segment of SD100

Figure 3-4c

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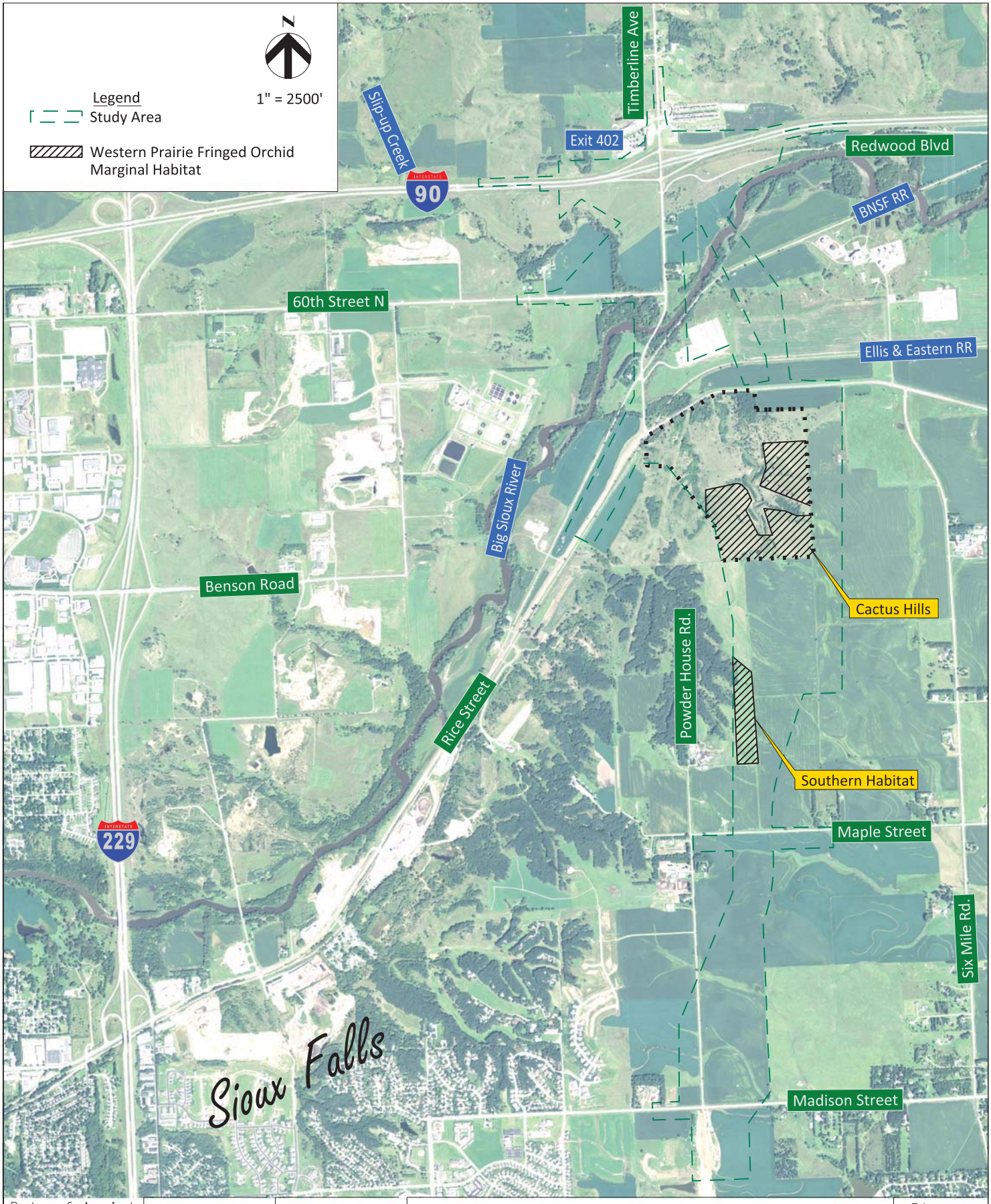

Date of Aerial Photography: 2012

Potential Western Prairie Fringed Orchid Habitat
Northern Segment of SD100

Figure 3-5

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CHAPTER 4
PREFERRED ALTERNATIVE

4.1 SUMMARY OF IMPACTS

Table 4-1 summarizes the affected environment and environmental impacts associated with the build alternatives.

Impacts associated with the build alternatives were calculated utilizing construction limits based on preliminary design. Chapter 3, Affected Environment and Environmental Impacts, contains a summary of potential impacts to environmental resources for the build alternatives, in comparison to the No-Build Alternative.

Table 4-1
Summary of the Build Alternatives

	Alternative 4	Alternative 4a	Alternative 7
Resource	**Summary**		
Energy and Green House Gases	No Effect		
Climate Change	No Effect		
Vibration	No Effect		
Wild and Scenic Rivers	No Effect		
Coastal Barriers and Zones	No Effect		
Air Quality	No Effect		
Land Use	Consistent with Land Use Plans		
Utilities	Requires coordination and relocation of utilities. However, avoids impacts to major transmission lines and towers.		
Social Environment	No Effect		
Public Facilities	No Effect		
Railroads	No effect due to two grade separated crossings and one existing at-grade crossing relocation		
Pedestrians and Bicycles	Improved access with construction of 10-foot wide path along eastern side		
Visual Impacts and Aesthetics	Alter the landscape from a rural, agricultural setting to an urban limited access roadway		
Archeological and Historic Resources	No Adverse Effect		
Economic Resources	Minor ROW acquisition of 6 businesses and ROW of land owned by Xcel Energy. All businesses north of I-90/N. Timberline Avenue Interchange and WAPA would be temporarily impacted during construction, due to modifications to their existing access and potential impacts to their existing landscaping.		
Environmental Justice	Environmental justice populations would not be adversely or disproportionately affected.		
Noise	Two impacted residences		
Relocations	Two residences would be acquired. Minor ROW acquisition from 6 businesses.		

	Alternative 4	Alternative 4a	Alternative 7
Resource	**Summary**		
	ROW acquisition from Xcel Energy.		
Farmland	Farmland Conversion Impact Ratings indicate the proposed ~115 acres of conversion will not adversely affect important farmlands.		
Wetlands and Other Waters of the US	4.86 acres of wetland impact; 725 linear feet of Other Water of the U.S. Crossing, 145 linear feet of Other Water of the U.S. Bridge Crossing, 375 linear feet of Other Water of the U.S. Realignment, Crosses Big Sioux River, Slip Up Creek and intermittent streams	5.03 acres of wetland impact; 725 linear feet of Other Water of the U.S. Crossing, 145 linear feet of Other Water of the U.S. Bridge Crossing, 375 linear feet of Other Water of the U.S. Realignment, Crosses Big Sioux River, Slip Up Creek and intermittent streams	4.33 acres of wetland impact; 560 linear feet of Other Water of the U.S. Crossing, 145 linear feet of Other Water of the U.S. Bridge Crossing, 1,150 linear feet of Other Water of the U.S. Realignment, Crosses Big Sioux River, Slip Up Creek and intermittent streams
Water Quality	It is anticipated that the build alternatives would not impact the water resources in the area due to the incorporation of BMPs into final design and construction.		
Floodplain	The preliminary analysis for this Project and coordination with the local floodplain administrator demonstrates that the build alternatives would have minimal rise and would not have a cumulative effect on the water elevations in the area. A floodplain development permit or CLOMR would be the required before construction.		
Vegetation, Fish and Wildlife	Minor loss of habitat, moderate in Cactus Hills; Surveys required for the bald eagle and migratory birds in suitable habitat before construction		
Federal Threatened and Endangered Species	Topeka Shiner-*May affect, likely to adversely affect;* Western prairie fringed orchid- *May affect, not likely to adversely affect*		
Section 4(f) and 6(f) Resources	*De minimis* impact on the following cultural sites: Site 39MH2000, Site 39MH2003, Site MH03000001-MH030000010, and Site 39MH231.		
Regulated Materials	The Project would not affect, nor be affected by regulated materials		

4.2 SELECTION OF THE PREFERRED ALTERNATIVE

Based on an evaluation of the potential impacts, this section discusses the recommendation of a preferred alternative.

During further analysis of Alternative 7, this build alternative was found to create high and unavoidable impacts to Other Waters of the U.S. and would require realignment of a significant amount of the intermittent stream located in Cactus Hills area. This would result in a large amount of mitigation, adding to the Project costs and timeline. Therefore, Alternative 7 is not considered to be the preferred alternative.

With Alternative 4 and Alternative 4a remaining, it is found that these build alternatives are extremely similar with respect to impacts to the affected environment. There is a slight change in wetland impacts with Alternative 4 having 0.17 fewer acres than Alternative 4a. As both build alternatives provide similar environmental impacts, geometric analysis was performed (see Table 4-2) and issues associated with non-environmental features were reviewed to identify a preferred alternative.

Table 4-2
Geometric and Utility Comparisons – Alternatives 4 and 4a

Geometric Factors	Alternative 4	Alternative 4a
Horizontal Alignment	-	+[a]
Vertical Alignment	-[b]	-[b]
Utility Impacts	-	+[c]

[a] A horizontal curve begins very close to the Madison Street intersection requiring the SD100 roadway section to be adjusted through the intersection. Although the curve meets the design speed requirements, adjusting the roadway section through the intersection is considered less than ideal.

[b] Either alternative are similar with regards to the vertical alignment.

[c] Xcel Energy owns and operates a high pressure gas main along the eastern edge of Cactus Hills and due to concerns associated with this gas main, a roadway alignment that travels over the line would require a relocation of the gas main. Based on correspondence with Xcel Energy, the relocation would be very costly and would impact the electrical generating capabilities of the Angus Anson Power Generating Station. Alternative 4 would impact the gas main and Alternative 4a avoids the gas main.

Based on the impact analysis and the geometric comparison, the preferred alternative for the Northern Segment of SD100 is Alternative 4a.

Under EO 11990, the wetland impacts were considered for the preferred alternative. The preferred alternative will impact a total of approximately 5.03 acres of wetland, cross 735 linear feet of other waters of the U.S. with the use of culverts, cross 145 feet of the Big Sioux River with the use of a bridge, and require the realignment of 375 linear feet of other waters of the U.S. due to roadway embankment. The SDDOT proposes to mitigate these losses with on-site mitigation or off-site mitigation. This Project was coordinated with USACE to discuss the preliminary LEDPA evaluation.

Section 4(f) properties regulated under 23 CFR Part 774 requires protection of public parks, recreational areas, wildlife and waterfowl refuges and historic sites. Alternative 4a would have a *de minimis* impact on the following eligible cultural sites, Sites 39MH2000, 39MH2003, MH03000001-MH030000010, and Site 39MH231. A *de minimis* impact was determined since the Project would not adversely affect the historic characteristics of the sites, therefore SHPO concurred with a finding of No Adverse Effect.

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CHAPTER 5
ENVIRONMENTAL COMMITMENTS

5.1 SUMMARY OF ENVIRONMENTAL COMMITMENTS

Mitigation and future actions were addressed by specific resource sections, but are summarized in this chapter in order to provide a consolidated discussion to ensure the incorporation of these items in the final design and construction. If a specific SDDOT standard environmental commitment is required then the specific reference is included.

- **Utilities**- Coordination with the utility companies would be required during final design of the preferred alternative.
- **Railroads**- Coordination with BNSF and E&E would be required during final design of the preferred alternative.
- **Archeological and Historic Resources**- Although the entire area proposed for disturbance for this Project has been surveyed, in the event that additional land is needed based on final design, the area would be surveyed prior to construction and additional documentation and coordination with FHWA and SHPO would be required.

  For the residence at 5100 North Timberline Avenue, the SDDOT will make sure of the following:

  - No building or structure will be demolished, relocated, or modified due to this Project.
  - This residence will continue to have access to North Timberline Avenue.
  - SDDOT will work with the property owner to plant trees and/or other landscaping to provide a buffer of the house to the road.

  For Site 39MH231, the effect determination is based on the following stipulation:

  - Work associated with the Project would not extend beyond the existing road ROW in the vicinity of Site 39MH231. If work associated with the Project must extend beyond the ROW in the vicinity of Site 39MH231, archaeological monitoring during construction is recommended. For any features identified during monitoring, data recovery would also be recommended. If Site 39MH231 can be avoided, no further cultural work is recommended and cultural resource clearance for the proposed project is recommended.

  In addition, SDDOT will incorporate an environmental commitment referred to as Commitment P into the final design plans, which states:

  - Coordination with State Archeological Research Center will also be incorporated into the Project. Prior to construction, the Contractor shall contact Jim Donohue, State Archaeological Research Center (SARC) at 605-394-1936 to coordinate the installation of orange plastic safety fence at the existing road ROW within the vicinity of Site 39MH231. Work within the vicinity of Site 39MH231 shall not begin until the safety fence is installed. Work, equipment, or material storage will not be allowed beyond the ROW in the vicinity of the site which will be marked by safety fence.

If evidence of cultural resources are uncovered during project construction activities, then such activities shall cease and the Project Engineer will be immediately notified. The Project Engineer will contact the SDDOT Environmental Engineer in order to determine an appropriate course of action. [SDDOT Commitment I, Historical Preservation Office Clearances, will be included the final plan sheets.]

- **Economic Resources and Relocations-** 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.
- **Wetlands and Other Waters of the US**- During final design, impacts to wetlands and other waters of the U.S. would be avoided if feasible, and then minimized to the extent possible. For wetlands and Other Waters of the U.S. that cannot be avoided, a USACE Section 404 permit, with Section 401 Water Quality Certification from SDDENR, would be required for any fill activities in jurisdictional wetlands or other waters of the U.S. A permit application would be submitted to USACE prior to commencement of construction activities for the Project.

  If required by USACE, mitigation measures would be undertaken. A wetland finding was prepared to determine the impacts and begin to address mitigation (see Appendix E). A mitigation plan 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 would occur through the on-site, off site mitigation, or a mitigation bank. [SDDOT Commitment A: Wetlands, and Commitment N: Section 404 Permit, will be included in the final plan sheets for the preferred alternative.]

- **Water Quality-** BMPs would be implemented through the NPDES General Permit for Storm Water Discharges Associated with Construction Activities to minimize impacts to the Slip-Up Creek, Big Sioux River (warmwater semi permanent fishery), and the unnamed intermittent stream (SDDENR, 2012a).

  In addition, BMPs would ensure the water source protections areas are accounted for during the Project. Any groundwater wells would be confirmed during physical survey, and if impacted, would be properly capped and sealed. Any impacted wells and connections would be replaced for properties that were not fully acquired. It is anticipated that the build alternatives would not impact the water resources in the area due to the incorporation of BMPs into final design and construction. [SDDOT Commitment D1: Surface Water Quality, Commitment D2: Surface Water Discharge, Commitment C: Water Source, and Commitment E: Storm Water will be included in the final plan sheets for the preferred alternative.]

- **Floodplain**- Coordination would occur with the Minnehaha County Floodplain Administrator before the construction of the preferred alternative to complete a floodplain development permit or CLOMR. Timberline Bridge over the Big Sioux River would also be removed as part of this Project.
- **Vegetation, Fish & Wildlife**- Further coordination occurred with the USFWS, which indicated that no migratory bird surveys are necessary in non-suitable habitat (USFWS, 2011b). If construction is planned within the nesting season, surveys for migratory birds would occur in suitable areas that have not been mowed or cleared prior to mid-April to determine if there are current nests. If found, construction would need to cease until birds hatch and fledge. Surveys would be conducted within the same year, but prior to

construction start in order to capture the current conditions. Surveys would be completed in areas containing suitable habitat where the vegetation has not been cleared prior to migratory bird nesting season. If trees or brush would be impacted by the Project, a ratio of at least 2:1 acres planted versus acres impacted would be incorporated into mitigation plans.

Pre-construction surveys are recommended prior to construction to determine if any active bald eagle nests are located in the Study Area. SDDOT will notify the USFWS if a bald eagle nest is located within 1-mile of the project at time of construction.

For the culvert crossings, a regional condition under the USACE Nationwide Permit would require, when applicable based on culvert type and drainage area, culvert countersink depths to allow for aquatic organism passage. This condition would be incorporated into final design during the 404 application process. [SDDOT Commitment S: Migratory Birds Work Restriction and Commitment B4: Bald Eagle, will be included in the final plan sheets for the preferred alternative.]

- **Threatened and Endangered Species**- The SDDOT would conduct surveys for the western prairie fringed orchid in areas that were noted as marginal habitat prior to construction (HDR, September 2013b). Coordination would take place with USFWS prior to the survey and results of the survey would be forwarded to USFWS and FHWA.

  For the Topeka shiner, SDDOT Commitment B1: Construction Practices for Streams inhabited by the Topeka shiner, will be included in the final plan sheets for the preferred alternative.

  In regards to the lined snake, the following commitments will be included for the preferred alternative:

  Survey- A survey would be conducted during final design to determine if the lined snake is present or if suitable habitat for the lined snake is present. This survey would be conducted during the spring when the species are known to begin their emergence from their winter hibernation areas, increasing the likelihood of observing the species during migration. The specific survey protocol would be provided to the SDGFP for approval prior to conducting surveys.

  - If the lined snake is not observed during the surveys and no suitable habitat is present within the area, no further action is necessary by the SDDOT.
  - If the lined snake or suitable habitat is observed during the surveys, mitigation measures would be implemented in design of the roadway through Cactus Hills. Mitigation for the lined snake would include two means of mitigation: prevention of an incidental take and habitat protection. The mitigation measures would be incorporated during the final design of the preferred alternative.
    - *Mitigation Measure- Prevention of Incidental Take*: For the prevention of incidental take, the design would include:
      1. Approved culvert crossings, such as an arch pipe or RCP, to allow for the lined snake passage across the roadway, and
      2. An approved exclusion barrier would be incorporated into the design of the roadway. An exclusion barrier is defined as a continuous obstruction alongside the roadway within habitat to prevent the snake from crossing or to direct them to a specific crossing point. The exclusion barrier would be included within the ROW to prevent the lined snake from crossing the roadway and lead the lined snake to the dry culvert crossings.

3. During final design, details of these mitigation measures will be evaluated and approved by a qualified herpetologist and approved by the SDGFP.

- *Mitigation Measure- Habitat Conservation*: For habitat conservation, the City would initiate the process to develop and implement a conservation easement or a similar agreement that protects habitat at a 1:1 ratio of habitat removed for the SD100 ROW. If establishing an easement within Cactus Hills is not feasible, the City would pursue protecting lined snake habitat within Minnehaha County for conservation. If locating and conserving habitat for the lined snake is not possible or becomes cost prohibitive, the City would work with the SDGFP to determine another appropriate mitigation strategy, such as providing funding for SDGFP lined snake habitat preservation, research for the species, or habitat enhancements. The City would request guidance, participation and consultation from the SDGFP and other resource agencies to assist with the negotiations, design, and implementation of these measures.

For the northern long-eared bat, clearing and grubbing activities would occur outside of migratory bird nesting season, which coincides with bat roosting time frames. Clearing of trees may occur after October and before April. Therefore, potential bat roosting habitat would be removed prior to their use of the area.

Follow up consultation would be performed to address any USFWS Section 7 updates (new T&E species, changes to law, etc.) with each portion of the Project being designed.

- **Regulated Materials**- To avoid and/or minimize impacts to RECs in the Study Area, a construction BMP would 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.
- **Construction**- For additional BMPs or mitigation required during construction, see Section 3.19, Construction.

CHAPTER 6
COMMENTS AND COORDINATION

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

6.1 AGENCY COORDINATION

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

For the Northern Segment of SD100, coordination with the resource agencies has continued as the Project has developed.

Federal and State agencies that were consulted regarding the build alternatives 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 Preservation Office

Table 6-1 summarizes the agency responses received that are relevant to the Northern Segment of SD100.

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
U.S. Fish and Wildlife Service	January 3, 2002	Numerous wetlands exist within the proposed corridor and impacts should be avoided, if possible, then minimized and then replaced. It is recommended to utilize existing roadways and if a crossing of the Big Sioux River is necessary, a bridge is recommended rather than a culvert.	Wetland areas have been avoided or minimized to the extent possible and any remaining impacts would be mitigated. The Big Sioux River crossing for Alternatives 4, 4a, and 7 will be a bridge. *See Section 3.12 Wetlands and Other Waters of the U.S. for additional information.*
		In-stream work should not take place during fish spawning periods. Stream bottoms and wetlands impacted by construction should be restored to pre-project elevations. Removal of vegetation and soil should be accomplished in a manner to reduce soil erosion and to disturb as little vegetation as possible. Grading operations and reseeding of native species should begin immediately following construction. If trees or brush will be impacted by the project, a ratio of at least 2:1 acres planted versus acres impacted should be incorporated into mitigation plans for the project.	BMPs would be implemented through a NPDES General Permit to minimize impacts to the Slip-Up Creek, Big Sioux River, and the unnamed intermittent stream. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. *See Section 3.13 Water Quality and Chapter 5 for additional information.*
		The bald eagle, western prairie fringed orchid, and Topeka shiner may occur in the project area. No construction should occur within on-quarter mile of any known active bald eagle nests. This species' nesting season is January to August. Any nests should be reported to the office.	Surveys for bald eagles, western prairie fringed orchid, and lined snakes would be completed before construction. SDDOT would notify USFWS if a bald eagle nest is located within 1-mile of the project at time of construction. *See Section 3.15 Vegetation, Fish, & Wildlife and Chapter 5 for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
U.S. Fish and Wildlife Service	January 3, 2002 (continued)	Topeka shiners are known to occupy the Big Sioux. We recommend BMPs be utilized when crossing the Big Sioux to minimize potential impacts to Topeka shiners.	This Project meets criteria for inclusion under the 2008 Programmatic Biological Opinion. The Special Provisions for Construction Practices in Streams Inhabited by the Topeka Shiner would be implemented along with other BO requirements. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
	May 20, 2002	The USFWS suggests further collaboration with the resource agencies throughout the project. Impacts to Cactus Hills and adjacent habitats should be avoided to preclude negative effects to resident and migratory wildlife. Wetland impacts should be avoided to the maximum extent possible. Impacts to wetlands should be avoided, minimized, and mitigated, in that order.	An additional habitat evaluation was performed in September 2013. Surveys for bald eagles, western prairie fringed orchid, and lined snakes would be completed before construction. Wetland areas have been avoided or minimized to the extent possible and any remaining impacts would be mitigated. *See Section 3.16 Threatened or Endangered Species for additional information.*
		Fens are irreplaceable and may exist on the site. Additional habitat evaluation should be performed to identify any fens and/or western prairie fringed orchids that may occur in the area.	A wetland delineation was completed for the project and no fens were identified in the Study Area. *See Section 3.12 Wetlands and Other Waters of the U.S. for additional information.*
		An active bald eagle nest has recently been located near Cactus Hills and the area is likely utilized by these birds for hunting.	Bald eagle surveys would be completed prior to construction. SDDOT would notify USFWS if a bald eagle nest is located within 1-mile of the project at time of construction. *See Section 3.15 Vegetation, Fish, & Wildlife and Chapter 5 for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
U.S. Fish and Wildlife Service	December 13, 2002	The USFWS recommends determining the impacted wetland acres. A mitigation plan needs to be created and the USACE recommends that detention ponds not be designed as wetland mitigation.	Mitigation would be on-site, off-site, or mitigation bank. For this EA, a stormwater detention is not proposed for mitigation. *See Section 3.12 Wetlands and Other Waters of the U.S. for additional information.*
		New development may impact bald eagles, aquifers, and groundwater. It was noted that the groundwater input within Topeka shiner streams has been identified as an important habitat component and lowered aquifers may reduce water supplies in known occupied Topeka shiner streams. The lined snake has been given considerable consideration, including passage corridors beneath the road included as efforts to minimize mortality; however protection of the lined snake is questionable.	This Project meets criteria for inclusion under the 2008 Programmatic Biological Opinion. The Special Provisions for Construction Practices in Streams Inhabited by the Topeka Shiner would be implemented along with other BO requirements. For the lined snake, commitments were determined through coordination with the SDGFP and City. The commitments are shown under SDGFP agency comments, April 2014. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
		Formal consultation on effect determinations should be requested on this Project.	For this Project, USFWS concurrence on effect determinations has been received. *See Section 3.16 Threatened or Endangered Species for additional information on the effect determinations for the Project.*
	January 31, 2003	The USFWS concurs with the determinations that the Sioux Falls East Side Corridor project "may affect, but is not likely to adversely affect" the bald eagle, Topeka shiner, and western prairie fringed orchid. In the future, the USFWS requests a	Effect determinations have been coordinated for this EA. Since this coordination letter, the bald eagle has been delisted. Coordination has occurred throughout the project and would continue to occur in the future. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
U.S. Fish and Wildlife Service	January 31, 2003 (continued)	Biological Assessment (BA) to facilitate a timely response. Coordination meetings will be useful throughout construction to exchange information as this project is long-term.	
	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 [referring to the Revised Build Alternative]. 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.	Previous correspondence and recommendations have been considered throughout the Project.
	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*.	No response needed.

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
U.S. Fish and Wildlife Service	July 16, 2010	For the purposes of Endangered Species Act compliance, the project meets criteria for inclusion under the August 11, 2008, programmatic biological opinion *Stream-Crossing Projects Administered/ Funded by South Dakota Department of Transportation and the Federal Highway Administration*.	No response needed.
	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.	An additional habitat evaluation was performed in September 2013. Surveys for western prairie fringed orchid would be completed before construction. *See Section 3.16 Threatened or Endangered Species for additional information.*
	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.	Previous correspondence and recommendations have been considered throughout the Project.
	December 19, 2011	If there are interspersed areas of undisturbed habitats, or areas suitable for migratory bird nesting along the SD100 route, USFWS trust resources may be impacted. The Western Prairie Fringed Orchid Recovery Plan indicates it historically occurred in SD.	Migratory bird surveys would not be conducted in non-suitable habitat. *Section 3.15 Vegetation, fish, and Wildlife and Section 3.16 Threatened or Endangered Species for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
U.S. Fish and Wildlife Service	November 4, 2013	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.* Recommend that project construction activities take place outside of the primary breeding season for most migratory birds (approximately mid-April to mid-July) if possible.	No response needed for Topeka shiner inclusion. Environmental commitments have been included for this Project regarding migratory birds. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
	December 16, 2014	USFWS approval of the Draft EA section concerning the additional species under consideration.	Environmental commitments have been included for the Project. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
	January 13, 2014	At this point the stipulations for the northern long eared bat appear to be appropriate.	Environmental commitments have been included for the Project. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
South Dakota Department of Game, Fish and Parks	May 20, 2002	The easterly alignment shown would have less impact on the Big Sioux River, native prairie habitat, and threatened or endangered species. If the alignment is not moved to the east, surveys for lined snakes and western prairie fringed orchids will need to be conducted. A mitigation plan for the loss of habitat would need to be developed.	An additional habitat evaluation was performed in September 2013. Surveys will be required prior to construction for the lined snake and the western prairie fringed orchid. *See Section 3.16 Threatened or Endangered Species for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota Department of Game, Fish and Parks	December 16, 2002	We believe that stormwater retention facilities should not be allowed to compensate for the loss of a natural wetland.	Wetland and other waters of the US mitigation would be on-site, off-site, or mitigation bank. For this EA, a stormwater detention is not proposed for mitigation.
		A conservation easement should be required for the Cactus Hills area. The construction of underpasses and protective fences to funnel the movements of lined snakes and other small animals is an excellent approach, but is pointless without actual conservation of the prairie habitat. A conservation easement must be in place prior to construction of the highway and associated underpasses and fences.	For the lined snake, commitments were determined through coordination with the SDGFP and City. The commitments are shown under SDGFP agency comments, December 3, 2013. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
	January 29, 2007 January 29, 2007 (continued)	This alignment shift [Revised Build Alternative] 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.	A perpendicular crossing has been included in the preliminary design of Alternatives 4, 4a, and 7. Wetland mitigation would occur for any unavoidable impacts. Mitigation would be either on-site, off site, or mitigation bank. *See Section 3.12 Wetlands and Other Waters of the U.S. for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota Department of Game, Fish and Parks	July 26, 2010	We are recommending that the South Dakota Department of Transportation implement their Best Management Practices for Topeka shiners.	This Project meets criteria for inclusion under the 2008 Programmatic Biological Opinion. The Special Provisions for Construction Practices in Streams Inhabited by the Topeka Shiner would be implemented along with other BO requirements. *See Section 3.16 and Chapter 5 for additional information.*
	September 28, 2010	Upon review of the South Dakota Natural Heritage Database, it appears that this area potentially lies within the known area occupied by the lined snake. The project appears to avoid the better quality habitat and leave a larger piece of habitat intact. We would appreciate receiving reports of any sighting during the project period.	For the lined snake, commitments were determined through coordination with the SDGFP and City. The commitments are shown under SDGFP agency comments, December 3, 2013. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
	May 9, 2011	We are recommending that the South Dakota Department of Transportation implement Best Management Practices for soil, water, and vegetation during construction.	BMPs would be implemented through a NPDES General Permit to minimize impacts to the Slip-Up Creek, Big Sioux River, and the unnamed intermittent stream. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. *See Section 3.13 Water Quality and Chapter 5 for additional information.*
	October 10, 2012	No new, rare, threatened or endangered species are found within the segment area. However, there are active bald eagle nests in the project vicinity (map was attached).	Surveys are recommended prior to construction to determine if any active bald eagle nests are located in the Study Area. SDDOT would notify USFWS if a bald eagle nest is located within 1-mile of the project at time of construction. *See Section 3.15 Vegetation, Fish, & Wildlife and Chapter 5 for additional information.*
	December 3, 2013	Phone conversation with SDGFP concerning the potential mitigation measures for the lined snake.	Coordination with SDGFP identified the following commitments would be made for the Project for the lined snake: *Survey*- A survey would be conducted during final design to determine if the lined snake is present or if suitable habitat for the lined snake is present. This survey would be conducted during the

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota Department of Game, Fish and Parks	December 3, 2013 (continued)		spring when the species are known to begin their emergence from their winter hibernation areas, increasing the likelihood of observing the species during migration. The specific survey protocol would be provided to the SDGFP for approval prior to conducting surveys. o If the lined snake is not observed during the surveys and no suitable habitat is present within the area, no further action is necessary by the SDDOT. o If the lined snake or suitable habitat is observed during the surveys, mitigation measures would be implemented in design of the roadway through Cactus Hills. Mitigation for the lined snake would include two means of mitigation: prevention of an incidental take and habitat protection. The mitigation measures would be incorporated during the final design of the preferred alternative. *Mitigation Measure*- Prevention of Incidental Take: For the prevention of incidental take, the design would include: 1. Approved culvert crossings, such as an arch pipe or Reinforced Concrete Pipe (RCP), to allow for the lined snake passage across the roadway, and 2. An approved exclusion barrier would be incorporated into the design of the roadway. An exclusion barrier is defined as a continuous obstruction alongside the roadway within habitat to prevent the snake from crossing or to direct them to a specific crossing point. The exclusion barrier would be included within the ROW to prevent the lined snake from crossing the roadway and lead the lined snake to the dry culvert crossings. 3. During final design, details of these mitigation measures will be evaluated and approved by a qualified herpetologist and approved by the SDGFP. *Mitigation Measure*- Habitat Conservation: For habitat conservation, the City would initiate the process to develop and implement a

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota Department of Game, Fish and Parks	December 3, 2013 (continued)		conservation easement or a similar agreement that protects habitat at a 1:1 ratio of habitat removed for the SD100 ROW. If establishing an easement within Cactus Hills is not feasible, the City would pursue protecting lined snake habitat within Minnehaha County for conservation. If locating and conserving habitat for the lined snake is not possible or becomes cost prohibitive, the City would work with the SDGFP to determine another appropriate mitigation strategy, such as providing funding for SDGFP lined snake habitat preservation, research for the species, or habitat enhancements. The City would request guidance, participation and consultation from the SDGFP and other resource agencies to assist with the negotiations, design, and implementation of these measures. *See Section 3.16 Threatened or Endangered Species and Chapter 5 for additional information.*
	May 2, 2014	This Department concurs with the proposed survey and mitigation proposals with regards to the lined snake.	No response needed.
Department of Public Safety-Emergency Management	January 3, 2007	FEMA has partnered with the City, Minnehaha County, and Lincoln County to prepare a new Flood Insurance Study. The study has not yet been adopted	Since this comment, the FIS has been incorporated and additional coordination has occurred with the Minnehaha County Floodplain Administrator. *See Section 3.14 Floodplain and Chapter 5 for additional information.*
	February 2, 2012	Most municipalities in the area do participate in the NFIP and will need to ensure that any proposed project impacting the floodplain or floodway would be completed in compliance of the flood damage prevention ordinances and meet the minimum NFIP regulations for floodplain management.	Coordination has occurred with the Minnehaha County Floodplain Administrator to address any floodplain and floodway impacts. *See Section 3.14 Floodplain and Chapter 5 for additional information*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
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.	No response needed.
	October 25, 2013	The proposed activity will have no significant impact on the prime or land of statewide importance in Minnehaha County, and no further alternatives need be considered.	No response needed.
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.	A Section 404 permit and associated 401 Water Quality Certification would be required from USACE and the SDDENR for any impacts on wetlands and other waters of the U.S. During preliminary design of the build alternatives, 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. Coordination has occurred with the USACE to discuss the preliminary Least Environmentally Damaging Practicable Alternative (LEDPA) evaluation. *See Section 3.13 Wetlands and Chapter 5 for additional information.*
	February 18, 2014	Jurisdictional Determination completed for the Project.	No Response Needed.
	March 23, 2014	It appears that the current preferred alternative (4a) would be the LEDPA. USACE anticipates that the mitigation unavoidable impacts to aquatic resources will be difficult due to the unique nature of the resources.	*See Section 3.13 Wetlands and Chapter 5 for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota Department of Environment and Natural Resources	February 9, 2007	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.	BMPs would be implemented through a NPDES General Permit to minimize impacts to the Slip-Up Creek, Big Sioux River, and the unnamed intermittent stream. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. *See Section 3.13 Water Quality and Chapter 5 for additional information.*
	September 17, 2012	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.	BMPs would be implemented through a NPDES General Permit to minimize impacts to the Slip-Up Creek, Big Sioux River, and unnamed intermittent streams. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. *See Chapter 3, 3.13 Water Quality and Chapter 5 for additional information.*
	April 29, 2011	The office has no objections to the project. BMP for surface water quality, hazardous wastes, and air quality should be incorporated into the planning, design, and construction of this project.	BMPs would be implemented through a NPDES General Permit to minimize impacts to the Slip-Up Creek, Big Sioux River, and unnamed intermittent streams. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. To avoid and/or minimize impacts to Recognized Environmental Concerns (RECs) in the Study Area, a construction BMP would be implemented. The contractor would 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. *See Chapter 3, 3.13 Water Quality and 3.18 Regulated Materials, and Chapter 5 for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota Department of Environment and Natural Resources	September 17, 2012	This office has no objections to the project, which should not result in any violations of applicable statues or regulations provided the Department of Transportation and/or its contractor(s) comply with the suggested requirements.	BMPs would be implemented through a NPDES General Permit to minimize impacts to the Slip-Up Creek, Big Sioux River, and unnamed intermittent streams. For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the SWPPP. *See Chapter 3, 3.13 Water Quality and Chapter 5 for additional information.*
South Dakota State Historic Preservation Office	November 6, 2007	The SHPO concurs with your determination of No Adverse Effect for this undertaking.	No response needed.
	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.	No response needed.
	September 8, 2011	The SHPO concurs with the determination that No Historic Properties Affected for this Project.	No response needed.
	November 25, 2013	The SHPO concurs with the determination of No Adverse Effect for this Project.	No response needed.
	March 26, 2014	Based upon the information provided to the SHPO on March 6, 2014, this office concurs with your agency's determination that the structures on North Timberline Avenue should be considered not eligible for the NRHP. Therefore, this project maintains a determination of No Adverse Effect provided the following stipulations: 1) all construction and project activities	Stipulations have been incorporated into the EA. *See Section 3.6 Archeological and Historic Resources and Chapter 5 for additional information.*

Table 6-1
Agency Comments and Responses

Agency	Date	Agency Comment	Response
South Dakota State Historic Preservation Office		avoid eligible structures MH3000001-10. This includes avoidance by all staging and borrow areas. 2) activities occurring in areas not identified in the original request, including all staging and borrow areas, will require the submission of additional documentation pursuant to 36 CFR part 800.4 this undertaking.	
	April 17, 2014	Based on the information provided, SHPO concurs with your determination of "No Adverse Effect" provided the following stipulations: 1) all construction and project activities avoid eligible structures MH03000001-10 and eligible property 39MH231. This includes avoidance by all staging and borrow areas. 2) activities occurring in areas not identified in the original request, including all staging and borrow areas, will require the submission of additional documents.	Stipulations have been incorporated into the EA. *See Section 3.6 Archeological and Historic Resources and Chapter 5 for additional information.*
Minnehaha County Floodplain Administrator	October 25, 2013	Minnehaha County Floodplain Administrator concurs that the Revised Build Alternative or Alternatives 4, 4a, and 7 would have a minimal rise and would not have a cumulative effect to the water elevations in this area. A floodplain development permit or CLOMR would be required before construction.	A floodplain development permit or CLOMR would be prepared and submitted prior to construction. *See Section 3.14 Floodplain and Chapter 5 for additional information.*
City of Sioux Falls	April 24, 2014	Meeting to discuss lined snake commitments with City of Sioux Falls Directors.	No response needed.

6.2 TRIBAL CONSULTATION

The City prepared and sent a memorandum to nine American Indian Sioux Tribes to initiate the East Side Corridor Project, currently known as 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 this EA. In 2013, the SDDOT also sent a coordination email out regarding the Northern Segment. The tribal parties that were consulted regarding the Project are:

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

One letter was received from Flandreau-Santee Sioux Tribe with no objections to the Project.

6.3 PUBLIC INVOLVEMENT

6.3.1 Public Open House

A public open house was held on February 7, 2006 to initiate the ROW phase for the 2003 EA Preferred Alternative. Invitations to the public open house were sent to all landowners within the Study Area. 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 2003 EA Preferred 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 expressed concern for access to the East Side Corridor from their properties.
- Two letters expressed concern for 45 mph assigned speed limit for the 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 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 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 2003 EA Preferred Alternative is the Revised Build Alternative.

6.3.2 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. The purpose of the public hearing was to discuss the SD100 Project and also the Downtown Sioux Falls Rail Yard Redevelopment Project. A total of 192 people attended the public hearing.

The goals of discussing the SD100 Project at the public hearing were to present the Northern and Southern Segments of the 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 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 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 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 several farmers expressed concern for access to SD100 from their properties.
- Several questions regarding the construction schedule were discussed.
- 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.
- Five letters regarding access to SD100.
- Three letters regarding development property affected by the 57th Street and SD100 interchange.

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

- 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, informed decisions and positive community support are being achieved for this Project.

6.4 FUTURE PUBLIC INVOLVEMENT

A Public Information Meeting would be held following the release of this EA and Section 4(f) evaluation for public comment. Following the 30 day comment period, SDDOT and the FHWA would 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.

If the environmental review process finds the project would not result in significant environmental impacts, SDDOT would prepare a FONSI that would be submitted to the FHWA. If the FHWA agrees that the FONSI is appropriate, a FONSI would be issued.

CHAPTER 7
REFERENCES

All references are available upon request.

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