

**DRAFT ENVIRONMENTAL ASSESSMENT AND PROPOSED SECTION 4(f) DE
MINIMIS IMPACT FINDING**

PROJECT

Watertown South Connector Route- SD 20 to US 81

From US 212/SD 20 Intersection to
US 81 (5th Avenue SE)

SDDOT Project No. EM 4020(01) PCN 00RW

Codington County
South Dakota

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By the
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and
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ACRONYMS, ABBREVIATIONS, AND SHORT FORMS

AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Places
AIRS	Facilities with Air Emissions
ARSD	Administrative Rules of South Dakota
AST	above ground storage tank
Ave	Avenue
BA	Programmatic Biological Assessment
BMPs	Best Management Practices
BNSF	Burlington Northern Sante Fe
BO	Biological Opinion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	decibel
dBA	A-weighted decibel(s)
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EDWDD	East Dakota Water Development District
ESA	Endangered Species Act
et seq.	<i>et sequentia</i> (and the following)
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FINDS	Facility Index System
FIS	Federal Insurance Study
FR	Federal Register
FSA	Food Security Act of 1985
FY	Fiscal Year
GPA	Game Production Area
HDR	HDR Engineering, Inc.
I-29	Interstate 29
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change

LOMR	Letter of Map Revision
LOS	level of service
LQG	Large Quantity Generator
LUST	Leaking underground storage tank
LWCF	Land and Water Conservation Fund
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NE	Northeast
NEPA	National Environmental Policy Act of 1969
NFAR	No Further Action Required
NHPA	National Historic Preservation Act of 1966
NOI	Notice of Intent
NPS	National Parks Service
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
the Project	Watertown South Connector- SD 20 to US 81
PCS	Permit Compliance System
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental conditions
ROW	right-of-way
RPM	Reasonable and prudent measures
S	south
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SD 20	South Dakota Highway 20
SDDENR	South Dakota Department of Environment and Natural Resources
SDDGFP	South Dakota Department of Game, Fish, and Parks
SDDOT	South Dakota Department of Transportation
SE	southeast
SHPO	State Historic Preservation Officer
SPILLS	South Dakota spills database
SQG	Small quantity generator

SSTS	Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act
the State	the State of South Dakota
STIP	State Transportation Improvement Plan
the Study Area	A 300-foot wide corridor along 20 th Street South from 5 th Street Southeast (US 81) to just east of Broadway Street South and 0.5 mile-wide corridor which is located primarily to the west of Broadway Street and extends to about 750 feet south of US 212 and then narrows to about 400 feet wide ending at the intersection of US 212 and SD 20
SWPPP	Stormwater Pollution Prevention Plan
SWRCY	Businesses that accept recyclables
T&E	threatened or endangered
TMDL	Total Maximum Daily Load
TNM	Traffic Noise Model
TRIS	Toxic Chemical Release Inventory System
UBC	United Building Center
US 81	US Highway 81
US 212	US Highway 212
USACE	U.S. Army Corps of Engineers
USC	United States Code
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish & Wildlife Service
UST	underground storage tank
vpd	vehicles per day
Watertown	City of Watertown
WCRRRA	Watertown/Codington Regional Rail Authority

CHAPTER 1 PURPOSE OF AND NEED FOR PROPOSED ACTION

1.1 INTRODUCTION

In October 2005, the City of Watertown (Watertown), the South Dakota Department of Transportation (SDDOT), and a local Steering Committee published the Watertown Area Transportation Plan (URS, 2005) that provides the underlying structure for the area's transportation planning process for the next 25 years. This plan includes several proposed road improvement projects, including a South Connector Route, from South Dakota Highway 20 (SD 20) to Interstate 29 (I-29). The South Connector Route would be constructed in phases, designated as Segment 1 (US 81 to 29th Street SE), Segment 2A (SD 20 to US 81), and Segment 2B (29th Street SE to I-29). SDDOT has programmed construction of the South Connector Route as follows: US 81 to 29th Street SE in fiscal year (FY) 2008; SD 20 to US 81 in FY 2009 (SDDOT, 2006). The last portion of the South Connector Route to be constructed would be 29th Street SE to I-29; it has not yet been programmed, but is currently planned for the long-range period of the transportation plan (between 2021 and 2030) (URS, 2005). The location of the South Connector Route is described below in Section 1.2, Study Area.

The South Connector Route- SD 20 to US 81 would provide an alternate route for traffic to and from the industrial and commercial areas south of US 212, and relieve traffic congestion on US 212 between SD 20 and US81. The South Connector Route phases of US 81 to 29th Street SE and 29th Street SE to I-29 would enhance the utility of SD 20 to US 81, but these projects are not essential to the functioning of the South Connector Route- SD 20 to US 81 and are being evaluated independently. This Environmental Assessment (EA) evaluates the South Connector Route- SD 20 to US 81 (the Project).

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

This chapter describes the Project area addressed in this EA and explains the Project purpose and need.

1.2 STUDY AREA

The Project is located in southeastern Codington County, South Dakota, near the southern edge of Watertown (See Figure 1-1, Project Location Map). The figure shows the area of study from SD 20 to I-29 of the South Connector Route.

The area of study for the South Connector- SD 20 to US 81 is a 300-foot-wide corridor along 20th Avenue South from 5th Street Southeast (US 81) to just east of Broadway Street South. From there, the area of study becomes a 0.5-mile-wide corridor which is located primarily to the west of Broadway Street South and extends to about 750 feet south of US 212. The corridor then narrows to about 400 feet wide and ends at the intersection of US 212 and SD 20 (the Study Area) (See Figure 1-2, Study Area) The Study Area also includes the US 212/SD 20 intersection.

The Study Area is relatively flat, and the land adjacent to the existing right-of-way (ROW) is predominately agricultural (row crops and pasture) on the south side of 20th Avenue South. The Study Area north of 20th Avenue South is primarily industrial between US 81 and Broadway Street South. A small residential area is included in the southern portion of the Study Area west of Broadway Street South. Undeveloped lowlands of the Big Sioux River dominate the remainder of the Study Area. The land near the northern end of the Study Area south of US 212 is comprised of commercial and light industrial uses. The industrial areas at the south end of the Study Area have the potential to generate large amounts of truck and light vehicle traffic from current and future development (First District, 2004; URS, 2005).

1.3 PROJECT DESCRIPTION

The Project would consist of providing a paved arterial route from SD 20 to, and including the intersection of US 81 and 20th Avenue South. The Project would serve as an alternate route for US 212 traffic, especially trucks, from SD 20 to US 81. Currently, 20th Avenue South is a two-lane collector road from US 81 to Broadway Street South, and a two-lane rural local road west of this point. Broadway Street South is a two-lane collector road from 20th Avenue South to US 212. South Connector Route- SD 20 to US 81 would initially be constructed with two traffic lanes, one in each direction of traffic. Turning and merge lanes would be provided at the US 212/SD 20 intersection. A center turn lane would be provided from US 81 to 2,000 feet north of 20th Avenue South. Right and left turn lanes would also be provided at the connection with existing Broadway Street South. A continuous westbound right turn lane would be provided from US 81 to 1,700 feet west of US 81; this lane could become a through lane in the future with the lane being extended to 2,000 feet north of 20th Avenue South. Ultimately, an additional lane could be added to the eastbound side of this segment from US 81 to 2,000 feet north of 20th Avenue South (see Chapter 2 for further discussion). Minimal pedestrian traffic is anticipated within the proposed roadway corridor, therefore sidewalks are not proposed (see section 3.5 for further discussion). The Project would include constructing two bridges: one over the Pelican Lake Cutoff Channel and another over the Pelican Lake Diversion Channel.

Existing Broadway Street from US 212 to the South Connector will remain in-place as a local road and will continue to be designated as Broadway Street. The official name of the South Connector roadway has not yet been determined.

1.4 PURPOSE OF THE PROJECT

The purpose of the Project is to relieve overcapacity and unsafe conditions on US 212 by constructing an alternate route for traffic to and from industrial and commercial areas south of US 212. Specifically, drivers traveling on southbound SD 20 or eastbound US 212 would choose to drive on the South Connector route and thereby bypass the traffic congestion on US 212.

1.5 NEED FOR THE PROJECT

The purpose of the Project is driven by the corresponding underlying needs for the Project:

- Need for relief of traffic congestion on US 212.
- Need for an alternate route for heavy truck traffic between US 81 and SD 20.
- Need to improve safety on US 212.

1.5.1 Need for Reducing Traffic Congestion

In 2004, the Watertown Comprehensive Land Use Plan identified the need to expand the capacity of roads to relieve congestion on US 212, which is currently the only major east-west arterial

through Watertown (First District, 2004). Segment 2A of the South Connector Route was identified in the *Watertown Area Transportation Plan*¹ as one option that could relieve US 212 congestion (URS, 2005). The south side of Watertown is a rapidly developing industrial area with a growing amount of truck traffic. The Study Area includes industrial development north of 20th Avenue South and commercial and industrial development at the intersection of SD 20 and US 212. Glacial Lakes Energy ethanol plant is located northwest of the US 81 and 20th Avenue South intersection, at the east end of the Study Area. Approximately 180 trucks per day are traveling in and out of the Glacial Lakes Energy ethanol plant (URS, 2005); this traffic is anticipated to double in the near future (HDR, 2006a).

The future land use plan outlines areas where future growth is anticipated and identifies areas in the eastern, northern, and western sections of Watertown to develop into single family and rural density residential developments over the next 25 years (First District, 2004). Industrial and commercial development is anticipated near the US 212 and I-29 interchange, and in northern, southern, and western areas of Watertown. Industrial development generating about 580 jobs is anticipated near the east end of the Study Area. Most of the anticipated areas of development are currently agricultural land generating only minor volumes of traffic.

Traffic volumes on US 212 are projected to substantially increase from existing levels because of the aforementioned future development. Consequently, the traffic operations of US 212 would degrade unless action was taken either to expand the capacity of US 212 or to provide other suitable, alternate routes.

Traffic operations are measured by the level of service (LOS) that a roadway segment or interchange provides. LOS is the relative quality of operations of a roadway segment or interchange based on the amount of delay experienced by motorists, with separate thresholds established for each LOS grade. The grades range from LOS A (best) to LOS F (worst). A LOS of D, E, or F is generally considered to represent unacceptable traffic operations.

Table 1-1 indicates existing and 2030 traffic volumes and the associated LOS for the identified US 212, Broadway Street South, 20th Avenue South, and US 81 (5th Street Southeast) roadway segments within or near the Study Area. Data in the table demonstrate that traffic volumes on US 212 would be reduced if a South Connector Route would be established.

¹ A copy of *The Watertown Area Transportation Plan* can be accessed at <http://www.watertowntransportation.com/>.

**Table 1-1
Existing and Future Daily Traffic Volumes and Level of Service (LOS) with South Connector from SD 20 to I-29**

Roadway Segment	Current Volumes ¹	2030 Volumes No Build ¹	2030 Volumes with South Connector Route ¹	Existing 2004 LOS	2030 Build/ No-Build LOS
US 212 (US 81 to Broadway St South)	21,900	24,500	20,800 ² (23,800) ³	D	C/D
US 212 (Broadway St South to SD 20)	19,500	24,100	19,700 ² (22,500) ³	C	C/D
Broadway St South (20 th Avenue South to US 212)	2,500	3,300	7,100 ^{2,4} (4,300) ³	A	A/B
US 81 (5 th St Southeast) (south of US 212, in city)	7,900	10,300	7,500 ² (6,900) ³	B	B/B
US 81 (5 th St Southeast) (south of US 212, out of city)	5,800	8,200	5,400 ² (4,700) ³	B	B/B

Notes:

- ¹ Traffic volumes in vehicles per day.
- ² With completion of South Connector from SD 20 to I-29.
- ³ With completion of South Connector from SD 20 to US 81 only.
- ⁴ 2030 build volumes assume traffic travels on South Connector.

Sources: Traffic volumes – HDR Engineering, Inc. (HDR), 2006b; URS, 2005.
LOS – Quality Level of Service Handbook, Florida Department of Transportation, 2002.

Approximately 4,400 vehicles per day (vpd) would be removed from US 212 via the South Connector Route, which would improve the LOS of US 212 between SD 20 and US 81 and would provide for future capacity on US 212 and US 81 beyond the 2030 planning period (URS 2005). The Project, the second component of the South Connector Route, would provide a reduction in traffic (especially from segments of US 212 west of US 81), enhancing the reduction provided by the South Connector Route from US 81 to 29th Street SE.

1.5.2 Need for an Alternate Route for Heavy Truck Traffic

As discussed in Section 1.5.1, Need for Reducing Traffic Congestion, additional industrial/economic and commercial development is planned in the southern portion of Watertown by the year 2030. The Study Area is currently an origin and destination area for workers and commerce shipments with heavy truck traffic. Further development within this area would likely cause increased vehicular and heavy truck traffic. Currently 20th Avenue South within the Study Area and Broadway Street South are 2-lane asphalt roads. Both of these roads are currently classified as collector roads, connecting the area south of US 212 and west of US 81 to arterial roads. The proposed construction of the South Connector Route- SD 20 to US 81 would provide a direct route from the intersection of 20th Avenue South and US 81 to SD 20 at US 212. This would provide an alternate route for truck traffic traveling from industrial areas near this intersection to SD 20 or west on US 212, and would remove much of this existing and future heavy truck traffic from US 212 between US 81 and SD 20 (URS, 2005). As shown in

Table 1-2, truck traffic would be diverted from US 212 and US 81 after completion of the South Connector Route- SD 20 to US 81.

**Table 1-2
Existing and Future Daily Truck Traffic Volumes**

Roadway Segment	Truck Traffic 2030 Volumes No Build ^{1,4}	Truck Traffic 2030 Volumes with South Connector Route ^{1,4}
US 212 (US 81 to Broadway St South)	3,185	2,705 ² (3,094) ³
US 212 (Broadway St South to SD 20)	3,135	2,560 ² (2,925) ³
Broadway St South (20 th Ave South to US 212)	430	925 ^{2,5} (560) ³
20 th Ave South (West of US 81)	130	1,080 ² (900) ³
US 81 (5 th St Southeast), south of US 212	1,340	975 ² (611) ³

Notes:

- ¹ Traffic volumes in vehicles per day.
- ² With completion of South Connector from SD 20 to I-29.
- ³ With completion of South Connector from SD 20 to US 81 only.
- ⁴ Assumes total traffic consists of 13 percent trucks for daily volumes; noise modeling was based on peak hour traffic volumes which assumed 7 percent heavy trucks and 3 percent medium trucks.
- ⁵ 2030 build volumes assume traffic travels on South Connector.

Sources: Traffic volumes – HDR Engineering, Inc. (HDR), 2006c; URS, 2005; truck traffic volumes – SDDOT, 2007a; SDDOT, 2007b; SDDOT, 2007c.

1.5.3 Need for Improving Traffic Safety

A traffic safety analysis in the Watertown study area, based on SDDOT crash records, indicates that the intersection of US 212 and Broadway Street South has a higher than expected crash rate for a similar road design and traffic volume (URS, 2005). Twenty-nine (29) crashes occurred at this intersection during the three year study period from January 1, 2001 to December 31, 2003 resulting in a crash rate of 1.06 per million entering vehicles. This is significantly above the average intersection crash rate of 0.46 per million entering vehicles. No information was available regarding crash types or severity at this intersection. In addition to the US 212 and Broadway Street intersection, the segment of US 212 from US 81 to 11th Street Southeast has a higher than expected crash rate for a similar road design and traffic volume (URS, 2005). About 33 percent of the crashes occurred with left turns, 14 percent were angle crashes, 31 percent were rear-end crashes, and 22 percent were other types. The crash severity was also substantially higher than average, with 69 percent of crashes resulting in injuries. These are the two locations within or near the Project area where crash rates are higher than expected. The Project would reduce the amount of heavy truck traffic along US 212, as well as turning movements at its intersection with Broadway Street South, thus reducing the potential for crashes and improving safety.

1.6 OTHER PROJECTS

Several transportation projects are planned in the vicinity of the Project and each of them have been or will be addressed in separate NEPA documents. Figure 1-2 shows the locations of the referenced roadways and intersections, in addition to the phases of the South Connector Route-US 81 to 29th Street SE, SD 20 to US 81, and 29th Street SE to I-29 Study Areas. These following projects are currently programmed in the Statewide Transportation Improvement Plan (STIP) for FY 2009 to 2013 (SDDOT, 2008):

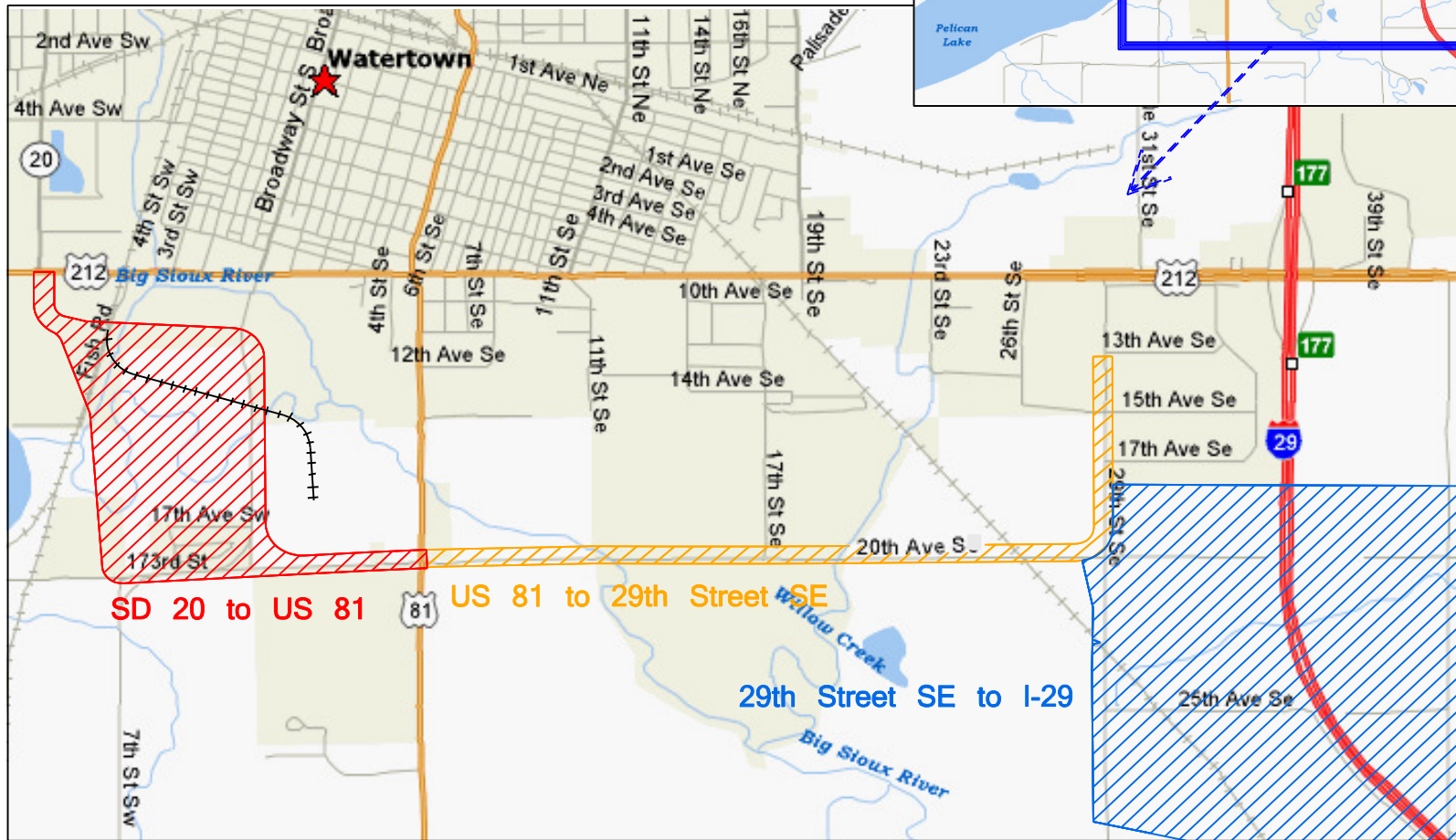
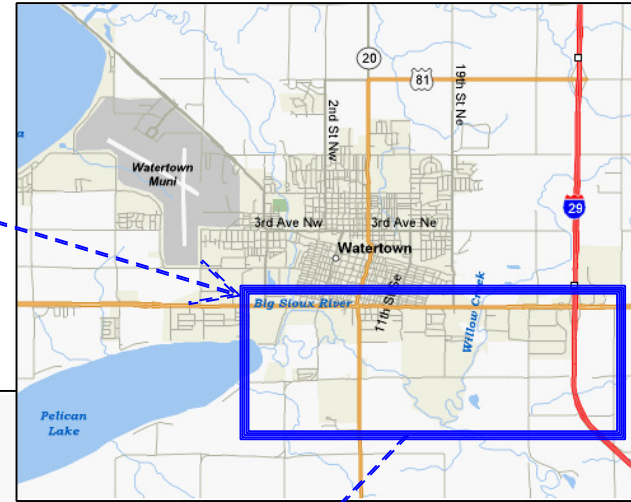
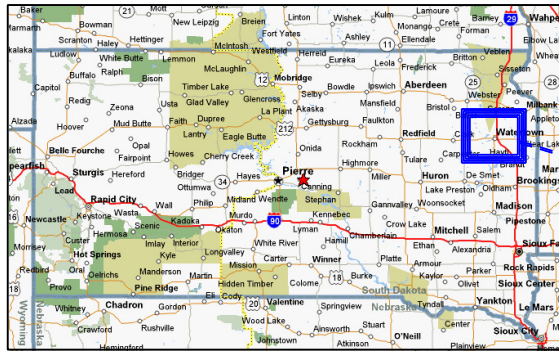
- South Connector Route-US 81 to 29th Street SE— This project provides a 2 or 3 lane route from US 212 and 29th Street Southeast to 20th Avenue South and US 81. The Finding of No Significant Impact (FONSI) was issued in March 2009.. Construction of the project began in September 2009 and will be completed in 2010.
- US 81 from 500 feet south of US 212 to 3rd Avenue NE, including the intersection of US 212—The intersections with US 212 and 3rd Ave NE would be realigned and US 81 would be rebuilt. Construction on this project began in the summer of 2009.
- Broadway Street South—A bridge would be constructed over the Big Sioux River along Broadway Street South in Watertown. This project is programmed for 2010.

The following projects are planned for the long-range period of the Watertown Area Transportation Plan (URS, 2005), but have not been programmed in the STIP:

- US 212 Widening—The project consists of widening existing lanes on US 212 from 10th Street West to 19th Street East.
- US 212 South Collector Roads—This project would improve the collector roads south of US 212 between US 81 and about 20th Street Southeast.
- South Connector Route-29th Street SE to I-29—This project would connect 29th Street SE to I-29 via a new interchange.

The Comprehensive Land Use Plan (First District, 2004) identifies future development in the Study Area:

- Industrial development to the west of US 81 and north of 20th Avenue South (before 2010) and to the south of 20th Avenue South (after 2010).
- Continued residential (manufactured homes) development west of Broadway Street South and north of 20th Avenue South.



Drawn by: B. Miller
Date: 03/06/07

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Date: 03/06/07

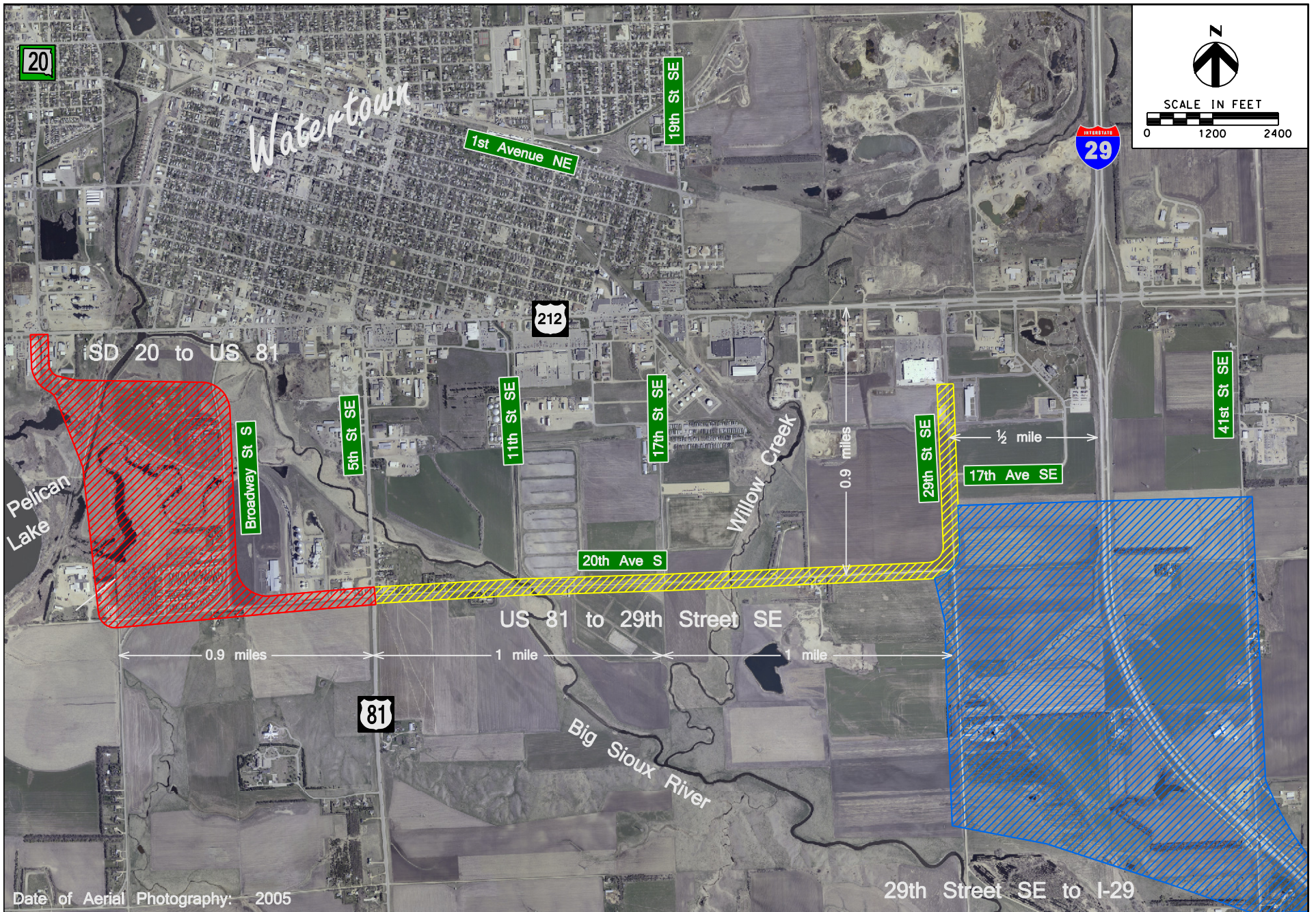
Revision Date:
April 2007



Project Location Map Watertown South Connector

US 81 to 29th Street SE - Project EM 4411(01) PCN 00RV
SD 20 to US 81 and 29th Street SE to I-29 - Project EM 4020(01) PCN 00RW

Figure
1-1



Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 03/06/07

Checked by: J. Unruh
Date: 03/06/07

Revision Date:
April 2007



Study Area

Watertown South Connector

US 81 to 29th Street SE - Project EM 4411(01) PCN 00RV

SD 20 to US 81 and 29th Street SE to I-29 - Project EM 4020(01) PCN 00RW

Figure

1-2

CHAPTER 2 ALTERNATIVES

This chapter addresses alternative solutions to meet the Project purpose and need. Specifically, this chapter presents the process used to identify alternatives, describes the preliminary alternatives identified, explains the process for determining which alternatives to carry forward for detailed study, presents the rationale for selecting the preferred alternative, and summarizes the potential impacts of implementing the alternatives studied in detail. This chapter also presents the project design criteria and identifies the project cost and funding sources.

2.1 IDENTIFICATION OF ALTERNATIVES

The No-Build Alternative was identified for study in accordance with the NEPA requirement that the impacts of no action be considered; this alternative also serves as a basis of comparison with the Build Alternative Options. Based on a process of reviewing existing ROW, future land use plans, and other information, six Build Alternative Options were identified for preliminary evaluation. A comparison of potential impacts associated with the No-Build and Build Alternative Options is provided in Table 2-1. Table 2-2 identifies predicted long-term impacts for the Build Alternative Options. The six Build Alternative Options and the No-Build Alternative comprise the range of alternatives evaluated for the Project. The criteria used to evaluate the alternatives were construction and ROW costs, design criteria, traffic volumes, property impacts, and other environmental issues.

2.1.1 No-Build Alternative

Under the No-Build Alternative, SD 20 to US 81 of the South Connector Route would not be constructed. The current and anticipated future traffic problems that were discussed in the purpose and need would not be addressed. Although the No-Build Alternative would not meet the needs of this project, it is included to meet the NEPA requirement that the impacts of no action be considered.

2.1.2 Build Alternative Options

The Watertown Area Transportation Plan (URS, 2005) discusses the South Connector Route (initially referred to as the Southern Arterial Corridor) and includes five options for routing of the roadway from SD 20 to US 81. Build Alternative Options 1 through 5 are generally based on the options shown in the transportation plan. Option 6 was added at the request of Focus Watertown at an October 23, 2007 meeting. Figure 2-1 shows the six Build Alternative Options for the South Connector Route - SD 20 to US 81; the figure also shows the portions of the South Connector from US 81 to 29th Street SE and from 29th Street SE to I-29. Options are shown for SD 20 to US 81 and 29th Street SE to I-29, but not for US 81 to 29th Street SE. The options for SD 20 to US 81 and 29th Street SE to I-29 are independent of each other. For example, the South Connector could eventually be constructed using Build Alternative Option 2 of SD 20 to US 81 and Build Alternative Option 1 of 29th Street SE to I-29. The portions of the South Connector Route from US 81 to 29th Street SE and from 29th Street to I-29 are being evaluated in separate EAs. The Watertown Comprehensive Land Use Plan 2004 (First District, 2004) discusses the overall project but does not specifically identify any alignment options for SD 20 to US 81.

A brief summary of the Build Alternative Options follows. Figure 2-2 illustrates the design considerations of the options. Figure 2-2a illustrates the design of the roadway in the vicinity of the US 212/SD 20 intersection.

- Build Alternative Option 1 – Option 1 connects to US 212 at the SD 20 intersection. Approximately 800 feet south of the intersection, it curves to the east and follows the most northerly route of the options across the Pelican Lake Outlet Channel and then across cropland. From approximately 1600' south of US 212 to 20th Avenue South, Option 1 follows existing Broadway Street. From Broadway Street to US 81, Option 1 follows 20th Avenue South.
- Build Alternative Option 2 – Option 2 connects to US 212 at the SD 20 intersection. Approximately 800 feet south of the intersection, it curves to the east and runs along the north side of the Watertown/Codington Regional Rail Authority (WCRRA) rail spur. From approximately 2900' south of US 212 to 20th Avenue South, Option 2 follows existing Broadway Street. From Broadway Street to US 81, Option 2 follows 20th Avenue South.
- Build Alternative Option 3 – Option 3 connects to US 212 at the SD 20 intersection. Approximately 900 feet south of the intersection, it curves to the southeast and runs along the south side of the Watertown/Codington Regional Rail Authority (WCRRA) rail spur. From approximately 3400' south of US 212 to 20th Avenue South, Option 3 follows existing Broadway Street. From Broadway Street to US 81, Option 3 follows 20th Avenue South.
- Build Alternative Option 4 – Option 4 connects to US 212 at the SD 20 intersection. Approximately 900 feet south of the intersection, it curves to the southeast and cuts diagonally across the open area on the south side of the Watertown/Codington Regional Rail Authority (WCRRA) rail spur. Option 4 crosses existing Broadway Street approximately 4200' south of US 212. From approximately 800 feet east of Broadway Street to US 81, Option 4 follows 20th Avenue South.
- Build Alternative Option 5 – Option 5 connects to US 212 at the SD 20 intersection. Approximately 900 feet south of the intersection, it curves to the south/southeast and cuts diagonally across the open area on the south side of the Watertown/Codington Regional Rail Authority (WCRRA) rail spur. Option 5 follows along the west side of the Pelican Lake cut-off channel. Option 5 reaches existing 20th Avenue South about 1,500 feet west of Broadway Street. Option 5 then curves to the east at 20th Avenue and follows 20th Avenue to US 81.
- Build Alternative Option 6 – Option 6 connects to US 212 at the SD 20 intersection. Approximately 900 feet south of the intersection, it curves to the south/southeast and cuts diagonally across the open area on the south side of the Watertown/Codington Regional Rail Authority (WCRRA) rail spur. Option 6 follows along the east side of the Pelican Lake cut-off channel. Option 6 reaches existing 20th Avenue South about 1,500 feet west of Broadway Street. Option 6 then curves to the east at 20th Avenue and follows 20th Avenue to US 81.

A traffic analysis for the South Connector Route Project was conducted and documented in a memorandum (HDR, 2006b). The memorandum is included in Appendix A. The traffic analysis determined that a 3-lane roadway section would adequately accommodate the traffic demands for the design period (from construction completion to year 2030). The traffic analysis noted that it would be reasonable to allow for future expansion of South Connector Route- SD 20 to US 81 to 5 lanes. However, during a January 11, 2007 conference call with representatives of SDDOT, FHWA, and the City of Watertown regarding the preliminary design for SD 20 to US 81, it was determined that a 2 or 3 lane roadway (Figure 2-3 describes the proposed limits of the 2 or 3 lane section) would be adequate for current and future traffic conditions for a section of the South Connector from SD 20 to US 81 (See Appendix H). The reasons for this are:

- Year 2030 traffic projections are borderline for justifying a 4 or 5 lane section.
- There is limited potential for adjacent development because of the Big Sioux River floodplain. Therefore few, if any, high traffic volume access points would be located in this section of the roadway. This roadway section would reduce project costs.

The roadway typical sections for SD 20 to US 81 are shown on Figure 2-3.

2.2 DETERMINATION OF ALTERNATIVES TO CARRY FORWARD

Build Alternative Options 1 to 5 and the No-Build Alternative were presented to the public at 2 separate Public Informational Meetings. The first meeting was held on August 8, 2006. The second meeting was held on October 23, 2007. Comments from the open house were evaluated; Section 5.2.1 discusses the public informational meetings. As a result of public comments, additional design, and comparison of construction and ROW costs, design criteria, traffic volumes, property impacts, and other environmental issues, some of the alternatives were eliminated from further consideration, as discussed in Section 2.2.2. Option 6 was added at the request of Focus Watertown at an October 23, 2007 meeting.

2.2.1 No-Build Alternative

As discussed in Section 2.1.1, the No-Build Alternative does not meet the purpose and need of the project. However, the No-Build Alternative provides a baseline for evaluation of the Build Alternative Options and has been retained in this document pursuant to NEPA.

2.2.2 Build Alternative Options

Based on public opinion and review of engineering, environmental, and cost considerations (See Table 2-1); the SDDOT narrowed the Build Alternative Options from six to three for detailed analysis and comparison in this EA. All Build Alternative Options generally met purpose and need requirements for the Project. Build Alternative Options 2, 3, and 4 were selected for further evaluation, and Build Alternative Options 1, 5, and 6 were eliminated from additional analysis for various reasons discussed for each option:

Build Alternative Option 1 follows the most northerly alignment of all of the options between SD 20 and Broadway Street South. Benefits of Option 1 include:

- Less area of wetland would be impacted.
- By staying north of the WCRRA rail spur, there would be no drainage channel realignment or significant soils correction. This results in a lower construction cost for Option 1.
- The angle of crossing the existing BNSF railroad tracks is more desirable.

Drawbacks of Option 1 include:

- Train cars from WCRRA rail spur cross Broadway Avenue multiple times each day and would potentially block traffic on this option for extended periods of time.
- Impacts parcel in northeast quadrant of existing Broadway Avenue/20th Avenue intersection. Focus Watertown views this area as prime industrial development property and does not want the size of the parcel reduced.
- Impacts a wetland mitigation site that was constructed in 2006. The mitigation site was for a Federal Aviation Administration airport project in Watertown
- A portion of this option is in the Big Sioux River floodway. Because of historic flooding in the immediate vicinity of this option, the City of Watertown does not support this option.

Mostly because of the floodway impacts, **Build Alternative Option 1 was eliminated from further evaluation.**

Build Alternative Option 2 follows along the north side of the WCRRA rail spur. Benefits of Option 2 include:

- The crossing angle of BNSF rail tracks is favorable.
- Minimal wetland impacts or channel realignment.
- No residential property acquisitions.

Drawbacks of Option 2 include:

- The crossing angle of the WCRRA rail spur is not desirable.
- Train cars from WCRRA rail spur cross Broadway Avenue multiple times each day and would potentially block traffic on this option for extended periods of time.
- Impacts parcel in northeast quadrant of existing Broadway Avenue/20th Avenue intersection. Focus Watertown views this area as prime industrial development property and does not want the size of the parcel reduced.
- Impacts a wetland mitigation site that was constructed in 2006. The mitigation site was for a Federal Aviation Administration airport project in Watertown.

This option is the least expensive of all of the options and has relatively few environmental impacts when compared with other options. **Consequently, Build Alternative Option 2 was selected for further evaluation.**

Build Alternative Option 3 follows along the south side of the WCRRA rail spur. Benefits of Option 3 include:

- The crossing angle of BNSF rail tracks is favorable.
- The roadway does not cross the WCRRA rail spur.
- The roadway parallels the WCRRA rail spur embankment and therefore would not disrupt the hydraulic characteristics of the area.
- No residential property acquisitions.
- Generally fulfills purpose and need of project because it has minimal number of curves.

Drawbacks of Option 3 include:

- Impacts wetlands (3.0 acres); wetland impacts would be mitigated within the City-owned parcel south of the WCRRA rail spur.
- Has most channel realignment of all options (900 feet).
- Impacts parcel in northeast quadrant of existing Broadway Avenue/20th Avenue intersection. Focus Watertown views this area as prime industrial development property and does not want the size of the parcel to be reduced.
- Would require the relocation of the transmission electrical power line along the south side of the WCRRA rail spur. Most of the poles that would be relocated are jointly owned by East River Electric Power Cooperative and Watertown Municipal Utilities. Both of these entities favor relocating the power line because of the age of the existing poles and their desire to have the poles outside of the slope of the new roadway. The additional costs related to relocating the power line are included in project cost estimates.

Mainly because there are no residential property acquisitions and because it does not cross the WCRRA rail spur, **Build Alternative Option 3 was selected for further evaluation.**

Build Alternative Option 4 cuts diagonally across the open area on the south side of the WCRRA rail spur. Benefits of Option 4 include:

- The roadway does not cross the WCRRA rail spur.
- No channel realignment necessary.

Drawbacks of Option 4 include:

- The crossing angle of BNSF rail tracks is less favorable than options 2, 3, or 6.

- Less desirable for fulfilling purpose and need of project (truck bypass of US212) because it has multiple curves.
- Impacts wetlands (2.3 acres); wetland impacts would be mitigated within the City-owned parcel south of the ethanol plant rail spur.
- Three (3) residential property acquisitions.
- Impacts parcel in northeast quadrant of existing Broadway Avenue/20th Avenue intersection. Focus Watertown views this area as prime industrial development property and does not want the size of the parcel to be reduced.

Mainly because there are no channel realignments and because it does not cross the WCRRA rail spur, **Build Alternative Option 4 was selected for further evaluation.**

Build Alternative Option 5 heads south/southeast through the open area south of the WCRRA rail spur.

Benefits of Option 5 include:

- The roadway does not cross the WCRRA rail spur.
- Generally fulfills purpose and need of project because it has minimal number of curves.
- Does not impact industrial development parcel in northeast quadrant of existing Broadway Avenue/20th Avenue intersection.

Drawbacks of Option 5 include:

- The crossing angle of BNSF RR tracks is the least favorable of all options.
- Impacts wetlands (3.1 acres); wetland impacts would be mitigated within the City-owned parcel south of the ethanol plant rail spur.
- Two (2) residential property acquisitions.
- Approximately 600 feet of channel realignment necessary.
- Costs approximately \$1 million more than options 1, 2, 3, or 4.
- Impacts one (1) salvage yard.

Mainly because of impacts to the salvage yard and overall cost, **Build Alternative Option 5 was eliminated from further evaluation.**

Build Alternative Option 6 was suggested by Focus Watertown as a hybrid of Options 4 and 5. This option heads to the south/southeast and cuts diagonally across the open area on the south side of the WCRRA rail spur. Option 6 follows along the east side of the Pelican Lake cut-off channel. Benefits of Option 6 include:

- The roadway does not cross the WCRRA rail spur.
- Does not impact industrial development parcel in northeast quadrant of existing Broadway Avenue/20th Avenue intersection.

Drawbacks of Option 6 include:

- Impacts wetlands (3.4 acres); wetland impacts would be mitigated within the City-owned parcel south of the ethanol plant rail spur.
- Two (2) residential property acquisitions.
- Approximately 300 feet of channel realignment necessary.
- Costs approximately \$1 million more than options 1, 2, 3, or 4.
- Impacts two (2) salvage yards.
- Less desirable for fulfilling purpose and need of project (truck bypass of US212) because it has multiple curves.

Mainly because of impacts to the salvage yards and overall cost, **Build Alternative Option 6 was eliminated from further evaluation.**

2.3 PREFERRED ALTERNATIVE

Build Alternative Option 3 was selected as the preferred alternative. The main reasons were (in general order of importance):

- No residential property acquisitions.
- The roadway does not cross the ethanol plant rail spur.
- The crossing angle of BNSF rail tracks is favorable.
- The roadway parallels the ethanol plant rail spur embankment and therefore would likely not disrupt the hydraulic characteristics of the area.
- Generally fulfills purpose and need of project because it has minimal number of curves.

Agency concurrence with Option 3 as the preferred alternative is contained in Appendix D, Items 17 and following.

Build Alternative Option 2 was **not** selected because of these drawbacks (in general order of importance):

- The crossing angle of the WCRRA rail spur is not desirable.
- Train cars from WCRRA rail spur cross Broadway Avenue multiple times each day and would potentially block traffic on this option for extended periods of time.
- Impacts a wetland mitigation site that was constructed in 2006. The mitigation site was for a Federal Aviation Administration airport project in Watertown.

Build Alternative Option 4 was **not** selected because of these drawbacks (in general order of importance):

- Three (3) residential property acquisitions.
- Less desirable for fulfilling purpose and need of project (truck bypass of US212) because it has multiple curves.

SUMMARY OF IMPACTS

Table 2-1 presents a comparison of impacts under the No-Build Alternative and Build Alternative Options. Table 2-2 summarizes the long-term impacts associated with the Build Alternative Options. Chapter 3, Affected Environment and Environmental Impacts, contains a detailed description of each potentially affected resource as well as potential impacts from traffic and maintenance of the improved transportation system.

**Table 2-1
Comparison of Alternatives**

Criteria	No-Build Alternative	BUILD Alternative options ¹					
		1	2	3	4	5	6
Roadway cost (million \$)							
• Interim construction ²	0	4.31	4.17	4.37	3.95	4.42	4.31
Structure cost (million \$)							
• Box culverts or bridge at Pelican Lake Diversion channel	0	0.49	0.47	0.70	0.63	0.90	0.63
• Box culverts or bridge at Pelican Lake Cutoff channel							
Total construction cost (million \$)	0	4.80	4.64	5.07	4.58	5.32	4.94
Utility Relocation costs (million \$)	0	0.20	0.20	0.65	0.15	0.13	0.15
ROW and relocation cost ³ (million \$)	0	0.20	0.25	0.15	0.60	0.70	0.94
15% contingencies	0	0.78	0.76	0.88	0.80	0.92	0.90
Total roadway, structure, right-of-way, utility relocation costs, (million \$) ⁶	0	5.98	5.85	6.75	6.13	7.07	6.93
Right-of-way acquisitions							
Open areas and cropland (acres @ \$10,000/acre) ⁵	0	19.5	25.2	15.2	14.9	15.2	13.6
Residential (units @ \$150,000 each)	0	0	0	0	3	2	2
Business (salvage yards @ \$250,000 each) ⁴	0	0	0	0	0	1	2
Meets all AASHTO design criteria	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Utility Conflicts							
Storm Sewer	No	No	No	No	No	No	No
Water main	No	No	No	No	No	No	No
Sanitary Sewer	No	No	No	No	No	No	No
Natural Gas	No	No	No	No	No	No	No
Electrical	No	Yes	Yes	Yes	Yes	Yes	Yes
Communication	No	Yes	Yes	Yes	Yes	Yes	Yes
Environmental Impacts	Minimal	Minimal	Minimal	Moderate	Moderate	Moderate	Moderate
Constructability	N/A	Simple	Simple	Complex	Simple	Complex	Complex
Rail crossings	1	3	3	1	1	1	1
Meets Purpose and Need of Project	No	Yes	Yes	Yes	Yes	Yes	Yes

Notes:

¹ All ROW, roadway, structure, and total construction costs are in 2009 dollars.

² Adding lanes for the ultimate 4/5 lane roadway from US 81 to 2000 feet north of 20th Avenue South would cost approximately \$0.8 million in 2009 dollars for all options. The timeframe for adding lanes is unknown.

³ See Figure 2-4 for specific areas of right-of-way impacts.

⁴ Does not include costs for potential clean-up of contaminated soils.

⁵ Includes ROW acquisition from commercial properties south of SD 20/US 212 intersection.

⁶ Costs do not include SD 20/US 212 intersection reconstruction (estimated at \$1.0 million) since cost is the same for all build options; see Table 2-2

**Table 2-2
Summary of Long-Term Impacts for the Build Alternative Options**

Resource	BUILD ALTERNATIVE OPTIONS					
	1	2	3	4	5	6
Air Quality	NSI	NSI	NSI	NSI	NSI	NSI
Water Quality	NSI	NSI	NSI	NSI	NSI	NSI
Public Utility Relocations	Electrical power lines	Electrical power lines	Electrical power lines	Electrical power lines	Electrical power lines	Electrical power lines
Recreational Resources	NSI	NSI	NSI	NSI	NSI	NSI
Visual Impacts and Aesthetics	NSI	NSI	NSI	NSI	NSI	NSI
Pedestrians and Bicycles	No impact	No impact	No impact	No impact	No impact	No impact
Environmental Justice	No impact	No impact	No impact	No impact	No impact	No impact
Noise	NSI	NSI	NSI	NSI	Not analyzed	Not analyzed
Threatened and Endangered Species	NAE	NAE	NAE	NAE	NAE	NAE
Archaeological and Historical Resources	NAE	NAE	NAE	NAE	NAE	NAE
Section 4(f) and 6(f) Resources	No impact	No impact	<i>De Minimis Impact</i>	<i>De Minimis Impact</i>	<i>De Minimis Impact</i>	<i>De Minimis Impact</i>
Regulated/Hazardous Mtls.	NSI	NSI	NSI	NSI	Potential	Potential
Future Land Use	Compatible	Compatible	Compatible	Compatible	Compatible	Compatible
Farmland Converted	12.7 acres	16.3 acres	8.1 acres	9.0 acres	6.6 acres	8.8 acres
Floodway	5.3 acres	0 acres	0 acres	0 acres	0 acres	0 acres
Floodplain						
• 100 year	11.6 acres	17.6 acres	13.3 acres	10.9 acres	13.6 acres	12.5 acres
• 500 year	1.6 acres	3.6 acres	1.6 acres	3.3 acres	1.0 acres	0.8 acres
Economic Resources	NSI	NSI	NSI	NSI	NSI	NSI
Right-of-Way Acquisitions						
• Open areas & cropland	19.5 acres	25.2 acres	15.2 acres	14.9 acres	15.2 acres	13.6 acres
• Residential	0	0	0	3	2	2
• Business	0	0	0	0	1	2
Habitat, Fish, and Wildlife ¹	Minor	Minor	Minor	Minor	Minor	Minor
Wetlands and Other Waters of the U.S. ²						
• Wetlands ³	0.9 acres	1.0 acres	3.0 acre	2.3 acres	3.1 acres	3.4 acres
• Channel Realignment	0 feet	0 feet	900 feet	0 feet	600 feet	300 feet
Total roadway, structure, ROW, utility relocation costs, (million \$) without SD 20/US 212 intersection, with SD 20/US 212 intersection	5.98 6.98	5.85 6.85	6.75 7.75	6.13 7.13	7.07 8.07	6.93 7.93

Notes: NSI: No Significant Impact

NAE: No Adverse Effect

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

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

³ Jurisdiction is to be determined by the US Army Corps of Engineers.

Sources: 40 CFR 81.342, Attainment Status Designations, South Dakota.

Administrative Rules of South Dakota (ARSD) Article 74:51, Surface Water Quality, January 1999.

Augustana College Archeology Laboratory, September 2006.

EDR, August 2006.

Federal Emergency Management Agency (FEMA), July 1989 and August 2005.

US Census Bureau, 2000.

2.4 DESIGN CRITERIA

The project will be designed and constructed in accordance with SDDOT and City of Watertown standards for a collector roadway. Bridge or box culvert design will be completed in accordance with SDDOT standard practices and the 17th Edition of the American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges, with current interims. Details of the proposed roadway design elements are noted in the Table 2-3.

**Table 2-3
Major Roadway Design Elements**

Major Design Element	Description
Design Traffic Volume (year 2030)	7,100 vehicles per day
Vehicle Classification <ul style="list-style-type: none"> • Peak Hour Volumes • Daily Volumes 	90% cars, 10% trucks 87% cars, 13% trucks
Surface Type	Portland Cement Concrete
Structural Capacity	10 ton loading
Traffic Lane Width	12 feet
Parking Lanes	None
Shoulder Width	Near US 212: 2.67 feet Rest of SD 20 to US 81: 8 feet
Concrete Curb and Gutter	Near US 212: type B68
Inslope Ratio	4 horizontal:1 vertical
Posted Speed	35 mph
Design Speed	40 mph
Proposed Right-of-Way Width	80 to 150 feet
Project Length	10,150 feet (1.9 miles)

2.5 COST AND FUNDING SOURCE

The total cost for South Connector Route- SD 20 to US 81 ranges from \$6.85 to \$8.07 million depending on the option. This cost also includes right-of-way and utility relocation costs. Future widening of the roadway to 2 lanes in each direction along 20th Avenue South to 2000 feet north of 20th Avenue South would add approximately \$0.8 million for all options. The noted costs also include reconstruction of the SD 20/US 212 intersection; this cost is the same for all build options.

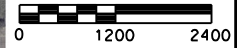
The SDDOT STIP 2009-2013 indicates that from SD 20 to US 81 is programmed for funding in fiscal year 2010. The total project cost is programmed at \$7.008 million, of which \$5.483 million will be Federal Funds.

Proposed South Connector Alignment Options

US 81 to 29th St SE Option 1 Option 2 Option 3 Option 4 Option 5 Option 6



SCALE IN FEET



Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 03/06/07

Checked by: J. Unruh
Date: 03/06/07

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January 2008



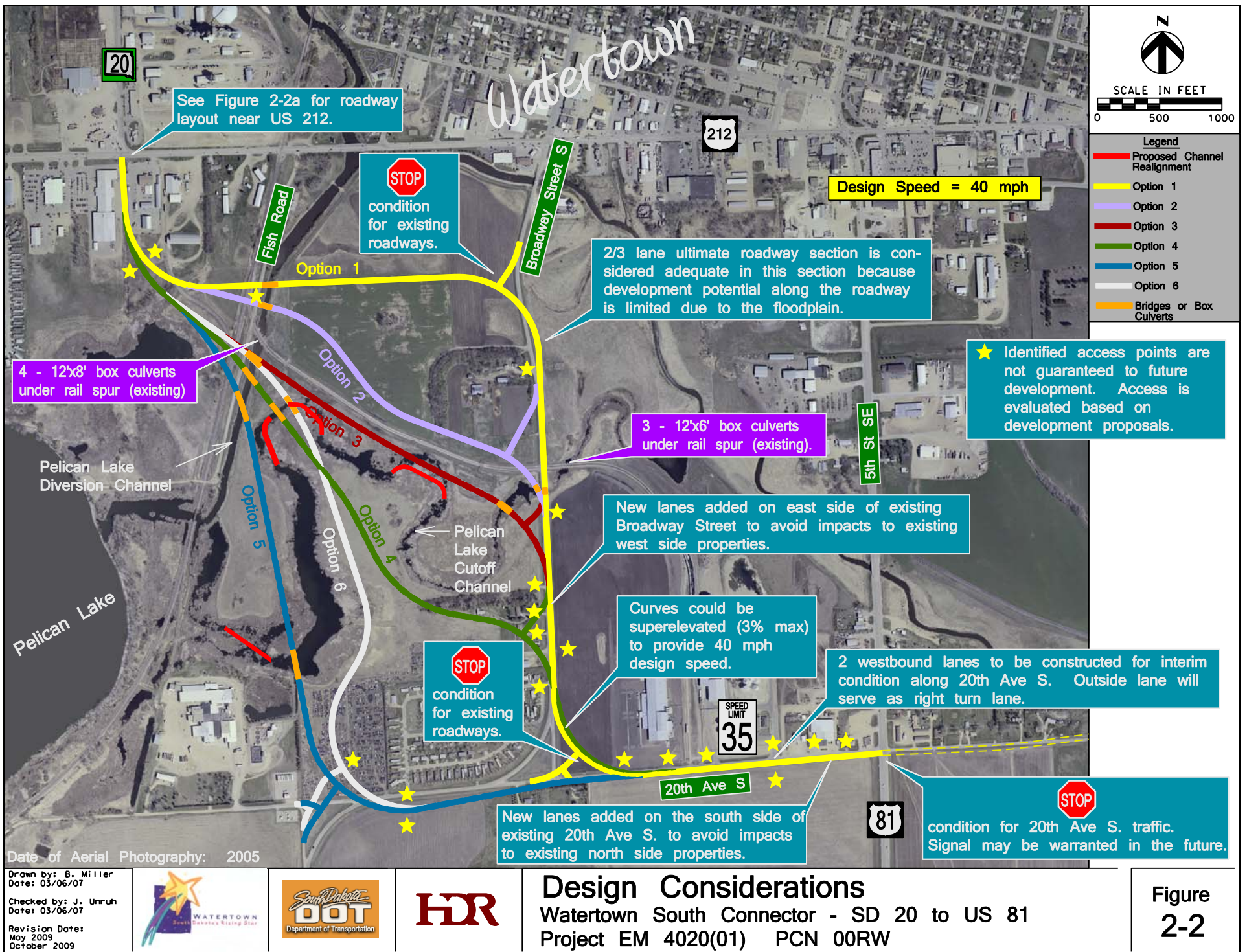
Alignment Options

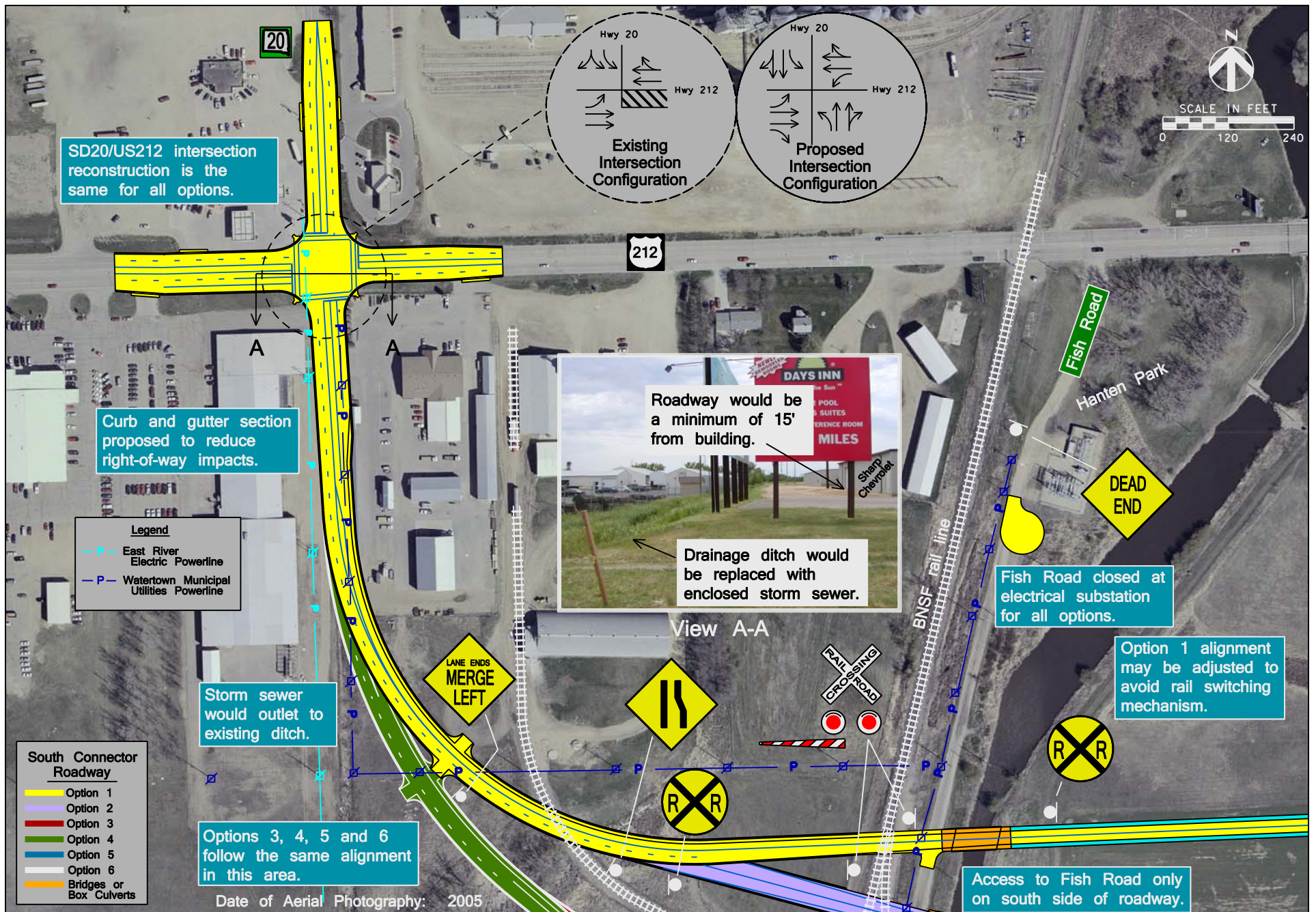
Watertown South Connector

US 81 to 29th Street SE - Project EM 4411(01) PCN 00RV

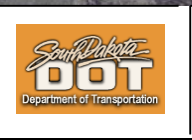
SD 20 to US 81 and 29th Street SE to I-29 - Project EM 4020(01) PCN 00RW

Figure
2-1



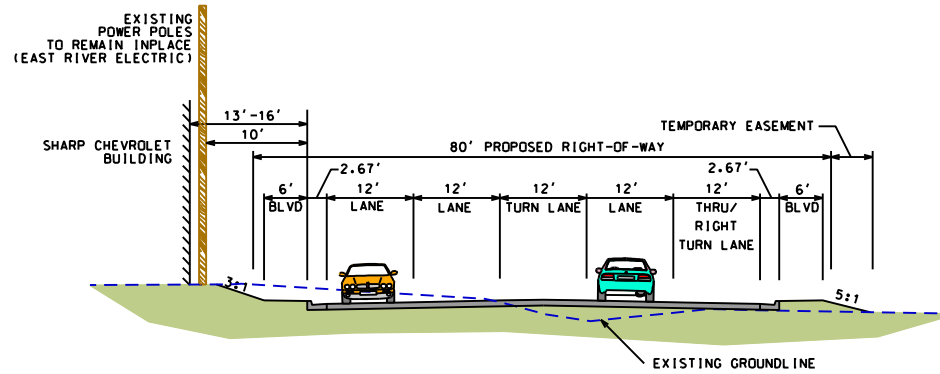


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 May 2009
 October 2009

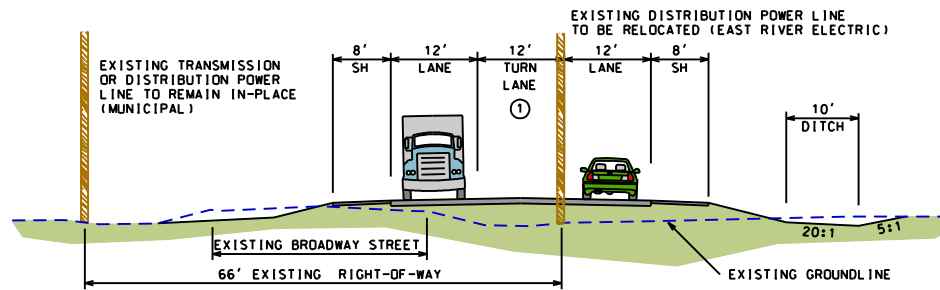


Roadway Layout near US 212
 Watertown South Connector - SD 20 to US 81
 Project EM 4020(01) PCN 00RW

Figure 2-2a

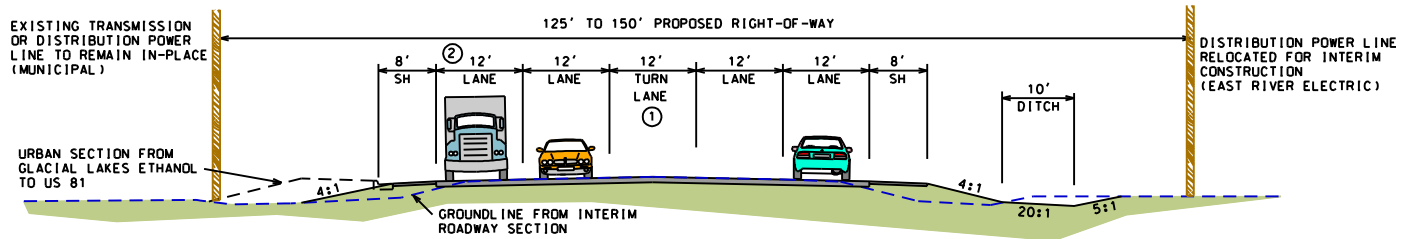


Typical Section (Interim and Ultimate)
near US 212/SD 20 Intersection (Urban)
Looking North



Typical Section (Interim and Ultimate)
Interim and Ultimate from south of US 212/SD 20 Intersection to 2000' north of 20th Avenue S.
Interim from 2000' north of 20th Avenue S. to US 81
Looking East or North

- ① CENTER TURN LANE IS NOT WARRANTED FROM SOUTH OF US 212 TO GLACIAL LAKES RAIL SPUR EXCEPT AT BROADWAY STREET.
- ② 12' LANE CONSTRUCTED IN INTERIM CONDITION FROM GREAT PLAINS ETHANOL TO US 81 AND USED AS RIGHT TURN LANE



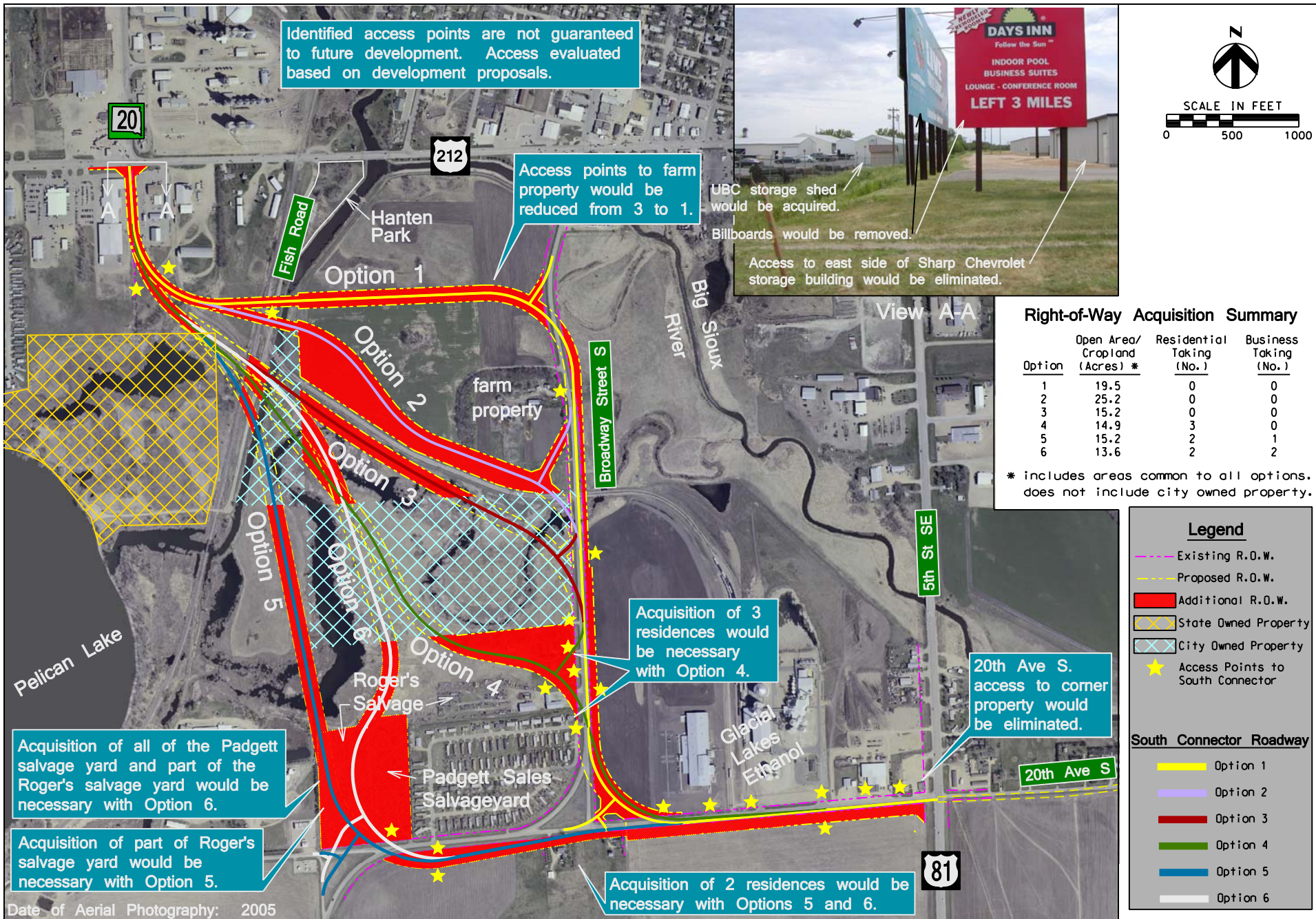
Typical Section (Ultimate)
from 2000' north of 20th Avenue S. to US 81
Looking East or North

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Date: 03/06/07
Checked by: J. Unruh
Date: 03/06/07
Revision Date:
April 2007

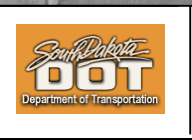


Roadway Typical Sections
Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

Figure
2-3



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Date: 03/06/07
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Date: 03/06/07
Revision Date:
October 2009



Right-of-Way Impacts

Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

Figure 2-4



Total Farmland Converted *

- Option 1 - 12.7 Acres
- Option 2 - 16.3 Acres
- Option 3 - 8.1 Acres
- Option 4 - 9.0 Acres
- Option 5 - 6.6 Acres
- Option 6 - 8.8 Acres

* Includes areas common to all Options

Legend

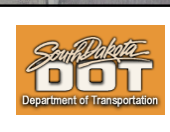
- Farmland Converted (area of prime farmland impacted is negligible)
- Existing ROW
- Proposed ROW

South Connector Roadway

- Option 1
- Option 2
- Option 3
- Option 4
- Option 5
- Option 6

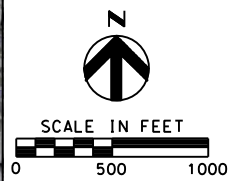
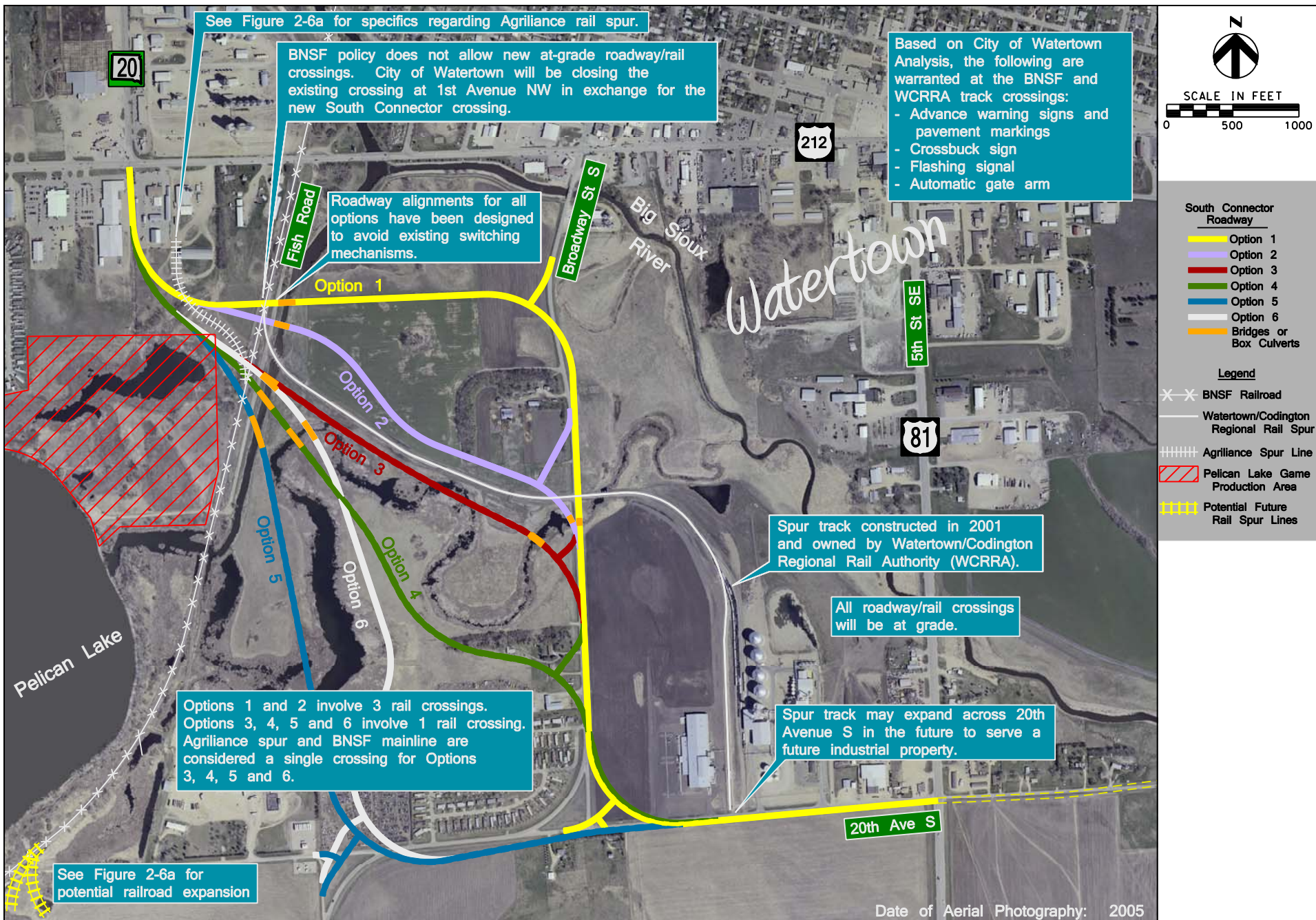
Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 03/06/07
Checked by: J. Unruh
Date: 03/06/07
Revision Date:
January 2008



Farmland Impacts
Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

Figure 2-5

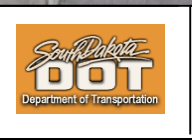


- South Connector Roadway**
- Option 1 (Yellow line)
 - Option 2 (Purple line)
 - Option 3 (Red line)
 - Option 4 (Green line)
 - Option 5 (Blue line)
 - Option 6 (White line)
 - Bridges or Box Culverts (Orange line)
- Legend**
- BNSF Railroad (X X symbol)
 - Watertown/Codington Regional Rail Spur (Grey line)
 - Agrilience Spur Line (Dashed line)
 - Pelican Lake Game Production Area (Red hatched area)
 - Potential Future Rail Spur Lines (Yellow dashed line)

Drawn by: B. Miller
Date: 03/06/07

Checked by: J. Unruh
Date: 03/06/07

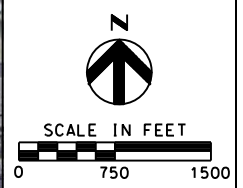
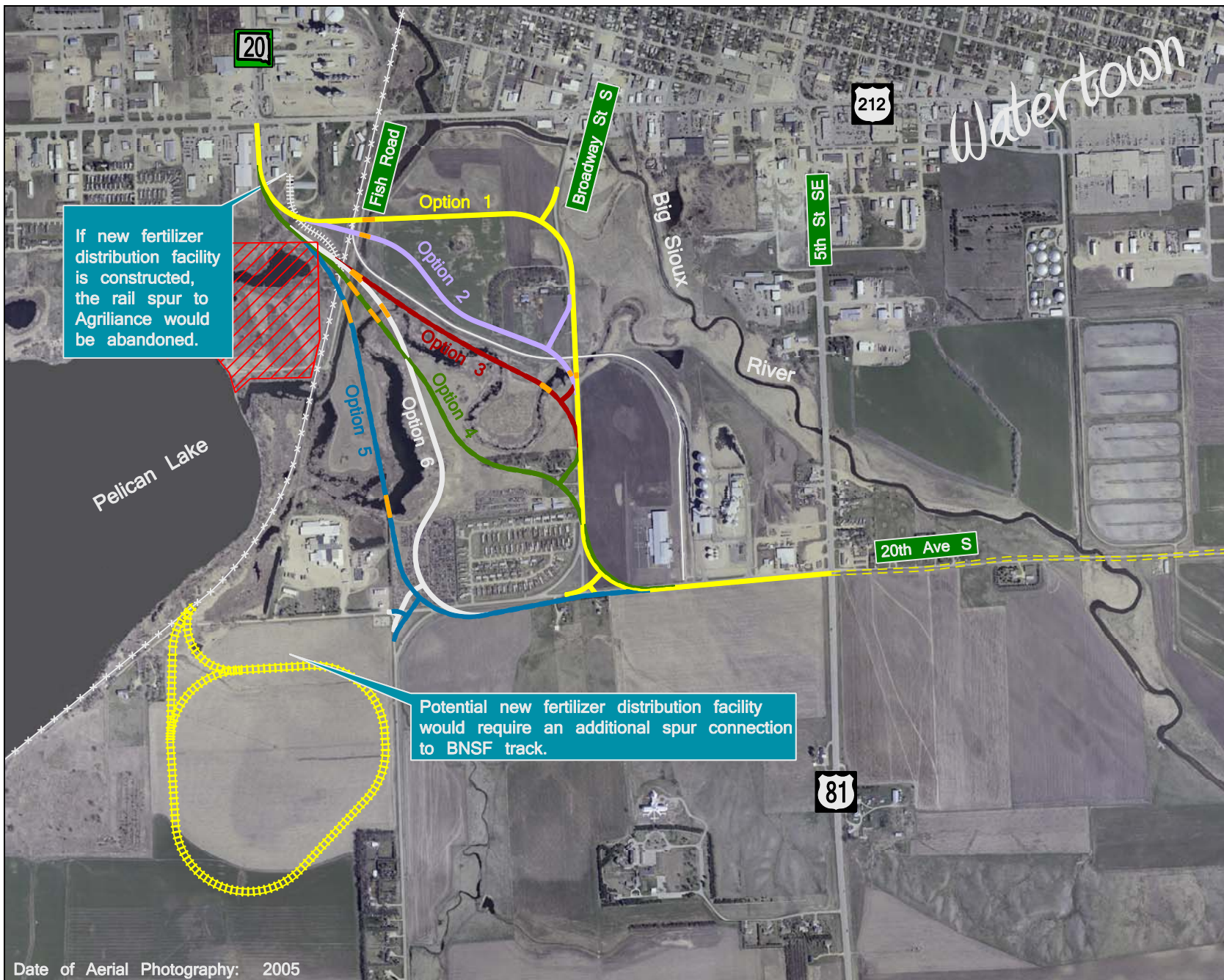
Revision Date:
October 2009



Railroad Considerations

Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

Figure 2-6



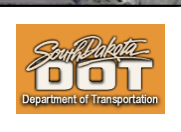
- South Connector Roadway**
- Option 1 (Yellow line)
 - Option 2 (Purple line)
 - Option 3 (Red line)
 - Option 4 (Green line)
 - Option 5 (Blue line)
 - Option 6 (White line)
 - Bridges or Box Culverts (Orange line)
- Legend**
- ✕✕ BNSF Railroad
 - Watertown/Codington Regional Rail Spur
 - ++++ Agrilience Spur Line
 - ▨ Pelican Lake Game Production Area
 - - - - Potential Future Rail Spur Lines

If new fertilizer distribution facility is constructed, the rail spur to Agrilience would be abandoned.

Potential new fertilizer distribution facility would require an additional spur connection to BNSF track.

Date of Aerial Photography: 2005

Drawn by: B. Miller
 Date: 06/25/07
 Checked by: J. Unruh
 Date: 06/25/07
 Revision Date:
 January 2008
 October 2009



Railroad Expansion Considerations
 Watertown South Connector - SD 20 to US 81
 Project EM 4020(01) PCN 00RW

Figure
 2-6a

CHAPTER 3

AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

This chapter describes the existing social, economic, and environmental resources of the South Connector Route-SD 20 to US 81 Study Area. This EA does not evaluate the following resources as they do not exist in the Study Area: energy, wild and scenic rivers, and coastal barriers and coastal zones. The analysis focuses on the portions of the Study Area within and along the alignment of the Build Alternative Options 2, 3, and 4 but also addresses resources affected by the No-Build Alternative. After describing the existing conditions for each affected resource, this chapter identifies the potential long-term impacts of the No-Build Alternative and the Build Alternative Options 2, 3, and 4 to human and natural environment resources as well as short-term impacts (typically 1 to 2 years) related to construction activities. For the purpose of the analysis presented in this EA, the discussion of impacts of the No-Build Alternative is limited to the identifiable differences between the impacts of the No-Build Alternative and the Build Alternative Options 2, 3, and 4. Best Management Practices (BMPs) are proposed to lessen the intensity and duration of impacts for relevant affected resources. Section 3.19, Construction Impacts, addresses BMPs proposed for construction activities. Although no mitigation measures are required to address significant impacts, mitigation as required by regulations (such as wetland mitigation) is noted as applicable. The cumulative effects¹ of the Project, including known impacts of the projects in the No-Build Alternative, are discussed in Section 3.20.2, Cumulative Impacts. These include impacts associated with the Project and other proposed projects in or near the Study Area.

3.1 Air Quality

3.1.1 Existing Conditions

The U.S. Environmental Protection Agency (USEPA) regulates air pollutants in part by primary and secondary National Ambient Air Quality Standards (NAAQS). South Dakota Department of Environment and Natural Resources (SDDENR) has adopted the Federal regulations by reference and operates a network of air monitors that track the concentration of particulate matter, one of the regulated pollutants at various locations. The other regulated pollutants (ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead) are not monitored in or near Watertown because the potential to have high concentrations of these pollutants is low in this area of the state due to the type and size of industries (SDDENR, 2006a) and winds help disperse air pollutants. The Study Area is in attainment of primary and secondary regulatory standards for ambient air quality, with air quality monitoring results well below the standards (SDDENR, 2006a).

3.1.2 Impacts of Alternatives

The No-Build Alternative would not adversely impact air quality in the Study Area. Although there would not be any emissions generated from construction of the Project, air emissions from

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

vehicles along US 212 would continue and increase at higher levels compared to the Build Alternative Options 2, 3, and 4.

The Build Alternative Options 2, 3, and 4 would have no significant long-term impact on air quality. Transportation conformity rules² apply in designated nonattainment areas or areas that have maintenance plans for transportation-related criteria pollutants (40 CFR 93.102). The Study Area is located in an attainment area³ for all criteria pollutants, and no maintenance plan is in effect (40 CFR 81.342). Therefore, the transportation conformity rules do not apply to the Study Area. Short-term impacts related to construction of the Project would likely occur. These impacts are discussed in Section 3.19.2 and would be limited to the duration and type of certain construction activities. BMPs to limit air quality impacts are also noted in Section 3.19.2. Fewer vehicles are projected to be traveling along US 212 compared to the No-Build Alternative. Consequently, the more efficient movement of vehicular traffic would result in less air emissions in the Watertown area compared to the No-Build Alternative.

3.2 Water Quality

3.2.1 Existing Conditions

Water resources within the project area include perennial streams, man-made channels, ponds, and wetlands. Two additional water features, Pelican Lake and the Big Sioux River, are near the Study Area. The eastern shore of Pelican Lake at the closest point is approximately 800 feet to the western boundary of the Study Area. The distance from the Study Area to the Big Sioux River varies from about 800 to 1,500 feet from the northern boundary of the Study Area and about 800 to 2,500 feet from the southern boundary of the Study Area. The Big Sioux River flows south and connects to the Missouri River near Sioux City, Iowa.

The largest hydrological features within the Study Area are two channels between Pelican Lake and the Big Sioux River. Both of these channels consist of a combination of perennial stream segments and man-made ditches. One of the channels largely parallels Fish Road (in the northwest part of the Study Area) and connects Pelican Lake with the Big Sioux River just south of the US 212 bridge spanning the Big Sioux River (about 900 feet north of the Study Area). This channel is primarily an artificial path and was created to provide flood control in the Watertown area. This channel is referred to in this document as the Diversion Channel (See Figure 3-2). During high flows, the Diversion Channel diverts water from the Big Sioux River to Pelican Lake. During low flows, the Diversion Channel is an outlet of Pelican Lake to the Big Sioux River (See Appendix G).

A cutoff channel which formerly connected Pelican Lake with the Big Sioux River meanders between 1,000 and 3,200 feet north of 20th Avenue South in the central portion of the Study Area. This channel is a combination of perennial streams and man-made ditches with numerous wetlands and ponds. The outlet of this channel meets the Big Sioux River about 1,000 feet east of the Study Area. This channel is referred to in this document as the Pelican Lake Cutoff Channel (See Figure 3-2).

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

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

The direction of flow in the Diversion Channel varies in accordance with water levels in the Big Sioux River and Pelican Lake, but is predominately from the Big Sioux River to Pelican Lake (Bunde, 2007; EDWDD, undated). Water flows from Pelican Lake to the Big Sioux River via the Diversion Channel only when water levels in Pelican Lake are sufficiently high. There is very little flow from the Pelican Lake Cutoff Channel to the Big Sioux River (Bunde, 2007). When the surface water elevations of Pelican Lake and the Diversion Channel are high, water spills over a weir on the south bank of the Diversion Channel and into the Pelican Lake Cutoff Channel (See Appendix G). This channel returns flows back to the Big Sioux River.

A pond and wetland area associated with Pelican Lake is within the northern part of the Study Area, just northeast of Pelican Lake, west of the Diversion Channel (See Figure 3-2). A small drainage ditch flows from just south of the intersection of US 212 and SD 20 to this pond and wetland area. The northern half of this ditch is within the Study Area. Neither the pond nor the ditch has been mapped by the USEPA and there is no information on water quality available.

All 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. The Pelican Lake Cutoff and Diversion Channels have been assigned these beneficial uses. Additional beneficial uses assigned to the Big Sioux River include domestic supply waters, warmwater semipermanent fish life propagation waters, and limited contact recreation waters. Designated uses of Pelican Lake are fish and wildlife propagation, warmwater semipermanent fish life propagation waters, limited contact recreation waters, immersion recreation, and agricultural uses (SDDENR, 2006b). The classifications only designate the quality at which the waters are to be maintained and protected (ARSD Article 74:51).

The SDDENR has assessed water quality of the Big Sioux River in the vicinity of Watertown (SDDENR, 2006c). The Big Sioux River near the Study Area (from Lake Kampeska to Willow Creek) fully supports its designated uses (is not impaired), but the river is impaired below its junction with Willow Creek (about 1.5 miles southeast of the Study Area) due to fecal coliform and nitrates (SDDENR, 2006b).

A total maximum daily load (TMDL) has been established and approved by the USEPA for a surface water discharge permit within the Upper Big Sioux River basin for point source pollution originating from Oak Valley Farms adjacent to the southwest corner of the Study Area (SDDENR, 2006b). The TMDL was for ammonia and low dissolved oxygen. The area for the TMDL is not specified, but Oak Valley Farms is within the Pelican Lake sub-watershed, and the area of impairment is likely the wetlands adjacent to Oak Valley Farms and Pelican Lake. Water flow from Oak Valley farms does not directly impact the Study Area (Bunde, 2007; City of Watertown, 2006a).

The Upper Big Sioux River Basin water quality improvement project was established after studies of water quality of Lake Kampeska and Pelican Lake indicated sedimentation, nutrient enrichment, and low dissolved oxygen (City of Watertown, 2006b). The boundaries of this project extend from near Ortley, South Dakota to just east of Pelican Lake, and include most of the Study Area. The Upper Big Sioux River Basin project seeks to improve water quality in this basin by small dams and ponds to reduce sediment, improve the management of animal waste, stabilize streambanks, and improve crop residue and soil management. The water quality improvement project is a collaborative effort between USEPA, U.S Fish and Wildlife Service (USFWS), U.S. Department of Agriculture (USDA), SDDENR, the City of Watertown, and the Pelican Lake Water Project District (City of Watertown, 2006b; Lake Pelican Water Project District, 2006).

Pelican Lake fully supports its designated uses of immersion recreation, limited contact recreation, fish and wildlife propagation recreation and stocking, but only partially supports warmwater semipermanent fish life propagation waters. Causes of impairment include nutrients, flow alterations, harmful algal blooms, sediment and siltation due to agriculture, land application/waste disposal sites, and septic sewage systems (SDDENR, 2006b). Agricultural uses of Pelican Lake have not been assessed (SDDENR, 2006b). Water quality in the Pelican Lake Cutoff Channel and the Diversion Channel between the Big Sioux River and Pelican Lake has not been assessed. The water quality of the drainage ditch south of US 212 and SD 20 has also not been assessed (SDDENR, 2006b).

Public water supplies in the Watertown area rely on surface water and groundwater. Residents in the Study Area who are not on a public system rely on private wells for potable water. The entire Study Area is located over the Big Sioux Aquifer, a shallow sand and gravel aquifer. The Study Area is within a SDDENR-designated aquifer protection zone (Zone B) since it overlies the aquifer, but is not within a designated wellhead protection area⁴ (City of Watertown 2006c, City of Watertown 2006d). Restrictions on Zone B include the following: the City and the SDDENR must be informed of all leaks and spills that might contaminate the groundwater, the disposal of snow containing de-icing chemicals can only be done under the terms of special exceptions, outside unenclosed storage of road salt is prohibited, and storage of 100 gallons or more of petroleum products in one location may require secondary containment (City of Watertown 2006d).

Various pollutants are commonly encountered in roadway runoff generated during storm events. Some of the pollutants include eroded soil, nutrients, metals, and oil. No systematic runoff treatment currently exists in the Study Area. The potential effect of roadway runoff on water quality is very important in this corridor because of the water resources (Big Sioux River and Pelican Lake) and the shallow aquifer.

3.2.2 Impacts of Alternatives

The No-Build Alternative would minimally impact water quality in the Study Area. Runoff from existing roads would continue. Water quality would not change from baseline conditions, and the aquifer protection area would not be impacted. Designated beneficial uses of the Big Sioux River, Pelican Lake Cutoff and Diversion Channels, the drainage ditch south of US 212, and Pelican Lake would continue.

Build Alternative Options 2, 3, and 4 would be constructed over an existing drainage ditch south of US 212 in the vicinity of its intersection with SD 20 (See Figure 3-4). This drainage ditch currently carries runoff from the vicinity of US 212 and SD 20 to wetland area northeast of Pelican Lake. The ditch would be replaced with an enclosed pipe which will discharge into a sedimentation basin prior to storm water discharge to the wetland area. The sedimentation basin is intended to minimize short and long term impacts on the water quality of the wetland area and on Pelican Lake. Figure 3-4 shows the general location of the sedimentation basin. Appendix G, Item 4 is a memo documenting storm water runoff considerations for Option 3.

Build Alternative Options 2, 3, and 4 would potentially impact water quality through sedimentation from soil disturbance in the vicinity of the Pelican Lake Cutoff Channel and wetlands, the Diversion Channel, and the drainage channel and pond south of US 212. Bridges or

⁴ Zone A, the wellhead protection area, is the mapped zone of contribution around all public water supply wells or wellfields in shallow/surficial aquifers and includes land upgradient from the well or wellfield to the five year time-of-travel boundary plus any delineated adjacent lands not underlain by the aquifer with sufficient slope that contaminated surface water could flow directly onto Zone A.

box culverts would be built over the Pelican Lake Cutoff Channel and the Diversion Channel (See Figure 2-2). The amount of sedimentation from soil erosion from construction of the bridges and the drainage pipe would not increase substantially due to National Pollutant Discharge Elimination System (NPDES) permit requirements (See Section 3.19.5) to 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 NPDES permit to minimize impacts to the Big Sioux River, Pelican Lake Cutoff Channel and the Diversion Channel, and Pelican Lake.

Build Alternative Options 3 and 4 would impact about twice the wetlands acreage as Build Alternative Option 2. In addition, the increase in traffic from Build Alternative Options 2, 3, or 4 would generate increased levels of chemicals (such as antifreeze), metals, and oil from vehicles, and road salt from snow and ice removal in the winter. Option 3 also calls for realignment of approximately 900 feet of the Cutoff Channel.

To minimize short and long term impacts on water quality, a system of roadside ditches (separated from the wetland areas) will flow into sedimentation basins. The grassed ditches and the sedimentation basins would provide filtration and treatment of storm water and snowmelt runoff prior to discharge into wetland areas and the Cutoff Channel. Figures 3-4 and 3-4a show the general locations of the sedimentation basins and the basic design of the roadside ditches. Appendix G, Item 4 is a memo documenting storm water runoff considerations for Option 3.

Build Alternative Options 2, 3, or 4 would not impact the TMDL established for Oak Valley Farms at the southwest corner of the Study Area because runoff from these Build Alternative Options would flow into a different area of the sub-watershed of Pelican Lake, which is not hydrologically connected to the area in which this facility is located.

3.3 Railroads

3.3.1 Existing Conditions

Several active rail lines exist within the Study Area (See Figure 2-6). A BNSF Railway Company (BNSF) main rail line runs from southeast side of Pelican Lake across US 212 and proceeds north. The BNSF line carries 2 to 3 trains per day on an average throughout the year with a peak volume of 4 to 5 trains per day. An at-grade crossing of the main line by Fish Road exists in the western portion of the Study Area. Within the Study Area are two rail spurs that branch from the main BNSF line:

- One rail spur extends to the northwest to an Agriliance commercial establishment. According to a representative of Agriliance, approximately 200 to 225 rail cars per year deliver fertilizer to the site (Nelson, 2006). A new fertilizer distribution facility is being planned for an area south of 20th Avenue. The Agriliance rail spur could be abandoned if the new facility is constructed.
- One rail spur extends to the east and then south to the Glacial Lakes Ethanol facility. This rail spur was constructed in 2001 by the WCRRA, which maintains ownership of the line. The main user of this rail line is the ethanol facility. Currently, this track carries 3 trains per week with each train consisting of 10 cars. The ethanol plant is planning an expansion within the next year. As a result, train traffic is forecast to increase to 20 to 30 cars per train. The number of trains per week would remain at 3. Two at-grade crossings of this rail spur within the Study Area include Broadway Street South and Fish Road. Future plans for this industrial area include expanding this rail spur to across 20th Avenue to serve a future industrial property to the south of 20th Avenue.

The BNSF rail line is eligible for the National Register of Historic Places (NRHP). Section 3.10, Archeological and Historic Resources, further discuss the eligibility of the BNSF rail line for the NRHP.

3.3.2 Impacts of Alternatives

The No-Build Alternative would not impact the BNSF main line or rail spurs that exist within the Study Area. The existing at-grade crossing would remain where they currently are located.

Build Alternative Option 2 would cross the Agrilience rail spur approximately 900 feet southeast of the intersection of SD 20 and US 212. An at-grade crossing is proposed for this option. The existing switch for the spur track is located 570 feet south of the proposed crossing location for Option 2 and is therefore not impacted by the option.

Build Alternative Options 3 and 4 would cross the Agrilience rail spur approximately 1,800 feet southeast of the intersection of SD 20 and US 212. An at-grade crossing is proposed for these options. The existing switch for the spur track is located 220 feet south of the proposed crossing location for Options 3 and 4 and is therefore not impacted by the options. The Agrilience rail spur and the BNSF tracks are close together at the proposed crossing location; therefore, a single crossing for both tracks would operate properly.

Build Alternative Options 2, 3, and 4 would require an at-grade crossing of the BNSF main rail line (See Figure 2-6). Appendix I includes correspondence with BNSF. BNSF requires elimination of one existing at-grade crossing for the construction of another at-grade crossing in the Study Area. In order to maintain one at-grade crossing of the main BNSF rail line, the existing 1st Avenue crossing located within the City would be eliminated (See Appendix I). A signed agreement between BNSF and the City of Watertown regarding the 1st Avenue crossing closure is included in Appendix I, Item 8. BNSF clarified the agreement with a letter stating that the new South Connector at-grade crossing would be allowed. The letter is contained in Appendix I, Item 9.

The existing switch for the WCRRA track is located 230 feet north of the proposed crossing location for Option 2 and is therefore not impacted by the any of the options.

During a January 11, 2007 conference call, the City of Watertown requested that each new at-grade railroad crossing in the Study Area would include the following safety equipment: advance warning signs and pavement markings, crossbuck sign, flashing signal, and automatic gate arm. The amount of rail and roadway traffic in this area would warrant the additional safety equipment.

Build Alternative Option 2 would cross the WCRRA rail spur. Build Alternative Option 2 would require an at-grade crossing to the west of the existing at-grade crossing (See Figure 2-6). The existing crossing would be removed since Broadway Street South would shift west to the north of the existing at-grade crossing. The same safety equipment would be warranted at this crossing as the BNSF crossing.

3.4 Public Facilities, Utilities, and Services

3.4.1 Existing Conditions

Public facilities include the City Hall, library, auditorium, schools, emergency response buildings, and communication, power, gas, water, and wastewater utilities. All public buildings in Watertown are located north of US 212. There are no public buildings in the Study Area. Roosevelt School, located about 1.3 miles north of the east end of the Study Area, is the closest public building.

Multiple electrical power lines exist within or adjacent to the Study Area. These power lines and their ownership are shown in Figure 3-1. A wood-pole overhead power distribution line owned by Watertown Municipal Utilities runs along the north side of 20th Avenue South from US 81 to Broadway Street South. The Watertown Municipal Utilities line crosses Broadway Street South and runs along the west side of Broadway Street South from the intersection of 20th Avenue South and Broadway Street South to approximately 150 feet north of the WCRRA rail spur crossing. The power distribution line then crosses Broadway Street South and runs along the east side of Broadway Street South. A wood pole overhead power distribution line (also owned by Watertown Municipal Utilities) proceeds along the west side of Broadway Street South from the intersection of the WCRRA rail line crossing and Broadway Street South to the south side of the intersection of US 212 and SD 20. See Appendix B for correspondence with the Watertown Municipal Utilities and East River Electric Power Cooperative.

A wood pole overhead power distribution line owned by East River Electric Power Cooperative exists on the south side of 20th Avenue South from US 81 to Broadway Street South. The power distribution line runs along the east side of Broadway Street South from the intersection of 20th Avenue South and Broadway Street South to the WCRRA rail spur. From the intersection of Broadway Street South and the WCRRA rail line, the power distribution line runs west to the south of the intersection of SD 20 and US 212. An additional East River Electric Power Cooperative overhead power distribution line exists approximately 2,400 feet north of 20th Avenue South and runs west to connect with the aforementioned distribution line at the intersection of Broadway Street South and WCRRA rail line.

The natural gas lines, water lines, and sanitary sewer lines located in the Study Area are also shown in Figure 3-1. A natural gas line runs along the south side of 20th Avenue approximately 4 feet deep in the roadside ditch and continues on the west side of Broadway Street South. Water main lines owned by Watertown Municipal Utilities exist on the north side of 20th Avenue South and the east side of Broadway Street South. A sanitary sewer line exists in the center of existing 20th Street South (See Figure 3-1).

Fiber optic/telephone/communication lines run along 20th Avenue and Broadway Street within the project area.

Public services include police, fire, and emergency services. Police and emergency services exist in the Study Area.

3.4.2 Impacts of Alternatives

The No-Build Alternative would not impact public buildings (such as libraries and schools) or public utilities in the vicinity of the Study Area. The No-Build Alternative would potentially cause delays in emergency response time in and near the Study Area because of decreasing LOS as traffic increases along US 212. The accident rates on US 212 would likely remain high or increase over current levels, keeping the demand high for emergency services and limiting their access and egress.

The Build Alternative Options 2, 3, and 4 would not impact public buildings, or their access, in the vicinity of the Study Area. These facilities are north of US 212 and construction would not affect them. The Build Alternative Options 2, 3, and 4 would cause temporary impacts to some of the utility lines in the Study Area. BMPs would include close coordination with utilities as the project is being designed and constructed.

Figure 3-1 illustrates and summarizes the impacts of Build Alternative Options 2, 3, and 4 on existing electrical power lines. These impacts have been analyzed and coordinated with utility companies. The project cost estimate includes the costs associated with the impacts. Appendix B contains correspondence regarding public utilities.

The Build Alternative Options 2, 3, and 4 would not affect the gas, water, and sewer lines. These utility lines would remain in their current locations within the Study Area.

Relocation of some existing fiber optic/telephone/communication lines along 20th Avenue and Broadway Street will be necessary.

Subsequent to construction of the Project, the crash rate and severity of accidents on US 212, especially in the vicinity of US 81, is anticipated to decrease as truck traffic is expected to divert from US 212 to the South Connector Route (See Section 1.5). Consequently, access along US 212 and to locations along the Study Area would improve for emergency response services. Based on improved traffic flow, the demand for accidents responses along US 212 and near the Study Area could also decrease.

3.5 Recreational Resources

3.5.1 Existing Conditions

About 37 public recreational resources (24 parks, 8 special use areas, and 5 athletic city-owned recreational resources) exist in Watertown, but they are all located outside of the Study Area. The closest of these recreational areas is Hanten Park, a small undeveloped city-owned area south of US 212 and east of Fish Road adjacent to the Diversion Channel (See Figure 2-4). This area is about 600 feet north of the Study Area. Hanten Park is an informal recreation area, used for fishing and hiking (Adams, 2006). Access to this area is from Fish Road, off of US 212. Other nearby city recreation areas includes the following:

- Pelican Park, 14th Street Southwest and Pelican Lake (about 1,500 feet southwest of the Study Area), with access from 14th Street Southwest, off US 212.
- Lion's Pool and Waterslide, US 212 and 3rd Street Southwest (about 1,000 feet north of the Study Area), with access from US 212 or 3rd Street Southwest.
- Nelson Park, South Broadway and 5th Avenue Southwest (about 1,300 feet to the north of the Study Area), accessed from Broadway Street South or 5th Avenue Southwest.
- McLaughlin Nature Area, 4th Avenue South and SD 20 (about 1,500 feet north of the Study Area), accessed from 4th Avenue South or SD 20.

The State-owned Pelican Lake Access Recreation Area includes 6 acres on the eastern shore of Pelican Lake, and is currently used for swimming, canoeing, and beach activities. The area previously included a boat ramp, but water levels on the lake have recently dropped and the boat ramp was removed.

The Pelican Lake Game Production Area (GPA) consists of two areas of State-owned property on the eastern shore of Pelican Lake. The area of both parts of the GPA combined is 117 acres. The northern part of the GPA, comprised approximately 47 acres, is located between Pelican Lake and Fish Road, about ¼ mile south of US 212 (See Figure 2-6). The main access to the GPA is from US 212 via 14th Street Southwest (approximately 1,200' west of SD 20). A secondary access is from US 212 via Fish Road. (See Figure 3-5). The southern area of the Pelican Lake GPA is outside of the Study Area, located southwest of 20th Avenue South and Broadway Street South. See Section 3.11, Section 4(f) and 6(f) Resources, for a discussion of the Pelican Lake GPA.

The Watertown Area Transportation Plan (URS, 2005) had noted the possibility of a multi-use trail within the Study Area. However, a pedestrian trail or path is not considered within the Study Area in the Watertown Comprehensive Land Use Plan (First District, 2004). The South Connector Process Team discussed this subject at several meetings and concurred that a pedestrian trail or path would not be appropriate along the South Connector.

3.5.2 Impacts of Alternatives

The No-Build Alternative would not impact recreational resources. Access to existing facilities would continue under the existing roadway system. The No-Build Alternative could potentially cause delays to these recreational resources in the vicinity due to the congestion on US 212.

Build Alternative Options 2, 3, and 4 would impact recreational facilities through the proposed modification of Fish Road. To avoid a potential safety hazard from traffic on Fish Road crossing the proposed South Connector Route, Fish Road would be terminated at the electrical substation north of the proposed South Connector Route. Access to Hanten Park from US 212 via Fish Road would not change (See Figure 2-2a). The City of Watertown Parks and Recreation Board have determined that termination of Fish Road at the electrical substation would have no adverse impact on Hanten Park. (See Appendix D, item 11.) Access to Fish Road would be provided south of the South Connector Route. Fish Road will remain in its existing alignment and the Fish Road crossing of the BNSF tracks will remain in place.

Section 3.8 discusses the noise impacts of the South Connector Route at the Pelican Lake GPA.

Build Alternative Options 3 and 4 would pass through the northeast corner of the Pelican Lake GPA (see Figure 2-4), impacting about 0.25 acres of land within this area (about 0.2 percent of the GPA area). Increased noise from SD 20 to US 81 traffic would impact the Pelican Lake GPA, but the impact would be less than levels requiring noise abatement control for recreational areas (HDR, 2006c). None of the other nearby recreational facilities (discussed above) would be impacted. Appendix E discusses the *de minimis* impact on the Pelican Lake GPA.

All Build Alternative Options would impact access to the GPA by occasionally closing Fish Road for brief periods of time during construction. Access to Pelican Lake and the GPA from the 14th Street Southwest would not be impacted by the Project (See Figure 3-5)

The second parcel of the Pelican Lake GPA is outside of the Study Area and would not be impacted by either Build Alternative Options 2, 3, or 4 of the South Connector Route, SD 20 to US 81.

Section 3.10, Section 4(f) and 6(f) Resources, further discuss potential impacts to public recreational resources.

3.6 Visual Impacts and Aesthetics

3.6.1 Existing Conditions

Visual landscape characteristics are objects that are either natural or manmade and that can be visually observed. The objects can be given an aesthetic value based on individual human perception or on the contrast between one object and another object or group of objects. Objects affecting aesthetic value can be of a fixed nature (such as traffic signal poles) or intermittent (such as moving vehicles). The Study Area is located in a rural setting that is characterized by agricultural farmland with scattered commercial and industrial development. Specifically, the existing natural and man-made features include:

- Pelican Lake located west of the Study Area.
- Associated wetlands of Pelican Lake located along Pelican Lake Cutoff Channel.
- Tributaries and associated floodplain of the Big Sioux River and Pelican Lake.
- Industrial park located northwest of the intersection of US 81 and 20th Avenue South.

- Modular home residential park located northwest of the intersection of Broadway Street and 20th Avenue South.
- Commercial businesses located at the intersection of SD 20 and US 212 and northwest of 20th Avenue South and Broadway Street South.
- Farmsteads, farm structures, cropland, and trees.
- BNSF main rail line that runs parallel with Fish Road.
- Rail line spur that runs east/west from the Glacial Lakes Ethanol facility and connects to the BNSF rail line approximately 2000 feet south of US 212 to the west of Fish Road.
- Rail line spur that extends northwest of the Study Area branching off the BNSF main rail line to an Agrilience commercial establishment.

The variety of natural and man-made features contributes to the visual resources of the Study Area.

3.6.2 Impacts of Alternatives

Under the No-Build Alternative, the visual landscape in the Study Area would not be modified by construction of the Project. However, proposed future development would cause landscape modifications in the Study Area as some of the area changes from a rural landscape to commercial and industrial development.

The Build Alternative Options 2, 3, and 4 would alter the natural landscape from a rural, agricultural setting to an urban roadway. The urban roadway through this Study Area would include visual alterations such as rail safety signals. SDDOT plans to seed native grasses and forbs within the roadway ROW to increase plant diversity and lessen the impact on visual resources. Section 3.19.3 addresses visual impacts during construction. Independent of the Project, parts of the Study Area and adjacent lands would be developed for commercial and industrial use.

3.7 Environmental Justice

To comply with the regulations of Title VI of the 1964 Civil Rights Act (42 USC 2000d et seq.) and Executive Order 12898, Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register [FR] 7629), the potential environmental impacts of the Build Alternative Options 2, 3, and 4 were studied with respect to the demographic and socioeconomic composition of the Study Area. US Census Bureau 2000 census data, the most recent data available, were used for this analysis. To adequately evaluate any “significant” or “disproportionate” impacts of the Build Alternative Options 2, 3, and 4 on minority populations and low-income populations, analysis at the block level, the smallest level of aggregation of census data, was conducted.

3.7.1 Existing Conditions

According to 2000 Census block level data, two blocks, within the Study Area, contain minority populations in excess of the local benchmarks. Minorities make up 12.2 percent of the total population in Block 5036 and 15.6 percent of the total population of Block 5084 (see Table 3-1). Census data indicates that the majority of the noted minorities are American Indian or Alaska Native alone, or individuals with two or more races: one of which is American Indian or Alaska Native.

Table 3-1
Minorities Within the Study Area

Area ¹	Total Population	Total Minorities ²	Total Minorities as a Percentage of Total Population
South Dakota	754,844	96,343	12.8
Codington County	25,897	1,117	4.3
City of Watertown	20,237	1,017	5.0
Block 5034	0	0	0.0
Block 5035	5	0	0.0
Block 5036	98	12	12.2
Block 5067	5	0	0.0
Block 5068	3	0	0.0
Block 5073	6	0	0.0
Block 5083	0	0	0.0
Block 5084	96	15	15.6
Block 5085	0	0	0.0
Block 5095	162	7	4.3
Study Area	375	34	9.1

Source: Census 2000 Summary File 1 100-Percent Data

¹ All noted Blocks are present in Census Tract 9545, Block Group 5.

² The "Total Minorities" designation consists of a combined value of racial and ethnic minorities.

Additionally, the 2000 Census indicates that 5.1% of the individuals living in the block group that encompasses the Study Area had a 1999 income that was below poverty level. This poverty rate is well below the 9.0% and 9.3% poverty rates present in Codington County and the City respectively (US Census Bureau, 2000).

3.7.2 Impacts of Alternatives

Under the No-Build Alternative, no disproportionate impacts to minority or low-income populations would result.

Although the Build Alternative Options 2, 3, and 4 lie within census blocks that contain minority populations in excess of local benchmarks, none of these Build Alternative Options would have a disproportionate impact on minorities. Census Block 5084 lies southwest of the intersection of 20th Avenue South and 5th Street Southeast (See Figure 3-4). In the vicinity of Block 5084, the Build Alternative Options 2, 3, and 4 occur on the same, existing alignment (See Figure 2-6). Neither Build Alternative Options 2, 3, nor 4 would have significant impacts on the residents of Block 5084 as no relocations would occur and no other impacts, such as noise or impacts to air quality would disproportionately impact minorities (See Figure 2-6). Additionally, landowner access would be maintained to the two households which exist immediately south of the intersection of 20th Avenue South and Broadway Street South.

Census Block 5036 lies southwest of the intersection of US 212 and the BNSF Railroad and encompasses the proposed connection of the Project with US 212. The Build Alternative Options are on different alignment in the eastern portion of Block 5036; however, the Build Alternative Options 2, 3, and 4 quickly merge onto the same proposed alignment through the majority of this Census Block. Build Alternative Options 2, 3, and 4 would not have significant, disproportionate impacts on minorities within Block 5036 as no relocations would occur, no other impacts would disproportionately impact minorities, and the portion of Block 5036 that would be impacted by the proposed alignments is predominantly commercial and industrial.

The Build Alternative Options 2, 3, and 4 are planned to minimize ROW acquisition and follow the existing roadway alignment to the maximum extent possible while avoiding constraints. Impacts to low-income residents are not disproportionate compared to any other group. Consequently, Environmental Justice populations would not be adversely affected to a significant extent. The improved access to industrial and commercial sites would benefit the local population regardless of minority or income status. No BMPs or mitigations are recommended.

3.8 Noise

3.8.1 Existing Conditions

In general, noise can be defined as unwanted sound. Traffic noise consists of vehicular engine noise and tire noise from contact with the roadway surface. Sound is produced by the vibration of sound pressure waves in the air, and sound pressure levels are expressed in units called decibels (dB). Sound also is composed of various frequencies.⁵ The human ear is efficient at blocking out very low- and high-frequency sound. Frequencies to which the human ear does respond must be filtered out, or scaled, when evaluating traffic noise levels. The type of scale that best approximates the frequency response of the human ear is called the A-scale. Therefore, noise levels are measured as and reported in A-weighted decibels (dBA). Table 3-2 provides noise levels (in dBA) common to everyday activities.

**Table 3-2
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
Same 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 recreational areas, and 72 dBA for commercial and industrial receptors. Impacts occur when the predicted noise levels approach or exceed these levels or when they substantially exceed the existing noise levels. SDDOT has developed a Noise Analysis and Abatement Guidelines/Policy (SDDOT, May 1996) that defines “approach” as coming within 1 dBA of the NAC and “substantially exceed” as an increase of at least 15 dBA above existing noise levels. This policy, approved by FHWA and consistent with FHWA’s procedures, was followed for this analysis.

A noise study was performed as part of this Project (See Appendix C). Figure C-1 shows the locations of the noise receptors and monitoring locations. The purpose of the study was to identify current noise levels in the Study Area and to quantify the impacts of the Build

⁵ Frequency refers to the number of sound waves produced in a given time period.

Alternative Options 2, 3, and 4 relative to the NAC noise levels. Traffic noise levels were estimated using the FHWA Traffic Noise Model (TNM) Version 2.5 based on traffic volumes forecast for the “Watertown Area Transportation Plan” 2005 Update (URS, 2005) for the peak hour in the year 2030. Typically, traffic noise is not a serious problem for receptors more than 500 feet from heavily traveled freeways (FHWA, June 1995).

3.8.2 Impacts of Alternatives

Under the No-Build Alternative, future traffic noise would not substantially change in the Study Area. However, traffic noise would be expected to increase slightly along US 212 due to increasing traffic.

The noise analysis of traffic subsequent to completion of Project construction determined that no locations were impacted under Build Alternative Options 2 and 3 with noise levels that approach or exceed the NAC (HDR, 2006c). Build Alternative Option 4 would impact three residences located approximately 1,000 feet north of the intersection of 20th Avenue South and Broadway Street South with noise levels that approach or exceed the NAC. Noise mitigation is not deemed necessary for Build Alternative Option 4 since all three residences would be acquired as part of the Project. Consequently, noise mitigation was not deemed necessary for Build Alternatives Options 2, 3, or 4 (See Appendix C).

Build Alternative Options 3 and 4 would cut across the extreme northeast corner of the Pelican Lake Game Production Area. A supplemental noise analysis was conducted in September 2009 to determine specific noise impacts of Option 3 at the Pelican Lake Game Production Area. Figure 3-4b illustrates the existing and future noise levels within Game Production Area. The memo documenting the analysis is contained in Appendix C, Item 2. SDGFP agrees that anticipated noise impacts resulting from the proposed project will not affect the intended use of the Game Production Area. Appendix D, Item 16 documents this.

At the April 7, 2009 preliminary design inspection meeting (Appendix H, Item 8), the City of Watertown indicated that they may utilize a posted speed limit of 40 miles per hour on the South Connector roadway. The initial noise analysis was conducted assuming a posted speed limit of 35 miles per hour. Recalculation of noise levels at the 40 mile per hour posted speed limit resulted in future noise levels approximately 1dBA higher than the 35 mile per hour posted speed limit. This will not result in noise levels approaching or exceeding the NAC at any of the representative noise receptor locations.

Construction noise impacts and BMPs to minimize them are addressed in Section 3.19.1.

3.9 Threatened or Endangered Species

3.9.1 Existing Conditions

In accordance with Section 7(c) of the Endangered Species Act of 1973 (16 USC 1531 et seq.), informal consultation for the Project was initiated for the presence of threatened or endangered (T&E) species with the South Dakota Field Office of the U.S. Fish & Wildlife Service (USFWS) and the South Dakota Department of Game, Fish, and Parks (SDDGFP). SDDGFP and USFWS responded via a letters reproduced in Appendix D. State T&E species and species of management concern are regulated under South Dakota Statutes 34A-8 and 34A-8A, respectively. SDDGFP maintains a list of species determined to be threatened or endangered within the State. A species of management concern is a designated species that requires both control and protection.

In a letter dated July 17, 2006 (See Appendix D), SDDGFP noted that “The Big Sioux River and Willow Creek are classified as “substantial fisheries resources”” (SDDGFP, 2006a). In a letter

dated August 2, 2006, USFWS indicated that the Big Sioux River is classified as a “Type III, Substantial Fisheries Resource” (USFWS, 2006).

USFWS stated that three federally threatened or endangered species could potentially occur in this Study Area: the bald eagle (*Haliaeetus leucocephalus*), the whooping crane (*Grus Americana*), and the Topeka shiner (*Notropis topeka*) (USFWS, 2006). The bald eagle and whooping crane are listed for Codington County, but suitable habitat is not found in the Study Area.

The Topeka shiner is federal-listed endangered species that may occur in the Study Area. Although the Topeka shiner has been located in some stretches of the Big Sioux River, none have been observed recently in stretches of this river within Codington County (SDDGFP, 2006b). Habitat alteration through urbanization and intensive agricultural development increases sediment load and alters both stream hydrology and water temperatures. Thus, these alterations have the most pronounced impact on Topeka shiner populations (SDDGFP, 2003). Stream channelization, which often results in erosion and siltation, and changes in groundwater flow into streams also impact Topeka shiner populations (SDDGFP, 2003; SDDGFP, 2006b).

A State-threatened species, the trout-perch (*Percopsis omiscomaycus*), has been documented in stretches of the Big Sioux River within the vicinity of the Study Area. The trout-perch is frequently found in lakes, but also occurs in deep flowing pools of creeks and small to large rivers, especially with a sand substrate (SDDGFP, 2006b). Habitat alteration, stream channelization, and changes in groundwater flow may impact the trout-perch population (SDDGFP, 2003; SDDGFP, 2006b).

The Study Area is within the migration area of the peregrine falcon (*Falco peregrinus*) (a state-listed endangered species) and osprey (*Pandion haliaetus*) (a state-listed threatened species) (SDDGFP, 2006b). Habitat for the peregrine falcon consists of open grasslands near large populations of prey (waterfowl or colonial ground squirrels). Suitable habitat for the osprey consists of riparian or wetland areas near rivers, lakes, or ponds with large open-top trees (SDDGFP, 2006b).

The Dakota skipper butterfly (*Hesperia dacotae*), a candidate for Federal listing, and has been documented in western and south central Codington County (SDDGFP, 2006b). Habitat loss through conversion of prairies to cropland and other uses is the primary cause of decline in the extent and population of the Dakota skipper (USFWS, 2005).

3.9.2 Impacts of Alternatives

The No-Build Alternative would not impact any habitat or T&E species in the Study Area.

Short-term construction impacts from the Build Alternative Options 2, 3, and 4 are discussed in Section 3.19, Construction. The following paragraphs discuss potential long-term impacts from habitat disturbance and modification which could occur under the Build Alternative Options 2, 3, and 4. Impacts to fishery resources would be minimized with construction BMPs noted in Sections 3.2 and 3.19.6; these BMPs would help maintain fisheries potentially utilized by T&E species.

- Bald eagle - Due to the urban setting, bald eagles are not likely to occur within the Study Area (USFWS 2006). The Study Area lacks mature trees, a required habitat for bald eagles. Due to the lack of habitat, no survey is planned and impacts to the bald eagle are not likely.
- Whooping crane - The whooping crane is migratory only in northeastern South Dakota (SDDGFP, 2006b). Although the whooping crane could potentially occur in the Study

Area, it has not been found due to lack of suitable habitat (USFWS, 2006). The Project is anticipated to result in no effect on whooping cranes.

- Topeka shiner – The Topeka shiner is a known resident of Willow Creek, which is downstream of this Big Sioux River segment, the Diversion Channel, and the Pelican Lake Cutoff Channel. Although the Topeka shiner could potentially occur in the Study Area, none have been observed recently in the stretches of this river within Codington County (SDDGFP, 2006). Build Alternative Options 2, 3, and 4 are anticipated to result in no effect on the Topeka shiner.
- Trout-perch - The trout-perch may occur in the Big Sioux River within the Study Area and could potentially be impacted by the proposed construction of a bridge over this river. A determination of effect in accordance with requirements of Section 7 of the ESA is not required for the trout-perch because this species is not federal-listed as threatened or endangered. However, it is a South Dakota threatened species and is addressed in the EA because of its state designation. Although trout-perch may be temporarily affected during construction, no long-term adverse impacts are anticipated.
- Peregrine falcon and osprey - The osprey and peregrine falcon are migratory species, with no historical sightings in the vicinity of the Study Area (SDDGFP, 2006b). There is no suitable habitat in the Study Area and impacts to osprey and peregrine falcon are not likely. The Project is anticipated to result in no effect on osprey or peregrine falcon.
- Dakota skipper butterfly - Though the Dakota skipper is known to occur in Codington County, it is not likely to occur in the Study Area because there are no areas of high quality prairie grass. Areas of prairie grass are limited in extent and poor in quality in the Study Area due to previous road construction, construction of utilities, industrial and commercial development, and intensive agriculture. The Dakota skipper, if present in the Study Area, could be impacted by construction of SD 20 to US 81 through further loss of potential habitat. Formal BMPs have not been developed for this species, but management considerations include conservation of habitat where it exists. As part of other BMPs established for the NPDES permit process (See Section 3.19.5), the area of vegetation disturbed would be limited as much as practical. A determination of effect in accordance with requirements of Section 7 of the ESA is not required for the Dakota skipper because this species is not federal-listed as threatened or endangered. However, it is addressed in the EA because of its designation as a Federal Candidate species. Although Dakota skipper may be potentially affected, the amount of potential habitat removed is not anticipated to disturb the Dakota skipper population to the extent that it would cause an adverse effect. No long-term adverse impacts are anticipated.
- Migratory birds are protected under the Migratory Bird Treaty Act (16 USC 703-712, as amended). Migratory birds are known to use the Study Area for nesting, which occurs primarily between April 1 and July 15. In addition, migratory birds may also nest on bridge structures. To the extent possible, vegetation-clearing activities within the Pelican Lake Cutoff Channel would be completed outside of the nesting period (primarily between April 1 and July 15) to avoid or minimize adverse impacts on nesting migratory birds. Should clearing activities be required during this time period, SDDOT will inform the USFWS that nesting migratory birds are present. SDDOT would then coordinate with the USFWS for the recommended actions.

The USFWS has formally concurred with a ‘No Effect Finding’ for threatened and endangered species as documented in Appendix D, Item 20.

3.10 Archeological and Historic Resources

3.10.1 Existing Conditions

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires Federal agencies to determine whether their undertakings would have adverse impacts on historic properties that are listed on or are eligible for listing on the National Register of Historic Places (NRHP) and to afford the Advisory Council on Historic Places (ACHP) a reasonable opportunity to comment (36 CFR 800). In an effort to make this determination, archeological and historic resources were surveyed and their significance evaluated.

A records search indicated that at least four known archeological or historical resource sites were located within or near the Study Area of the South Connector Route, which includes the Study Area of SD 20 to US 81 (Hoskinson, 2006). Subsequently, an intensive level archeological survey (also referred to as a Level III survey) of cultural resources was conducted for the Study Area for the Watertown South Connector Project (Augustana College Archeology Laboratory, September 2006). No new sites were found within this Study Area, and three of the four known sites were within the boundaries of the Study Area. Figure 3-5 illustrates the locations of the known sites.

A prehistoric artifact scatter, Site 39CD58, is located on the eastern boundary of the Study Area. The site is located in a field between Broadway Street South and the Glacial Lakes Ethanol facility. The site was revisited, however, and is not eligible for the NRHP.

The Watertown Dump, Site 39CD59, is located in the northwest corner of the Study Area. Cultural material was observed on the ground surface covering an area outside the recorded site boundary. Site 39CD59 has been heavily disturbed by construction activities related to culvert installation and railroad construction. The site is not eligible for nomination into the NRHP (See Appendix E, Figure 6).

The Burlington Northern Railroad, Site 39CD2000, crosses the Study Area in the northwest corner, located parallel with Fish Road (See Figure 2-6). The site is considered eligible for the NRHP due to its potential to yield, or having yielded, information important in history (Criterion D). The site could also be eligible under Criterion A for its association with events that have made a significant contribution to the broad patterns of our history (i.e., railroad development).

Fieldwork for the survey was not able to be completed for the properties on the south end of the Study Area. The landowner denied permission for survey located northwest of Broadway Street South and 20th Avenue South.

3.10.2 Impacts of Alternatives

The No-Build Alternative would not impact cultural resources in the Study Area.

Build Alternative Options 2, 3, and 4 would cross Site 39CD2000, the Burlington Northern Railroad (a historic site potentially eligible for the NRHP under Criterion A and D) which is located about ¼ mile east and ¼ mile south of the intersection of US 212 and SD 20. Neither Build Alternative Options 2, 3, nor 4 would result in an adverse affect because the construction of a new at-grade crossing would not alter characteristics that make the property significant or diminish the property's integrity. Consequently, the proposed finding for compliance with Section 106 requirements is "no adverse effect" to historic property 39CD2000. SHPO has formally concurred with the determination of "no adverse effect" for site 39CD2000 as documented in Appendix D, Item 12. As noted in Section 3.10.1, there are no other historic properties that would be affected by the Build Alternative Options 2, 3, and 4. Appendix E discusses the *de minimis* impact of Build Alternative Options 2, 3, and 4 on this site.

Build Alternative Options 2 and 3 would also cross the western edge of Site 39CD58, an artifact scatter, which is located about 400 feet south of the intersection of the Glacial Lakes Ethanol facility rail spur and Broadway Street South. The site is not eligible for listing on the NRHP.

Build Alternative Options 2, 3, and 4 would impact the previous City of Watertown Dump, 39CD59. However, as noted in Section 3.10.1, this site has been heavily disturbed and is not eligible for listing on the NRHP. Based on the lack of significance of the site, no significant adverse impact would occur if a portion of the site were impacted.

The survey report also recommended clearance for the proposed project, except for an area where the survey could not be conducted due to lack of landowner permission for access (Augustana College Archeology Laboratory, September 2006). Only Build Alternative Option 4 crosses this area. If buried prehistoric or historic cultural materials are encountered during construction (should Build Alternative Option 4 be selected), work should cease in that area and the State Historical Preservation Office (SHPO) Center should be contacted immediately.

3.11 Section 4(f) and 6(f) Resources

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

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

- Public recreation areas
- Public Parks
- Public Wildlife and/or waterfowl refuges
- Significant historic properties (Excluding those properties only eligible for listing on the NRHP under Criterion D; these properties are also protected under Section 106 of the NHPA.)

Publicly owned land is considered to be a park, recreation area or wildlife and waterfowl refuge when the land has been officially designated as such by a Federal, State or local agency and the officials of these governmental entities, having jurisdiction over the land, determine that one of its major purposes and functions is for park, recreation or as a refuge. Incidental, secondary, occasional or dispersed park, recreational or refuge activities do not constitute a major purpose (FHWA, 2005a). Depending on the intensity and duration of a potential impact to park land, and whether it is permanent or temporary, Section 4(f) impacts are classified as a direct use, a constructive use, or a temporary occupancy, in accordance with the FHWA Section 4(f) Policy Paper and supporting regulations.

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, 2004). 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).

3.11.1 Existing Conditions

The SDDGFP owns 6 acres on the eastern shore of Pelican Lake which is used for access to the lake for canoeing, swimming, and fishing. This area is known as the Fish Road Access Area, and is accessed by Fish Road from US 212. The primary use of the Fish Road Access Area is public recreation; consequently, and it is a Section 4(f) resource.

There are five city parks and recreation areas within about ¼ mile of the Study Area (See Section 3.5). Four of the city parks are located near the Study Area and a fifth (Hanten Park) is within the Study Area. All four of these recreation areas are protected under Section 4(f). The four other city-owned park and recreation areas approximately ¼ mile from the Study Area and are listed below:

- Pelican Park, 14th Street Southwest and Pelican Lake about 1,500 feet southwest of the Study Area, with access from 14th Street Southwest, from US 212.
- Lion's Pool and Waterslide, US 212 and 3rd Street Southwest (about 1,000 feet north of the Study Area), with access from US 212 or 3rd Street Southwest.
- Nelson Park, South Broadway and 5th Avenue Southwest (about 1,300 feet to the north of the Study Area), assessed from US 212 and Broadway Street South or 5th Avenue Southwest.
- McLaughlin Nature Area, 4th Avenue South and SD 20 (about 1,500 feet north of the Study Area), accessed from 4th Avenue South or SD 20.

Hanten Park is a public (city-owned) park within the Study Area, consisting of 2 acres of undeveloped land used for informal recreation, such as fishing, hiking, or walking dogs (See Figure 2-4). The use of this public city park land is recreational, and therefore Hanten Park is protected as a Section 4(f) resource. There are no playgrounds or developed trails or other facilities within Hanten Park. Hanten Park is located approximately 600 feet north of the Study Area and is accessed by Fish Road, a gravel road extending south from US 212. The land for Hanten Park was purchased with city funds (Adams, 2006) and does not qualify as a Section 6(f) resource.

There are 31 other city park or recreation areas in the City of Watertown located at distances of ½ mile and greater from the Study Area. Although these could qualify as Section 4(f) resources, their distance from the Study Area precludes any further need for detailed discussion.

The BNSF railroad tracks in the northwest corner of the Study Area (See Figure 2-6) are considered eligible for the NRHP in accordance with Criteria A and D (See Section 3.10, Archaeological and Historic Resources), and qualify as a significant historic property protected under Section 4(f). An adjacent railroad spur line to the Glacial Lakes Energy ethanol plant was constructed in 2001 and is not eligible for the NRHP. A spur line leading to an industrial area south of US 212 was constructed in the 1960s and is not eligible for the NRHP. Consequently, neither of these railroad spurs qualifies as Section 4(f) properties.

Pelican Lake GPA is located adjacent to Pelican Lake, partially within the Study Area. The main access to this State-owned property is from US 212 via 14th Street W (See Figure 3-5). A secondary access is from US 212 via Fish Road. Fish Road is partially within the Study Area. The GPA is managed for the production and maintenance of wildlife species. The GPA is

occasionally used by the public for hunting, but recreation is not a major purpose of the land. FHWA has determined that the GPA is a Section 4(f) resource.

The State also owns land adjacent to and east of Pelican Lake GPA and west of the BNSF tracks and the Diversion Channel (See Figure 2-4). The additional land is not currently used for public recreation (Morlock, 2007) and is not considered a Section 4(f) resource.

Publicly-owned wildlife and waterfowl refuges in the vicinity of the Study Area are located at a distance of more than 3 miles from where the Project would be constructed. Pelican Lake Recreation Area and Sandy Shore Recreation Area (on Lake Kampeska) are also publicly-owned and are located about 3 miles to the southwest and 5.5 miles to the west, respectively. Both of these recreation areas are accessed by US 212. The refuges and recreation areas are considered to be Section 4(f) resources.

3.11.2 Impacts of Alternatives

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

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

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

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

The No-Build Alternative would not cause a Section 4(f) direct or constructive use of Hanten Park, the Fish Road Access Area, other City or State park or recreational resources, or the BNSF railroad crossing. Although access delays might increase with traffic congestion, the impacts would not be of a substantive nature to cause a Section 4(f) constructive use.

Neither the Fish Road Access Area nor Hanten Park, both Section 4(f) resources located within the Study Area, would be directly impacted by Build Alternative Options. Construction of a cul de sac on Fish Road south of US 212 would occur south of Hanten Park and would not use any Hanten Park property. See also Section 3.5.2 for a discussion of Fish Road.

There would be short-term temporary closures of the access road to the Fish Road Access Area during the construction of Build Alternative Options 2, 3, or 4. These closures would typically be for one or two days and would not substantially impair access to or use of the Fish Road Access Area.

Access to Hanten Park would not substantially change from construction of Build Alternative Options 2, 3, or 4. As part of the Build Alternative Options 2, 3, and 4, Fish Road would be split into two sections. The north section would end in a cul de sac south of Hanten Park near the electric substation and access from US 212 (from the north) would not change. Currently, people utilizing the Pelican Lake access via Fish Road could stop at Hanten Park on the return trip to US 212. This would no longer be possible with the reconfiguration of Fish Road. However, there

212. This would no longer be possible with the reconfiguration of Fish Road. However, there would still be access from a return trip from Pelican Lake by traveling the South Connector Route north to US 212 and then Fish Road south from US 212 to Hanten Park. The City of Watertown Parks and Recreation Board has determined that termination of Fish Road at the electrical substation would have no adverse impact on Hanten Park. (See Appendix D, item 11.) See also Section 3.5.2 for a discussion of Fish Road.

Build Alternative Option 2 would not have any encroachment on the Pelican Lake GPA. Build Alternative Options 3 and 4 would pass through the extreme northeast corner of the Pelican Lake GPA, impacting about 0.25 acres of land within this area (about 0.2 percent of the GPA area). Build Alternative Options 3 and 4 would have a minor impact on Pelican Lake GPA and would not adversely impact the activities, features, attributes, and functions of the GPA that qualify the area for protection under Section 4(f). A supplemental noise analysis was conducted in September 2009 to determine specific noise impacts of Option 3 on the Pelican Lake Game Production Area. The memo documenting the analysis is contained in Appendix C Item 2. The Project would have a *de minimis* impact on the GPA because it only affects a small area of the GPA. Appendix E discusses the *de minimis* impact of Options 3 on the Pelican Lake GPA.

There are four city parks and recreation areas within about ¼ mile of the Study Area accessed from US 212 or streets to the north of US 212. None of these areas would be directly affected by Build Alternative Options 2, 3, or 4, and access to these areas would not be impacted. None of the other city park or recreation areas would be impacted by either of the Build Alternative Options 2, 3, or 4. Pelican Lake Recreation Area, Sandy Shore Recreation Area, and wildlife refuges located several miles to the west of the Study Area would not be directly impacted by Build Alternative Options 2, 3, or 4 and no constructive use affecting these properties is projected to occur.

The BNSF Railroad has been identified in the SHPO inventory as Site 39CD2000 and is considered eligible for the NRHP. However, as noted in Section 3.10.2, the Project would not alter characteristics that make the property significant or diminish the property's integrity. Consequently, no adverse effect was proposed as a historic property eligible for the NRHP. Permanent incorporation of a portion of Site 39CD2000 into a transportation facility represents a direct use of Section 4(f) property. However, the small amount of this land to be included in the roadway ROW is unavoidable⁶. The BNSF railroad is in operation and is regularly maintained, and there are existing at-grade crossings within ¼ mile of the proposed crossing. The Build Alternative Options 2, 3, or 4 would cause a *de minimis* impact. The Federal Highway Administration (FHWA) issued guidance on December 13, 2005, for determining *de minimis*⁷ impacts on Section 4(f) resources. This guidance came from an amendment of existing Section 4(f) legislation through adoption of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)⁸ to simplify the processing and approval of

⁶ The site runs parallel to the existing Pelican Lake Outlet Channel which the route of the Build Alternative Options crosses.

⁷ "Black's Law Dictionary (8th ed. 1999) defines *de minimis* as 1. Trifling, minimal. 2. (Of a fact or thing) so insignificant that a court may overlook it in deciding an issue or case. 3. *De Minimis Non Curat Lex*, The law does not concern itself with trifles." as cited in FHWA, December 19, 2005, Questions and Answers on the Application of the Section 4(f) *De Minimis* Impact Criteria.

⁸ Section 6009(a) of SAFETEA-LU, Public Law 109-59, amended existing Section 4(f) legislation at 23 United States Code (USC) 138 and 49 USC 303. SAFETEA-LU replaces the term "Section 4(f)" with "Section 303" (referring to 49 USC 303, the current section of the Federal code dealing with "Section 4(f)" issues). However, this *de minimis* impact finding retains the term "Section 4(f)" in keeping with current guidance from FHWA and the state transportation departments.

projects that have only *de minimis* impacts on lands protected by Section 4(f) (FHWA, 2005b). FHWA intends to prepare a *de minimis* findings for submittal to the SHPO for concurrence. Appendix E discusses the *de minimis* impact of Build Alternative Options 2, 3, and 4 on this site.

No Section 6(f) resources exist in the Study Area. Neither the No-Build Alternative nor the Build Alternative Options 2, 3, and 4 would impact Section 6(f) resources.

Appendix D, Item 12 contains SHPO concurrence that the noted sites are either not eligible for listing on the National Register of Historic Places or that the project will have no adverse effect on the sites

3.12 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.

3.12.1 Existing Conditions

Both a file search and a field survey of the Study Area were conducted to identify sites with recognized environmental conditions (RECs).⁹ Environmental Data Resources, Inc. (EDR) conducted a file search for an area slightly larger than the Study Area (EDR, 2006). HDR conducted a field survey to confirm locations of sites listed in the EDR report and identify other potential REC sites not listed by EDR. A review of both file searches and the field survey indicated the presence of the following RECs within the Study Area. Figure 3-2 shows the location of all identified sites within the Study Area.

⁹ 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.

EDR Listed Sites

The site numbers listed below are those assigned by EDR (See Table 3-3).

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

Facility Name	Reason for Listing	Location	Field Survey Confirmed Location
EDR Listed Sites			
Sharp Chevrolet, Inc.	UST / RCRA (SQG) / FINDS	US 212 and SD 20	Yes ¹
Ag-Fertilizer Inc	SSTS / SPILLS	900 9 th Avenue Southwest	No ²
RMR Industries	RCRA (SQG) / FINDS / SPILLS	1002 9 th Avenue Southwest	No ³
Top Crops Company Inc.	RCRA (SQG) / FINDS	900 9 th Avenue Southwest	No
Glacial Lake Energy	FINDS / AIRS	1333 South Broadway	No
Roger's Salvage	SWRCY	1507 South Broadway	Yes
Glacial Lakes Energy	RCRA (LQG) / FINDS / TRIS	301 20 th Avenue Southeast	Yes
Oak Valley Farms Inc.	FINDS	SE ¼ of Section 1, Township 116 North, Range 53 West	Yes
Non EDR-Listed / HDR Field Identified Sites			
Padgett Sales, Automobile Salvage	N/A	North of 20 th Avenue Near the Boundary of the Study Area	Yes
Abandoned Tank Project-Southfork	LUST	1905 5 th Street Southeast	Yes
Prairie Stop Gas Station (and Former Highway Sinclair)	UST / Former SPILLS	NW Corner, Intersection of US 212 and SD 20	Yes

Notes: AIRS =Facilities with air emissions; FINDS = Facility Index System; LUST = Leaking Underground Storage Tanks; RCRA = Resource Conservation and Recovery Act; SQG = Small Quantity Generator; SPILLS = South Dakota spills database; SSTS = Section 7 of the Federal Insecticide, Fungicide, and Rodenticide Act; SWRCY = businesses that accept recyclables; TRIS = Toxic Release and Chemical Release Inventory System; UST = Underground Storage Tank

¹ As discussed above, the USTs are no longer at this site, but there are ASTs.

² As discussed above, Agriliance is now located here. A search of databases and maps has confirmed that this is the site of a spill of fertilizers and pesticides

³ As discussed above, RMR Industries is no longer located here. Sharp Chevrolet purchased this building and there is no longer regulated material at this location.

Site 13 is associated with numerous businesses.

- Sharp Chevrolet-Pontiac Inc., located at the intersection of US 212 and SD 20, was noted to have two underground storage tanks (UST). One UST contained gasoline and the other contained used oil (See Figure 2-4 and Figure 3-2). Sharp Chevrolet-Pontiac is listed as a small quantity generator (SQG) of hazardous waste. The field survey

confirmed the noted location of the business. The USTs were removed several years ago (Sharp, 2006). Two above ground storage tanks (ASTs) were installed in a bunker enclosed in a building. One AST is for oil and the other AST is for waste oil (Sharp, 2006). The building with the ASTs is about 400 feet to the west of the planned route for Build Alternative Option 2.

- The business formerly called Ag-Fertilizer Inc. (Site A in Figure 3-2 and Table 3-3) was a registered pesticide-producing business regulated by Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). Ag-Fertilizer Inc. operated at the site (900 9th Avenue Southwest) from 1984 to 1994. Cenex-Land O'Lakes (now Agriliance) purchased the site in late 1994. Ag-Fertilizer Inc. is listed as having produced several herbicides and insecticides. The company also manufactured fertilizers at this location. Ag-Fertilizer Inc. is listed on the South Dakota SPILLS database as reporting a nitrate/pesticide spill in November 1993. Contamination of soil with nitrates, nitrites, ammonia, and up to 22 pesticides and pesticide components (including atrazine, cyanazine, S-Ethyl dipropylthiocarbamate, metolachlor, prometryn, and simazine) was discovered during site assessments in August 1994. Between October 1994 and November 1998, three excavations removed over 2,700 cubic yards of soil from the site.

Groundwater monitoring wells which operated on the site from 1996 to 2001 indicated concentrations of metolachlor at up to 90 times the State groundwater standard (particularly in a monitoring well near the north end of the property). Concentrations of metolachlor were still nearly twice the State groundwater standard in 2001 (the last monitoring conducted at the site) (SDDENR, 2003). Concentrations of atrazine were above State groundwater standard in samples taken in 1996 from a residential well on the property to the east of the Ag-Fertilizer Inc. property, but declined to below the standard (SDDENR, 2003). Groundwater concentrations of nitrate/nitrite were above the State standard in all but one onsite monitoring well and in one offsite monitoring well to the east of the property (SDDENR, 2006c). Concentrations of nitrates/nitrites in groundwater declined to below State standards in all but one onsite well (SDDENR, 2003). Groundwater concentrations of ammonia were above State standards in five wells in 1996 and 1997, but have declined to below the standards in all but two of the wells in the central part of the property (SDDENR, 2003). A No Further Action Decision for the spill was issued by SDDENR in 2003.

- RMR Industries (Table 3-3 and Site B in Figure 3-2) is a listed SQG and was located at 1002 9th Avenue Southwest. Additionally, RMR Industries is listed on the South Dakota SPILLS database as reporting a nerosol dye spill in August 1997. Between 2 pints and 2 quarts of dye spilled within the facility building. The incident occurred during a fire at the building. Water from the sprinkler system and fire department ran into a storage room and the dye spilled into this water. About 3 to 5 gallons of paint and varnish also spilled into the water. The nerosol dye contained 200 ppm methanol and 200 ppm methylethylketone. The dye and paint-tainted water was contained within the building and pumped into about 20 55-gallon drums and disposed of in accordance with applicable regulations (SDDENR, 1997). The spill was closed with no further action required by SDDENR in December 1997 (See Table 3-4). The location of the building was confirmed in the SDDENR report and in a conversation with Doug Sharp (Sharp, 2006). RMR Industries closed in 2000 and the building was purchased by Doug Sharp. The building is now used for storage and does not contain regulated materials (Sharp, 2006).
- Top Crops Company Inc. is a listed SQG and was indicated as existing at 900 9th Ave. Southwest. Top Crops Company Inc. was not found during the field survey. As

discussed above, Agriliance is now located at this address and occupies the facilities formerly owned and/or operated by Top Crops Company Inc.

Site 30 is Glacial Lakes Energy, located at 1333 South Broadway, and is listed on the South Dakota AIRS database. The EDR-mapped location of Site 30 contains no structures and is thought to potentially be the location of an air monitor potentially required by the Title V Permit granted to the actual Glacial Lakes Energy buildings (EDR Site 37). The field survey did not identify an air monitor in this location.

Site 34 is Roger's Salvage, is located at 1507 South Broadway, and is listed on the South Dakota SWRCY database as a business that accepts automobiles for salvage. The field survey confirmed the location and business type. In addition, ASTs and previously excavated USTs were noted on the property. There are no registered storage tanks at this address (SDDENR, 2006d).

Site 36 is the Southfork Abandoned Tank Project (site number 2001.593) located at 1905 5th Street Southeast (the northwest corner of US 81 and 20th Avenue South) and is listed on the environmental events database (SDDENR, 2006c). A minor petroleum release was reported at this location in September 2001 and contaminated the tank basin. Sampling from a groundwater monitoring well adjacent to the spill indicated contamination, but another monitoring well did not detect any contamination. The State determined that no further action was required due to the minor extent of contamination (Honeywell, 2006). One 8,000 gallon and four 1,000 gallon underground storage tanks (USTs) were removed from this site. The field survey identified a nightclub known as Southfork at this address, and found no evidence of USTs or associated contamination.

Site 37 is Glacial Lakes Energy and is located at 301 20th Avenue Southeast. The site is a large ethanol plant that is listed as a Large Quantity Generator (LQG) of hazardous waste. Additionally, the plant is listed on the Toxic Chemical Release Inventory System (TRIS) database for hexane, xylene, benzene, toluene, ammonia, acetaldehyde, ethylbenzene, and 1,2,4 trimethylbenzene, and on the Permit Compliance System (PCS) as facility that holds a National Pollutant Discharge Elimination System (NPDES) permit. Specific types and volumes of emitted chemicals are not indicated in the EDR Report. Glacial Lakes Energy released 12,984 pounds of acetaldehyde (defined as a hazardous air pollutant by the Clean Air Act) in 2003 and 13,286 pounds in 2004 as point-source air emissions (TOXNET, 2006). No other releases were reported. Site 30 is also owned by Glacial Lakes Energy and may be the location of an air monitor required by the facility's Title V permit. The field survey noted that the Burlington Northern Santa Fe Railroad provides rail service to the plant.

Site 38 is Oak Valley Farms Inc. and is located in the southeast quarter of Section 1, Township 116 North, Range 53 West. This site is listed on the PCS as facility that holds a NPDES permit. The field survey verified the location of Oak Valley Farms Inc., but did not observe the permitted effluent discharge point.

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

Site 39 is Padgett Sales, an automobile salvage operation located north of 20th Avenue, near the western boundary of the Study Area limit (about ¼ mile west of South Broadway Street). The site houses several hundred salvaged cars that have the potential to leak fuel, motor oil, engine coolant, and other liquids that could migrate toward the wetland area. However, no spills have been reported at this site (SDDENR, 2006c) and the site is not listed on any USEPA or South Dakota databases.

Site 40 is a Municipal Utilities Department Gas Pipeline Station located just southwest of the Study Area boundary, south of 20th Ave. No releases or permit violations have been identified at this location.

Site 48 is a Prairie Stop full-service gas station is present on the northwest corner of US 212 and SD 20 (Site 48 and Site C in Figure 3-2 and Table 3-3). The station currently has five registered USTs (SDDENR, 2006d). This gas station was the site of a diesel fuel spill (50 gallons) in May 2000. The spill occurred from an overflow of fuel tanks on a truck and the spill ran into the storm sewer on the property. The spill was contained in a drainage channel south of US 212 and SD 20 (in the pathway of the Build Alternative Options). The spill was cleaned up and closed in September 2002 after it was determined that sufficient cleanup had been completed and no further action was required (SDDENR, 2002a).

The former Highway Sinclair gas station, at the same location as the current Prairie Stop gas station, was the site of a diesel fuel spill from leaking USTs in March 1991. There were three 3,000 gallon USTs containing gasoline and three 3,000 gallon USTs containing diesel fuel (SDDENR, 2006d). Eight groundwater monitoring wells were installed in 1991. Six of these wells were onsite (on the northwest corner of US 212 and SD 20), one well was near the northeast corner of US 212 and SD 20, and one well was near the southwest corner of US 212 and SD 20 (SDDENR, 2002b). Sampling conducted from June 1991 to October 2002 at three of the onsite wells indicated concentrations of benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons (for gasoline) were above the South Dakota standards for groundwater (SDDENR, 2002b). Sampling results at the other five locations were below standards. The site was not cleaned up to State soil and water standards, but was closed in November 2002, with no further action required after it was determined by SDDENR that the release no longer posed a risk to human health or the environment, based on current land use (SDDENR, 2002b).

A BNSF Railway facility (Site D in Figure 3-2 and Table 3-3) on Burlington Northern Drive (near the northeast corner of US 212 and SD 20) was the site of a 1,500 gallon diesel fuel spill in September 1988. The spill site was closed in February 1991 with no further action required (SDDENR, 2006c).

Two tons of urea fertilizer was spilled in May 1995 at Farmland Industries (Site E in Figure 3-2 and Table 3-3) on the BNSF rail line northeast of US 212 and SD 20. The spill site was closed in November 1995 with no further action required (SDDENR, 2006c).

**Table 3-4
Spill/Release Sites in the Study Area**

Map ID	Name	Location	Incident Date	Comments
A	Former Ag-Fertilizer Inc	900 9 th Avenue Southwest	November 1993	Pesticides, nitrogen fertilizers, NFAR January 2003
B	Former RMR Industries	1002 9 th Avenue Southwest	August 1997	Nerosol dye, paint, Closed December 1997
C	Prairie Stop Gas Station (and Former Highway Sinclair)	NW Corner, US 212 and SD 20	May 2000; March 1991 ¹	Diesel spill closed September 2002; leaking USTs NFAR November 2002 ¹
D	BNSF Railroad	NE of US 212 and SD 20	September 1988	Diesel spill closed February 1991
E	Farmland Industries	NE of US 212 and SD 20	May 1995	Urea fertilizer closed November 1995

Notes: NFAR = No Further Action Required; UST = Underground Storage Tank

1 Two incidents occurred at this facility: a diesel fuel spill of 50 gallons in May 2000 and leaking USTs in March 1991. The fuel spill was closed in September 2002. The leaking USTs required a groundwater monitoring well system and the site was closed with no further action required in November 2002.

3.12.2 Impacts of Alternatives

The No-Build Alternative would not impact regulated material sites in the Study Area.

The sites listed in Section 3.12.1 above are intersected by or near the Build Alternative Options 2, 3, and 4 Study Area. The following description lists each site, identifies the potential for impact by Build Alternative Option 2, and, if applicable, provides recommendations for further investigation:

- Sharp Chevrolet-Pontiac has two ASTs (one for oil and the other for waste oil), and is listed as a SQG of hazardous waste. Sharp Chevrolet-Pontiac is about 200 feet west of the route for Build Alternative Option 2 and would not be impacted. The two ASTs are located within a bunker in a building about 400 feet west of Build Alternative Option 2 and would not be impacted.
- Agriliance, the former site of Top Crops and Ag Fertilizer would be impacted by construction of Build Alternative Option 2. The planned route would pass through the southern one-fourth of the property (about 400 feet north of the southern property boundary). As discussed above, there was residual contamination from atrazine, nitrates, and ammonia at the site, but SDDENR determined that the release was no longer a threat to human health or the water supply for Watertown. The route of Build Alternative Option 2 would pass through the southern part of the Agriliance property and, depending on the final design, would pass through or come very close to one of the areas where soil was excavated during the remediation process to removed excessive nitrate concentrations (SDDENR, 2003). The route for Build Alternative Option 2 would not impact any of the monitoring well sites. The nearest monitoring well in this area has not shown excessive levels of nitrate since 1997. However, the nitrate concentration in the soil at the former remediation site is unknown, and soil testing to confirm the presence or absence of excessive nitrates should be completed before construction begins.

- The former RMR Industries site (now used for storage for Sharp Chevrolet-Pontiac) was closed in December 1997. This site is on the west side of the planned route of the South Connector near the intersection with SD 20, but no impacts are anticipated because the spill was confined to within the building and has been cleaned of all contamination.
- Glacial Lakes Energy site is a RCRA LQG that has no reported violations and is listed in the TRIS database for point-source air emissions of acetaldehyde. The current design for Build Alternative Option 2 is to construct the new road to the south of the current centerline, and no ROW would be acquired from Glacial Lakes Energy. The Project would not affect nor be affected by this REC site.
- Roger's Salvage property includes salvaged automobiles, ASTs, and previously excavated USTs. Current design for Build Alternative Options 2 is to construct the new road to the east of the centerline, and would not require any ROW from Roger's Salvage. There are no reported spills or violations recorded for this site. The Project would not affect nor be affected by this REC site.
- Oak Valley Farms, located approximately 2,000 feet west of the Build Alternative Option 2, would not be impacted.
- Padgett Sales, an automobile salvage operation located about 1,300 feet to the west of Build Alternative Option 2, would not be impacted.
- Abandoned Tank Project-Southfork is a LUST site that was closed and required no further action by SDDENR. The site is located on the north side of the existing 20th Avenue South. The current design for Build Alternative Option 2 is to construct the new road to the south of the current 20th Avenue centerline, and no ROW would be acquired from Southfork. The Project would not affect nor be affected by this REC site.
- The Prairie Stop Gas Station and former Highway Sinclair gas station at the northwest corner of US 212 and SD 20 had two spills and contained six LUSTs. A LUST monitoring well is located southwest of US 212 and SD 20 within the area of a planned right turn lane to provide access from US 212 to the South Connector Route. The current status of this well is not known and needs to be verified before construction begins. If the well is still present, it would need to be closed and sealed in accordance with SDDENR regulations.
- The spill sites at Farmland Industries and BNSF Railroad are located at a sufficient distance from the proposed route for Build Alternative Option 2 that they would not be impacted or impact the Project. Groundwater flow in this area is to the east, and if there is any residual contamination remaining, it would not impact the Project.

There have been other spills within ¼ to ½ mile of the proposed route for Build Alternative Option 2, but due to the size and type of spills, these are unlikely to affect the area in which Build Alternative Option 2 is planned to be constructed. All of these spill sites have been closed by the SDDENR (SDDENR, 2006b).

No other properties along the route of Build Alternative Option 2 are known to be contaminated with regulated materials or to be a potential source of contamination.

Build Alternative Options 3 and 4 would impact most of the properties containing regulated materials in the same way as Build Alternative Option 2. Build Alternative Option 4 would require acquisition of part of Roger's Salvage near the existing Broadway Street, whereas Build Alternative Options 2 and 3 would be located to the east of Roger's Salvage. The area of Roger's Salvage which would be impacted by Build Alternative Option 4 contains salvaged ASTs and

USTs. No spills have been reported at this location, but the condition of the land is unknown. Build Alternative Option 4 would also pass through the center of the former Watertown landfill near the Diversion Channel (See Figure 3-5). The landfill operated until the 1950s, and the types and amounts of materials dumped there is unknown. Soil testing to characterize potential contamination is recommended for areas of Roger's Salvage that would be impacted by Build Alternative Option 4. Build Alternative Options 3 and 4 would pass further to the south of the former Ag Fertilizer property spill sites than Build Alternative Options 2, and would not impact any of the former sampling wells or spill sites. All other impacts from Build Alternative Option 3 and 4 would be the same as those described for Build Alternative Option 2.

As a construction BMP for the either Build Alternative Options 2, 3, or 4, the contractor should be alert for large areas of soil staining, buried drums, or USTs, and coordinate with SDDOT and SDDENR if any area found, prior to continuing with work in those areas.

3.13 Land Use

3.13.1 Existing Conditions

The Study Area is relatively flat with a decrease in elevation within the Lake Pelican and Big Sioux River floodplains. Land use within the area is predominately agricultural (row crop or pasture), except for three industrial areas, Oak Valley Farms, Hanten Industrial Park, and a commercial park located at the intersection of US 212 and SD 20. Oak Valley Farms is located in the southwest corner and Hanten Industrial Park is located in the southeast corner of the Study Area. Within the Study Area, a manufactured housing development is located northwest of Broadway Street South and 20th Avenue South and a few residences and two commercial businesses are located on the west side of Broadway Street South. The remainder of the Study Area is not developed due to the incidence of shallow aquifer, wetlands and floodplain.

The Watertown Comprehensive Land Use Plan (First District, 2004) indicates that future land use plans for 20th Avenue South located within the Study Area includes continued development into industrial areas (See Figure 3-3, Future Land Use). The Plan discourages other development in the proximity of the Study Area because of an underlying shallow aquifer. The City also recommends that development in the higher elevation areas south of 20th Avenue South be discouraged due to difficulty in providing adequate water pressure.

3.13.2 Impacts of Alternatives

The No-Build Alternative would delay proposed development in the Study Area due to the limited capacity of the current roadways to support traffic flow. Existing land use would not substantially change.

Build Alternative Options 2, 3, and 4 impact agricultural lands in this area. Section 3.14, Farmland, discusses the agricultural land intersected by the new alignment for the Build Alternative Options 2, 3, and 4. The Build Alternative Options 2, 3, and 4 would also be built in proximity to businesses located at the intersection of SD 20 and US 212 and the businesses located northwest of the intersection of US 81 and 20th Avenue South. The impact to the industrial/commercial area northwest of US 81 and 20th Avenue South would be minimal.

Build Alternative Options 2, 3, and 4 would take commercial land south of US 212 and SD 20. These impacts would be less than 0.75 acre of each business, and would not cause relocation of these businesses. Relocations are further discussed in Section 3.17. The Build Alternative Options 2, 3, and 4 do support planned development in the Broadway Street South and SD 20 area and would be consistent with the Comprehensive Land Use Plan. No BMPs or mitigations are proposed. Indirect impacts to land use are discussed in Section 3.20, Indirect and Cumulative Impacts.

Overall, land use in the area is not anticipated to change significantly because of floodplain and aquifer issues.

3.14 Farmland

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

3.14.1 Existing Conditions

3.14.1.1 Prime Farmland

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

3.14.1.2 Unique Farmland

Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high-quality and/or large yields of a specific crop when treated and managed according to modern farming methods. Farmlands in the Study Area are dedicated to row crop production, hay, and pasture and are not considered unique farmlands. No unique farmland is present within the Study Area.

3.14.2 Impacts of Alternatives

The No-Build Alternative would not affect existing farmland in the Study Area.

In accordance with the Farmland Protection Policy Act of 1981 (7 CFR 658), a USDA Farmland Conversion Impact Rating Form (See Form NRCS-CPA-106 in Appendix F) was completed for Build Alternative Options 2, 3, and 4:

Build Alternative Option 2 would convert 16.3 acres of land now in agricultural production (including pasture) to roadway ROW (See Figure 2-5, Farmland Impacts). The total acreage of farmland converted to ROW represents approximately 0.004 percent of the farmland within the County (USDA National Agricultural Statistics Service, 2002 Census). The USDA NRCS land evaluation for Build Alternative Option 2 received a score of 25 points out of a possible 100. The site assessment performed for Build Alternative Option 2 received a score of 45 points out of a possible 160. This is a combined score of 70 points out of a possible 260. Combined scores of less than 160 points are considered to have no significant impacts on prime or important farmlands.

Build Alternative Option 3 would convert 8.1 acres of land now in agricultural production (including pasture) to roadway ROW (See Figure 2-5, Farmland Impacts). The total acreage of farmland converted to ROW represents approximately 0.002 percent of the farmland within the County (USDA National Agricultural Statistics Service, 2002 Census). The USDA NRCS land evaluation for Build Alternative Option 3 received a score of 16 points out of a possible 100. The

site assessment performed for Build Alternative Option 3 received a score of 50 points out of a possible 160. This is a combined score of 66 points out of a possible 260. Combined scores of less than 160 points are considered to have no significant impacts on prime or important farmlands.

Build Alternative Option 4 would convert 9.0 acres of land now in agricultural production (including pasture) to roadway ROW (See Figure 2-5, Farmland Impacts). The total acreage of farmland converted to ROW represents approximately 0.002 percent of the farmland within the County (USDA National Agricultural Statistics Service, 2002 Census). The USDA NRCS land evaluation for Build Alternative Option 4 received a score of 18 points out of a possible 100. The site assessment performed for Build Alternative Option 4 received a score of 34 points out of a possible 160. This is a combined score of 52 points out of a possible 260. Combined scores of less than 160 points are considered to have no significant impacts on prime or important farmlands.

Because neither Build Alternative Options 2, 3, nor 4 would have significant impacts on farmland, no mitigation would be required.

3.15 Floodplain

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

The City of Watertown is a participating community in the FEMA National Flood Insurance Program and is responsible for enforcement of FEMA regulations. The Big Sioux River contains a 100-year floodplain, and a corridor within this floodplain which is referred to as a 100-year floodway. The floodway shows the limit to which filling of the floodplain can occur without exceeding a predetermined increase in water surface elevations. In the Watertown area, the 100-year floodway elevations are 1.0 feet above the 100-year floodplain elevations.

If a proposed project involves placement of roadway embankment, bridge, or box culverts within the floodway corridor, a hydraulic analysis must be performed to determine the effects of the encroachment. If the encroachment does not increase 100-year floodway water surface elevations, the project is considered to cause “no-rise”. If the encroachment results in an increase to 100-year floodway water surface elevations, a Letter of Map Change (LOMC) must be acquired from FEMA prior to construction. The LOMC process would result in revised FEMA floodplain maps.

As a participating community in the FEMA National Flood Insurance Program, the City of Watertown has the authority to require additional or more stringent regulations for floodplain/floodway management. The City of Watertown regulations require a “no-rise” for the Big Sioux River. The City of Watertown does not want to make an exception to this ordinance or revise floodplain maps so all build alternative options are based on acquiring a “no-rise” in the 100-year floodway water surface elevations. As such, no LOMC’s will be required.

The Diversion Channel and the Pelican Lake Cutoff Channels have mapped 100-year floodplains (but no floodways). FEMA requirements for filling within this area are less stringent, allowing up to a 1-foot rise in the 100-year floodplain water surface elevations. The City of Watertown, however, requires any impacts to the 100-year floodplain water surface elevations in these channels to be limited to an increase of 0.10 feet or less. As a result, project alternates are based

on increasing water surface elevations by less than 0.10 feet within the Diversion Channel and the Pelican Lake Cutoff Channels.

3.15.1 Existing Conditions

The current Flood Insurance Study (FIS) for Watertown is dated September 28, 2007. The floodplain map for the Big Sioux River is shown in Figure 3-2. The hydraulic model used for FIS mapping was acquired from FEMA and used as the basis for determining impacts of various build alternatives.

The 100-year floodplain mapping within the Diversion Channel and the Pelican Lake Cutoff Channel are based on approximate methods. Aason Engineering created HEC-RAS hydraulic models in order to accurately model water surface elevations within these channels. These models are more detailed than the approximate methods used to delineate FIS 100-year floodplain elevations in these channels. Furthermore, this modeling was calibrated with the USACE's Big Sioux River HEC-RAS model (which was the basis for the FIS) and with water surface elevation data observed during actual flooding. The calibration with the USACE model included an iterative modeling procedure to determine the amount of water that goes through the Diversion Channel enters Pelican Lake, and returns back to the Big Sioux River through the Pelican Lake Cutoff Channel. These calibrated models for the Diversion Channel and the Pelican Lake Cutoff Channel were used to determine existing conditions, and were used as the basis for subsequent modeling of build alternative options. Appendix G includes the memorandum on the hydraulic modeling conducted for the project.

3.15.2 Impacts of Alternatives

3.15.2.1 Diversion Channel and Pelican Lake Cutoff Channel

The No-Build Alternative would not affect existing floodplains of the Diversion Channel or the Pelican Lake Cutoff Channel.

Build Alternative Options 2, 3, and 4 would cross the Diversion Channel and the Pelican Lake Cutoff Channel. Concrete slab bridges and/or box culverts are proposed for the Diversion Channel and Pelican Lake Cutoff Channel crossings. The initial hydraulic analysis (Appendix G, Item 1) recommended bridge crossings in order to maximize the flow area beneath the low bridge chord and minimize potential water surface elevation impacts. The hydraulic data sheet prepared in August 2009 for Option 3 allows for either box culverts or bridges at both crossings (Appendix G, Items 2 and 3).

For the Diversion Channel, Build Alternative Option 2 would require a 3 span bridge approximately 60 feet long. Build Alternative Option 3 would require a 3 span bridge approximately 74 feet long. Build Alternative Option 4 would require a 3 span bridge that is approximately 83 feet long. Based on the August 2009 hydraulic data sheet for Option 3, four 12 foot by 10 foot box culverts could be utilized instead of a bridge.

For the Pelican Lake Cutoff Channel, Build Alternative Option 2 would require a single span bridge approximately 50 feet long. Build Alternative Option 3 would require a 3 span bridge approximately 80 feet long. Build Alternative Option 4 would require a 3 span bridge approximately 80 feet long. Based on the August 2009 hydraulic data sheet for Option 3, five 14 foot by 11 foot box culverts could be utilized instead of a bridge.

Hydraulic modeling of the bridge/box culvert crossings of the Diversion Channel and the Pelican Lake Cutoff Channel has shown that water surface elevations would not increase by more than 0.10 feet as a result of any of the Build Alternative Options. As such, FEMA and local regulations are met by Build Alternative Options 2, 3, and 4. Water velocities in the channel do not indicate the likelihood of significant scour potential at these locations.

Option 2 encroaches on approximately 17.6 acres of the combined 100 year floodplain of the Big Sioux River and the Diversion and Pelican Lake Cutoff Channels. Options 3 and 4 encroach on approximately 13.3 acres and 10.9, respectively, of the combined 100-year floodplain. Option 3 encroaches on portions of the Pelican Lake Cutoff Channel. This would need to be mitigated by realignment of the channel in the encroachment locations.

Due to the grading that is proposed within the channels, Section 404 permits would be required from the USACE and Section 401 permits would be required from the SDDENR. A Section 10 permit is sometimes required in addition to Section 404 and 401 permits. This permit is required when work is being done in, over, or under a navigable water of the US. According to the USACE's Omaha District office, the Big Sioux River is not considered navigable at the project location. Therefore, the Diversion and Pelican Lake Cutoff Channels would also not be considered navigable. As such, a Section 10 permit would not be required.

3.15.2.2 Big Sioux River

The No-Build Alternative would not affect the existing floodplain or floodway of the Big Sioux River.

Build Alternative Options 2, 3 and 4 would not encroach on the floodway of the Big Sioux River. A section of the existing Broadway Street South which is within the floodway of the Big Sioux River would remain, but there would be no change in existing conditions. Build Alternatives 2, 3, and 4 involve placement of fill within the combined floodplain of the Big Sioux River and the Diversion channel. The placement of fill for these alternatives, however, is within ineffective flow areas. This placement of fill would not result in any changes to water surface elevations of the Big Sioux River or the Diversion Channel. As a result of achieving a "no-rise" for the three build alternatives, a LOMC will not be required.

3.16 Economic Resources

This section addresses the social and economic character of the Study Area. The sources used for this socioeconomic analysis were the most recent available: the U.S. Census Bureau 2000 census data (the latest comprehensive survey), including Summary File 1 for population and racial characteristics and Summary File 3 for income and poverty data (U.S. Census Bureau, 2000). Additionally, the City of Watertown Comprehensive Land Use Plan Final Draft (City of Watertown, 2004) was utilized for applicable economic data needs.

3.16.1 Existing Conditions

3.16.1.1 Population

Populations and racial characteristics of the Study Area were analyzed at the block level, while block groups were used to present the income characteristics of the Study Area. The census analysis used the State of South Dakota, Codington County, and the City of Watertown as benchmarks to compare localized data against.

At the block level, the smallest level of aggregation, the 2000 U.S. Census indicated a population of 375 persons within the blocks included in the Study Area. Watertown's population increased approximately 1.5 percent annually, from 17,592 in 1990 to 20,237 in 2000.

According to the Watertown Comprehensive Land Use Plan, steady population growth occurred between 1980 and 2000. Although, growth is expected to continue in the future, it may not be on the same level as the growth experienced during the 1980s and 1990s (City of Watertown, 2004). Table 3-5 shows population projections for the City.

**Table 3-5
Current and Future Population of the City of Watertown**

Year	City of Watertown Total Population
2000	20,237
2005	21,856
2010	23,475
2015	25,094
2020	26,713

Source: City of Watertown Comprehensive Land Use Plan Final Draft, October 1, 2004

Note: City of Watertown population figures are medium projections (Comp Plan also gives low and high projections).

3.16.1.2 Income and Employment

The median household income in 1999 was approximately \$34,348 for the City and \$36,257 for Codington County. These incomes were below and above the 1999 statewide median household income of \$35,283 respectively.

The ten largest employers within the City are the Watertown School District, Premier Bankcard, Prairie Lakes Healthcare Systems, Terex Telelect, Angus-Palm, Wal-Mart, City of Watertown, Oak Valley Farms, HyVee, and Human Service Agency.

The bulk of Watertown's commercial business (including many service industry businesses) is concentrated along US 212. Industrial areas are situated primarily along US 212 and SD 20 and along the railroad corridor in the central portion of the City. Small concentrations of businesses, within the Study Area, occur at the intersection of US 81 and 20th Avenue South and at the proposed intersection of US 212 and the South Connector Route.

3.16.2 Impacts of Alternatives

The No-Build Alternative would not affect economic resources in the Study Area.

Build Alternative Option 2 would require a total of 25.2 acres of new ROW from private landowners, Build Alternative Option 3 would require a total of 15.2 acres, and Build Alternative Option 4 would require a total of 14.9 acres (See Figure 2-4). Relative to the total developable growth areas identified in the 2004 Watertown Comprehensive Plan, the amounts of new ROW required by Build Alternative Options 2, 3, and 4 is small. Additionally, impact of this size would not affect the ability of the area to be developed and to generate new jobs and City income via property and sales taxes. The construction of Build Alternative Options 2, 3, and 4 would provide improved access to the area, thus increasing its attractiveness for local business owners, employees, and consumers.

As no adverse impacts on economic resources would occur, no mitigation is required.

3.17 Relocations

3.17.1 Existing Conditions

A field survey identified businesses and residences within and adjacent to the Study Area. The three industrial parks located in the Study Area are Hanten Industrial, Oak Valley Farms, and commercial park located south of the intersection of US 212 and SD 20. Hanten Industrial is located on northeast corner of Broadway Street South and 20th Avenue South. Oak Valley is located on the northwest corner of 7th Street Southwest and 20th Avenue South. About 110 residences are within a manufactured housing development located at the northwest corner of

Broadway Street South and 20th Avenue South. A few residences and two commercial businesses are located on the west side of Broadway Street South.

3.17.2 Impacts of Alternatives

The No-Build Alternative would not cause relocations of business or residences in the Study Area.

The Build Alternative Options 2, 3, and 4 could require the partial acquisition or relocation of the following businesses (See Figure 2-4):

- The United Building Center (UBC) business located on the southeast side of the intersection of SD 20 and US 212 consists of the main office building and several storage buildings. The storage buildings located on the west side of the property would require partial acquisition or relocation.
- The former RMR Industries building located on the southwest side of the intersection of SD 20 and US 212, currently owned by Sharp Chevrolet, is utilized for storage. The building could possibly be impacted due to the space constraints on the loading docks located on the east side of the building.

The Build Alternative Option 4 would also require the acquisition or relocation of the following residences (See Figure 2-4):

- Two residences located on the east side of Broadway Street and approximately 2,000 feet north of the intersection of 20th Avenue South and Broadway Street South are impacted by Build Alternative Option 4. Both residences are currently occupied and will require acquisition or relocation.
- One rental residence located in the manufactured housing development, approximately 900 feet north of the intersection of 20th Avenue South and Broadway Street South would be impacted by Build Alternative Option 4. The residence is located approximately 50 feet from the alignment and would require acquisition or relocation.

All residences are located outside of the proposed Build Alternative Options 2 and 3 alignments. A farmstead located on the west side of Broadway Street South and 1,800 feet south of US 212 was avoided by Build Alternative Option 2. Build Alternative Option 2 extends north on Broadway Street South to 3000 feet south of US 212 then curves west to avoid the farmstead. The Build Alternative Option 2 does impact the southern portion of the tree shelter belt which wraps around the farmstead, which could require a partial acquisition. Build Alternative Option 4 would require some property acquisition from Roger's salvage yard but would not require acquisition of the entire business.

3.18 Wetlands and other Waters of the U.S.

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

3.18.1 Existing Conditions

3.18.1.1 Wetlands

Wetlands are defined as “those areas that are inundated or saturated by surface or groundwater at frequency and duration sufficient to support, and that under normal circumstances do support, a

prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328). Wetlands within the Study Area were reviewed through a field determination in accordance with the 1987 *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, January 1987) and the Food Security Act of 1985 (FSA) methodology (16 USC 3801-3862) for agricultural areas (HDR, 2006d).

Palustrine emergent wetlands associated with Pelican Lake exist within the Study Area (See Figure 3-4, Natural Environment). A large wetland system, associated with the Pelican Lake Cutoff Channel, flows through the center of the Study Area. Other wetlands are located near the northwest corner of the Study Area, south of US 212 and SD 20. A wetlands mitigation area was constructed in 2006 about 2,000 feet north of 20th Avenue South on the east side of Broadway Street South. Palustrine system wetlands include all nontidal wetlands dominated by trees, shrubs, persistent emergents,¹⁰ and emergent mosses and lichens. Palustrine system wetlands are generally bounded by uplands or by any other type of wetland system (Cowardin et al, December 1979). The emergent wetland class is characterized by erect, rooted, herbaceous¹¹ hydrophytes,¹² excluding mosses and lichens. Emergent wetlands are commonly called marshes, wet meadows, and sloughs (Cowardin et al., December 1979).

3.18.1.2 Other Waters of the U.S.

Other waters of the U.S. include rivers, streams, intermittent streams, lakes, ponds, and impoundments. Other waters of the U.S. are subject to USACE jurisdiction provided that the waterbody is susceptible to interstate or foreign commerce (33 CFR 328). Under current USACE policy, aside from the definition of waters of the U.S. in 33 CFR 328, waterbodies such as streams and intermittent streams are considered jurisdictional (that is, subject to jurisdiction) if a definable bed and bank is present. The other potential water of the U.S. identified within the Study Area during the field investigation is the Diversion Channel, a tributary to the Big Sioux River (See Figure 3-4). See Section 3.2, Water Quality, for further discussion of the Diversion Channel.

3.18.2 Impacts of Alternatives

The No-Build Alternative would not impact wetlands or other waters of the U.S.

The Build Alternative Option 2 would affect approximately 1.0 acre of wetlands based on field determination of wetland boundaries. These wetlands are not avoidable because the wetlands extend for several hundred feet north and south of the proposed roadway. Build Alternative Option 2 would impact the area of wetlands adjacent to the depressional pond northeast of Pelican Lake and would impact the wetlands associated with a drainage ditch south of US 212 and SD 20.

The Build Alternative Option 3 would affect approximately 3.0 acres of wetlands based on field determination of wetland boundaries. These wetlands are unavoidable because the wetlands extend for several hundred feet north and south of the proposed roadway and since Build Alternative Option 3 crosses the Pelican Lake Cutoff Channel (See Figure 3-4).

¹⁰ Persistent emergents are emergent hydrophytes (see footnote 18) that normally remain standing at least until the beginning of the next growing season.

¹¹ Herbaceous is a modifier for plants with characteristics of an herb, having no persistent woody stem above ground.

¹² Hydrophytes are plants growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. Examples are rushes and sedges.

The Build Alternative Option 4 would affect approximately 2.3 acres of wetlands based on field determination of wetland boundaries. These wetlands are not avoidable since the Build Alternative Option 4 crosses the Pelican Lake Cutoff Channel.

Build Alternative Option 4 would cause an additional 1.3 acres of impacts and Build Alternative Option 3 would cause an additional 1.6 acres of impacts compared Build Alternative Option 2, due to the crossing the Pelican Lake Cutoff Channel.

Section 3.19.4 also addresses impacts of construction in wetlands and other waters of the U.S., as well as mitigation for the impacts. A USACE Section 404 permit, with Section 401 Water Quality Certification would be required, but only when any fill activities in jurisdictional wetlands or waters of the U.S. occurs. A permit application would be submitted to USACE prior to commencement of construction activities for the Project. Formal wetland delineation would be conducted to identify precise wetland boundaries for submittal with the application.

During final design, impacts to wetlands and other waters of the U.S. would be minimized if possible. For remaining wetlands that cannot be avoided, mitigation measures would be undertaken. A detailed wetland mitigation plan will be prepared for the USACE Section 404/401 permit application. A wetland mitigation concept has been developed for Build Alternative Option 3 and is shown in Figure 3-4a. The concept proposes a mitigation ratio of approximately 2:1 for impacted wetlands. For wetlands found not to be under USACE jurisdiction, Federal Highway Administration regulations (23 CFR 777.9) would apply and mitigation for permanent impacts to wetlands required. A Wetland Finding was prepared that documented wetlands could not be avoided by the Project, and that the Project complies with Executive Order 11990, Protection of Wetlands (see Appendix J). On-site mitigation is expected to be used for wetland compensation for the Project. The parcel that encompasses most of the Pelican Lake Cutoff Channel is owned by the City of Watertown. Ample area within this parcel is available for on-site wetland mitigation. (See Figure 2-4 for limits of the City-owned parcel.)

The Build Alternative Options 2, 3, and 4 would involve bridge and/or box culvert crossings at the Diversion and Pelican Lake Cutoff Channels. Permitting for these bridge/box culvert crossings is discussed in Section 3.15.2.

3.19 Construction

The impacts of construction would be temporary and limited to the period of construction. Impacts during construction would be related to noise, air quality, visual resources, wetlands and other waters of the U.S., water quality, and habitat, fish, and wildlife. In addition, there would be temporary impacts on travel patterns and accessibility. Because detailed discussion of construction impacts is not feasible until final design has been completed for the Build Alternative Options 2, 3, and 4, general impacts are discussed in this section. However, all practical precautions would be taken to limit and minimize the temporary impacts of construction activities. Construction-related impacts for the Project are not considered to be significant due to compliance with the SDDOT Construction Field Manual (SDDOT, 2004).

3.19.1 Noise

3.19.1.1 Impacts

Temporary noise impacts on surrounding areas would occur during construction activities. Activities such as large construction equipment and pile driving would create new and additional noise sources for the Study Area. Although the Study Area, described in Section 3.13, Land Use, primarily consists of existing farmland with scattered development, current and future development includes industrial uses in the southern portion of the Study Area and commercial

and industrial uses in the northwest part of the Study Area. The noise-sensitive receptors that are located directly adjacent to the ROW (see Appendix C) are likely to experience impacts associated with construction activities, such as noise generated from machinery required for road and bridge construction. These construction activities may include excavating, filling, grading, pile driving, and other related activities.

Traffic detours could create additional noise impacts to areas outside of the Study Area by re-routing traffic.

For a discussion of long-term impacts relating to traffic noise, see Section 3.8, Noise.

3.19.1.2 Avoidance, Minimization, and Mitigation

Previously defined BMPs, in accordance with SDDOT construction manuals, would be used to mitigate construction-related noise impacts. An example of one BMP would be to limit construction to daylight hours, typically 6 a.m. to 6 p.m. This BMP would reduce noise levels in any neighboring residential areas during the evening and at night, the most sensitive timeframe for noise impacts.

3.19.2 Air Quality

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

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

3.19.2.1 Impacts

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

3.19.2.2 Avoidance, Minimization, and Mitigation

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

- Equipment would not be concentrated at locations near any sensitive receptor sites, and no single piece of equipment would result in significant pollution concentrations.
- Construction contractors would be required to comply with the statutory regulations for the State for air pollution control and to receive permits, as needed.
- Construction contracts would stipulate adherence to requirements regarding open burning of grub material, fugitive dust, visible emissions, and permits.
- A schedule of water sprinkling would be developed and followed to control dust.

3.19.3 Visual Resources

3.19.3.1 Impacts

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

3.19.3.2 Avoidance, Minimization, and Mitigation

For any construction areas that would remain un-vegetated for an extended period of time, such as over the winter, temporary seeding would be required in accordance with the Storm Water Pollution Prevention Plan (SWPPP) (Sect. 3.19.5.2). This requirement, as well as construction

permit requirements for dust suppression, would prevent unacceptable visual impacts (SDDOT, 2004).

3.19.4 Wetlands and Other Waters of the U.S.

3.19.4.1 Impacts

Construction of Build Alternative Option 2 would result in the filling of approximately 1.0 acre of palustrine emergent wetlands and temporary disturbance of other wetlands. The construction of Build Alternative Option 3 would result in the filling of approximately 3.0 acre, while Build Alternative Option 4 would result in approximately 2.3 acres of fill in wetland areas. In addition, the Diversion and Pelican Lake Cutoff Channels would require bridge and/or box culvert crossings for Build Alternatives 2, 3, and 4.

3.19.4.2 Avoidance, Minimization, and Mitigation

A Section 404 permit and associated state 401 Water Quality Certification would be required from USACE and the State of South Dakota for any impacts on wetlands and other waters of the U.S. Any conditions of the permit regarding minimization and mitigation would be incorporated. On-site mitigation is expected to compensate for wetland impacts. Ideal mitigation sites are located within property owned by the City of Watertown (See Figure 3-4a).

3.19.5 Water Quality

3.19.5.1 Impacts

Construction activities associated with Build Alternative Options 2, 3, and 4 would potentially impact the Diversion Channel and the Pelican Lake Cutoff Channel by discharging sediment and other potential pollutants into these waterways. Water quality in the adjacent Big Sioux River could be impacted from these pollutants.

3.19.5.2 Avoidance, Minimization, and Mitigation

The Build Alternative Options 2, 3, and 4 require a crossing of the Diversion and Pelican Lake Cutoff Channels. To protect the creeks and other water resources from runoff impacts, roadway construction would be conducted using existing policies.

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

The specific sediment control, erosion control, and spill prevention measures would be developed during the detailed design phase and would be included in the plans and specifications. The SWPPP would address SDDOT construction manual requirements. Because the impacted area is in an aquifer protection zone (See Sections 3.2.1 and 3.2.2), the SWPPP would include such BMPs as installation of silt fences, buffer strips, or other features to be used in various combinations as well as the stipulation that drums of petroleum products be placed in secondary containment to prevent leakage onto ground surfaces. As part of standard construction BMPs, water detention basins could also be constructed to minimize pollutant loading of surface waters. Another standard construction BMP is revegetation and stabilization of roadside ditches to provide opportunities for the runoff from the impermeable area to infiltrate, reduce velocities, and minimize increases in sedimentation (SDDOT, 2004).

Prior to construction, SDDOT would submit a notice of intent (NOI) to SDDENR for coverage under the General Storm Water Permit for Construction Activities.

3.19.6 Habitat, Fish, and Wildlife

3.19.6.1 Impacts

Construction activities would disturb terrestrial wildlife near the ROW. Therefore, wildlife within the ROW would likely seek sanctuary in nearby habitat during grading operations.

3.19.6.2 Avoidance, Minimization, and Mitigation

Impacts on fisheries in the Diversion Channel, Pelican Lake Cutoff Channel, and Big Sioux River from construction would be reduced by implementation of BMPs to minimize impacts on the water quality of these streams (See Section 3.19.5, Water Quality). These BMPs would be employed during the project construction. The USFWS indicated several BMPs as part of their response in early coordination (See Appendix D). These BMPs would be implemented to minimize impacts to fish and wildlife habitat in the Study Area.

As discussed in Section 3.9.2, the whooping crane, Topeka shiner, osprey, bald eagle, and peregrine falcon are unlikely to be found in the Study Area due to a lack of suitable habitat, and the Project is unlikely to impact these protected species.

The Dakota skipper butterfly is also unlikely to be found in the Study Area due to lack of suitable habitat (See Section 3.9.2), and impacts are unlikely. The Western prairie fringed orchid is not likely to be found in the Study Area, as it has not been recently observed in South Dakota.

SDDOT construction manual BMPs would also be employed for minimizing impacts on disturbed upland habitat in rangeland areas, which would be restored by seeding the disturbed areas with a native grass and forb mixture. The seeding would stabilize soil and decrease soil erosion and may lead to increased plant diversity in these areas.

3.19.7 Travel Patterns and Accessibility

3.19.7.1 Impacts

Redirection of traffic may be required during construction. This would temporarily alter travel patterns and accessibility. Also, short-term traffic delays might result from the movement of construction equipment and vehicles.

3.19.7.2 Avoidance, Minimization, and Mitigation

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

3.20 Invasive Plants

Invasive species coordination occurs under the FHWA guidance that followed the implementation of Executive Order (EO) 13112. The Executive Order calls upon Executive Branch agencies to work to prevent and control the introduction and spread of invasive species. FHWA guidance for NEPA analysis states that the study should address the likelihood of introducing or spreading invasive species and a description of measures being taken to minimize potential harm.

3.20.1 Existing Conditions

The U.S. Department of Agriculture (USDA) South Dakota state-listed noxious weeds list was consulted to identify potential noxious species in the project area. The list includes species such as Canada thistle, milk thistle, dodder, St. Johnswort, and several others (USDA, 2007). Currently, noxious weeds, which would include invasive species, are controlled through the management efforts of the South Dakota Weed and Pest Board.

3.20.2 Impact of Alternatives

The No-Build Alternative would not affect the efforts to control invasive species.

The SDDOT works with the Weed and Pest Board regarding roadside management actions that are appropriate for control of noxious weeds within highway ROWs. The management actions include installation of weed free and approved plant materials, chemical and biological control, and Extension Service education and coordination efforts. The Build Alternative Options would not be detrimental to the control efforts and would not increase the spread of invasive species due to the management actions during construction and follow-up maintenance.

3.21 Indirect and Cumulative Impacts

3.21.1 Indirect Impacts

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

Changes in future land use are often characterized as an indirect impact of a new transportation project. Future land use plans in the Study Area indicate that land use changes are anticipated to occur within and in the vicinity of the Study Area over the planning period of 2005 to 2030 regardless of the Project. However, improved access to 20th Avenue South may accelerate development in this area.

Section 3.13, Land Use, identifies direct impacts of the Project on land use within the Study Area.

Other short-term indirect impacts would potentially consist of increased traffic on adjacent roads as a result of construction of SD 20 to US 81. Users may choose to use alternate routes to avoid the construction area, thereby temporarily increasing traffic on those alternate routes. Time of travel would likely be higher (a longer timeframe for trips) than current levels during construction. Any detours or road closures would be temporary in nature, and the short-term impact is not anticipated to be significant.

No other indirect impacts from the Project have been identified.

3.21.2 Cumulative Impacts

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

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 Comprehensive Land Use Plan (First District, 2004), the Watertown Area Transportation Plan (URS, 2005), the South Dakota STIP (SDDOT, 2006), and a personal communication with Focus Watertown.

3.21.2.1 Past Actions

Prior to Euro-American settlement, the landscape of eastern South Dakota consisted of tallgrass prairie, with limited areas of woodlands located along major streams. Settlement of South Dakota began in the 1850s in areas east of the Big Sioux River. A subsidiary of the Chicago and Northwestern Railroad completed a rail line to Lake Kampeska in 1873 (SDSHPO, 1998), but settlement of the Watertown area did not begin until 1878 (Codington County Historical Society, 2007). A settlement boom began in eastern South Dakota in 1878, and by 1889, three other railroads were completed through Watertown. Early settlement was based on small farms, converting prairie land to cropland and rangeland.

The majority of the land area within Codington County is agricultural, with about 88 percent of the land area in farms; about three percent of the land is urban and small town development, and about 9 percent of the land is utilized for other uses, such as recreational and transportation (U.S. Census of Agriculture, 2006; U.S. Census, 2000). The area in farms in Codington County has fluctuated in the last 20 years, growing from 341,159 acres (533 square miles) in 1987 to 392,935 acres (614 square miles) in 1992, dropping to 384,527 acres (601 square miles) in 1997, but then increasing slightly to 386,607 acres (604 square miles) in 2002 (USDA, 1997; USDA, 2002). Urban and town development increased only slightly, from 17.6 square miles in 1990 to 19.6 square miles in 2000 (US Census, 1990; US Census 2000).

Preservation strategies for farmland include the Farmland Protection Policy Act of 1981 (7 CFR 658). This act is intended to minimize the impact of Federal programs on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It ensures that, to the extent possible, Federal programs are administered in a manner compatible with state and local units of government as well as private programs and policies to protect farmland. Federal agencies are required to develop and review their policies and procedures to implement this act every two years. The projects previously identified that have or would convert farmland to nonagricultural uses are subject to this act.

The Study Area of the South Connector Route is at the southern edge of Watertown. Most of the land to the south of the proposed route is agricultural. The area in the vicinity of the route is a mix of undeveloped floodplains and wetlands, agricultural land, and limited areas of commercial and residential development.

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

- Agricultural activity, especially the conversion of native prairie to cropland.
- Industrial development has occurred in the vicinity of 20th Avenue South and US 81.
- Industrial and residential development in areas to the west of Broadway Street South along 20th Avenue South.
- Commercial and industrial development has occurred in the vicinity of US 212 and SD 20.

These past actions have resulted in impacts to water quality, wildlife, land use, farmland, and waters of the US in the Study Area. The Study Area is in the secondary impact zone of the aquifer protection area (the wellhead protection area is about one mile to the north and northwest). The extent of impermeable surfaces from development of the area is a small fraction of the total recharge area of the aquifer. There is no critical habitat for wildlife in the Study Area, but areas set aside as game production areas provide habitat area for native and migrating species. The segment of the Big Sioux River within the Study Area fully meets water quality standards, and is currently classified as a substantial fisheries resource. The extent of land use changes in the Study Area have been limited by the floodplains of the Big Sioux River. Due to limited impacts on aquifer recharge, habitat area, water quality, and land use, the cumulative affects of these impacts are not significant in the Study Area.

3.21.2.2 Present Actions

Present actions within and near the project corridor include the following:

- Depending on the Build Alternative Option selected, construction of the proposed action would impact between 14 to 24 acres beyond the existing roadway (from 4 to 16 acres of farmland and 1 to 3 acres of wetlands).
- Continued development (industrial and commercial) west of US 81 along 20th Avenue South. The Glacial Lakes Energy ethanol plant is beginning to construct additional building space, tanks, and equipment which would double the current capacity of the existing plant; from 50 million gallons per year to 100 million gallons per year (Atkins, 2007; Glacial Lakes Energy, 2007). Truck traffic to the plant is anticipated to double in the next couple of years (Atkins, 2007).

The scope of activities likely to occur before or during the Project is on the order of several acres at different locations within the Study Area. Continued development would impact air and water quality, visual aesthetics, cultural resources, regulated materials, land use, farmland, floodplains, economic resources, wetlands, and waters of the U.S. Noise would be generated during construction of these projects. 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.

Long-term impacts to air and water quality, floodplains, and farmland would not be significant, as the area impacted and the degree of impact is anticipated to be slight. The proposed action would occur mostly along existing roadways (Broadway Street South and 20th Avenue South). The proposed route would provide a connection to an area not currently served by roads. However, the extent of development in and near the Study Area would be limited to the southeast and southern parts of the Study Area because of aquifer protection zone restrictions on urban development, the floodplain and floodway of the Big Sioux River, and the difficulty in providing city water service to areas of higher elevation to the south of the Study Area.

Development in and near the Study Area would increase traffic congestion in the short-term, but this would not be significant, as most development would occur after completion of the Project. Cumulative impacts are not anticipated to be significant.

3.21.2.3 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions that may affect resources within the Study Area are as follows:

- Some redevelopment of existing industrial and commercial development (to a higher value or more intensive commercial use) along the southern side of US 212 in the vicinity of SD 20 and near the intersection of US 81 and 20th Avenue South. Redevelopment of existing development could potentially occur as access to the area is improved.
- Industrial and commercial development in the vicinity of 20th Avenue South, west of US 81. The Watertown Coop plans to develop a fertilizer packaging plant and distribution center south of the Oak Valley Farms turkey plant (on the south side of 20th Avenue South, and about one mile west of US 81). The development would cover about 200 acres (Atkins, 2007). A 7,300-foot rail spur would be constructed to the site from the existing BNSF Railway mainline track (the track would come in directly from the BNSF mainline to the west of the proposed plant). About 9 to 10 trains per year would come to the fertilizer plant, with about 65 cars per train. Operation of the plant would add about 6,500 truck trips per year to 20th Avenue South, primarily in the spring (about 60 percent of the 6,500 trips) and fall (about 40 percent of the total trips). Development of this plant is expected to be completed in the next 3 to 4 years. Bulk fertilizer (urea pellets) made overseas and shipped to Watertown from the West Coast would be unloaded from trains and then packaged for shipping by truck to smaller distribution centers in the area (Aason, 2007). It is anticipated that 20th Avenue South west of US 81 would be improved to support increased truck traffic resulting from this development (Atkins, 2007). Improvement of Avenue 20th South from east of US 81 to 29th Street SE is planned to occur as a separate Project.
- Additional development on the south side of 20th Avenue South is anticipated over the next several years (First District, 2004; Atkins, 2007). This additional development could include an extension of the existing rail spur north of 20th Avenue South to areas south of 20th Avenue South, crossing 20th Avenue South at-grade (Atkins, 2007).
- Road improvement projects in the vicinity of the Study Area include construction of the South Connector Route-US 81 to 29th Street SE and construction of a replacement bridge for Broadway Street South spanning the Big Sioux River.
- Continued residential development in northern and western sectors of Watertown.

These reasonably foreseeable actions would impact the same resources noted under present development activities, but to a broader extent because these future activities would occur over a longer timeframe and in a wider area.

Continued residential development in northern and western sectors of Watertown would not affect resources near the project corridor, but would potentially add to increased traffic on US 212, US 81, and other roads in the vicinity of the Study Area.

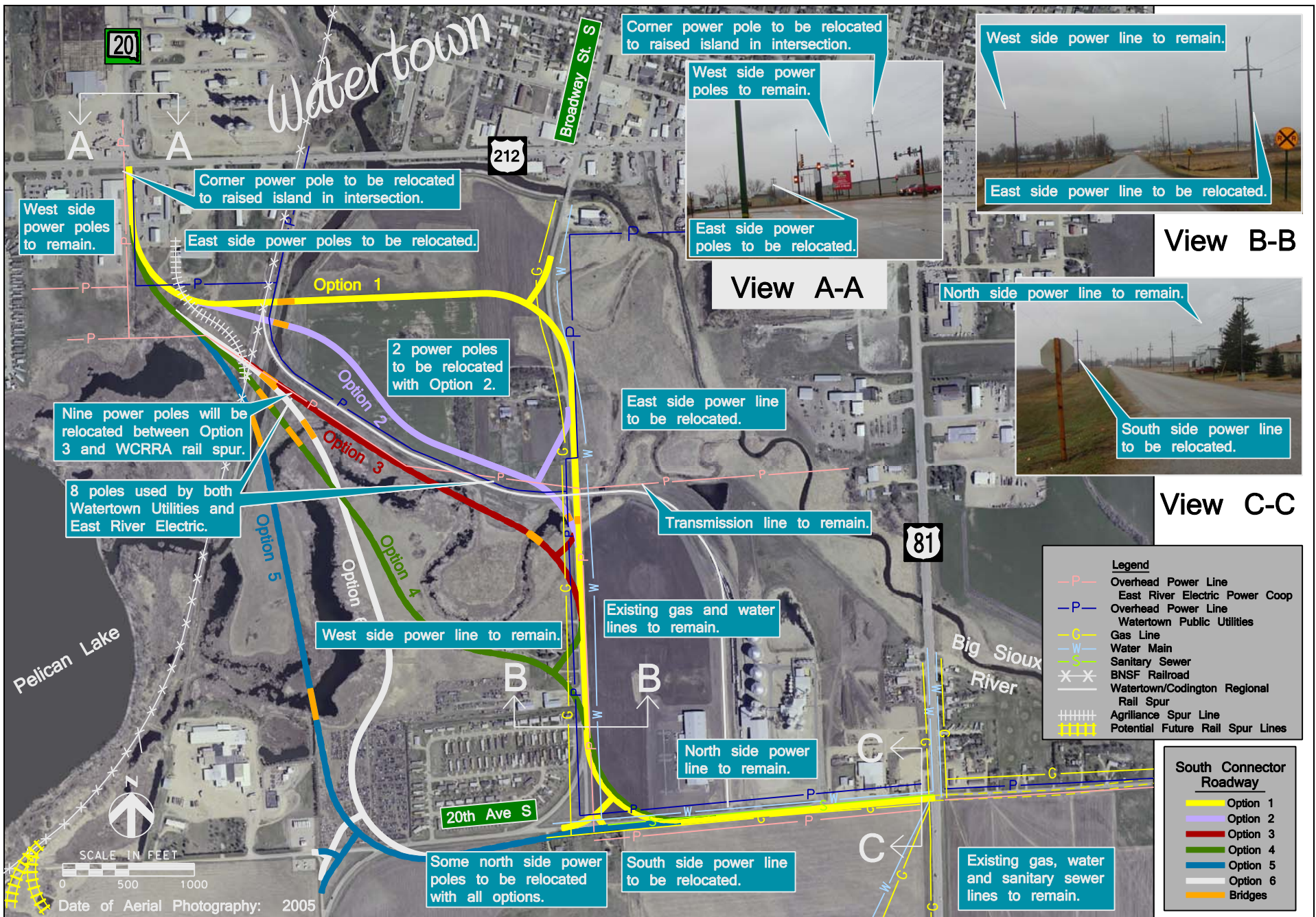
There would be beneficial long-term impacts to the community, as traffic congestion is eased, road safety is improved, and infrastructure to support future growth and economic development is completed. Cumulative impacts are not anticipated to be significant.

3.22 Mitigation Summary

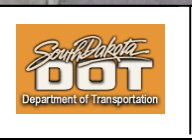
Mitigation was addressed by specific resource sections, but is summarized here to provide a consolidated discussion. A summary is beneficial to assure proper mitigation is being planned and would be conducted.

The following mitigation measures are the result of the Study Area being within an aquifer protection zone:

- The city and the SDDENR must be informed of all leaks and spills that might contaminate the groundwater.
- A USACE Section 404 permit, with Section 401 Water Quality Certification, would be required for any fill activities in jurisdictional wetlands or waters of the U.S (See Section 3.18). A Wetland Finding was prepared that documented wetlands could not be avoided by the Project, and that the Project complies with Executive Order 11990, Protection of Wetlands (see Appendix J). Section 3.18 identifies a specific wetland mitigation concept plan.
- A Floodplain Development permit from the City of Watertown would be required for construction of the proposed bridges and/or box culverts for Build Alternative Options 2, 3, and 4 across the Pelican Lake Cutoff Channel and the Diversion Channel. The City of Watertown, as the local authority for FEMA, would review the proposed design of the bridges and verify that the rise in water surface elevations would meet the regulatory requirements (Section 3.15).
- Section 3.2 identifies the system of roadside ditches and sedimentation basins that will be utilized to mitigate the short and long term impacts to water quality associated with Option 3.
- Section 3.19 identifies various BMPs would be used to mitigate adverse construction-related impacts. These requirements would be identified in construction contracts and monitored through oversight procedures.
- The status of the leaking underground storage tank (LUST) monitoring well located southwest of the US 212 and SD 20 intersection will be verified before construction begins. (See discussion in Section 3.12.2.)
- The status of the monitoring well located in the northwest quadrant of the US 212 and SD 20 intersection (current Prairie Stop gas station) will be verified before construction begins. (See discussion in Section 3.12.2.)
- If vegetation clearing activities occur within the migratory birds nesting period (April 1 to July 15), SDDOT will inform USFWS and will coordinate with USFWS to determine actions to minimize impacts on nesting migratory birds.



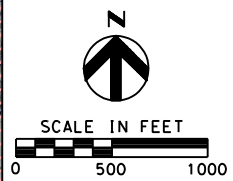
Drawn by: B. Miller
 Date: 03/06/07
 Checked by: J. Unruh
 Date: 03/06/07
 Revision Date:
 May 2009



Public Utilities Impacts

Watertown South Connector - SD 20 to US 81
 Project EM 4020(01) PCN 00RW

Figure 3-1



Legend

- XX Regulated Materials Site identified by Environmental Data Resources, Inc. (EDR)
- X Regulated Materials site field identified by HDR
- ★ Spills/Release Sites
- 100 Year Floodplain - Big Sioux River
- 500 Year Floodplain - Big Sioux River
- Floodway - Big Sioux River

Floodway Impacts

Option	Acres
1	5.3
2	0
3	0
4	0
5	0
6	0

100 year Floodplain Impacts

Option	Acres
1	11.6
2	17.6
3	13.3
4	10.9
5	13.6
6	12.5

500 year Floodplain Impacts

Option	Acres
1	1.6
2	3.6
3	1.6
4	3.3
5	1.0
6	0.8

South Connector Roadway

- Option 1
- Option 2
- Option 3
- Option 4
- Option 5
- Option 6
- Bridges

Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 03/06/07
Checked by: J. Unruh
Date: 03/06/07
Revision Date:
January 2008










Floodplain and Regulated Materials
Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

Figure 3-2


Date of Aerial Photography: 2005
 Source: City of Watertown
 Comprehensive Land Use Plan
 October 1, 2004

Legend


-  Industrial/Commercial Development
-  Commercial Development
-  Industrial Development
-  Existing Developed Areas of City
-  Existing Rural Developments
-  Rural Area
-  Residential Development

Proposed South Connector Alignment Options


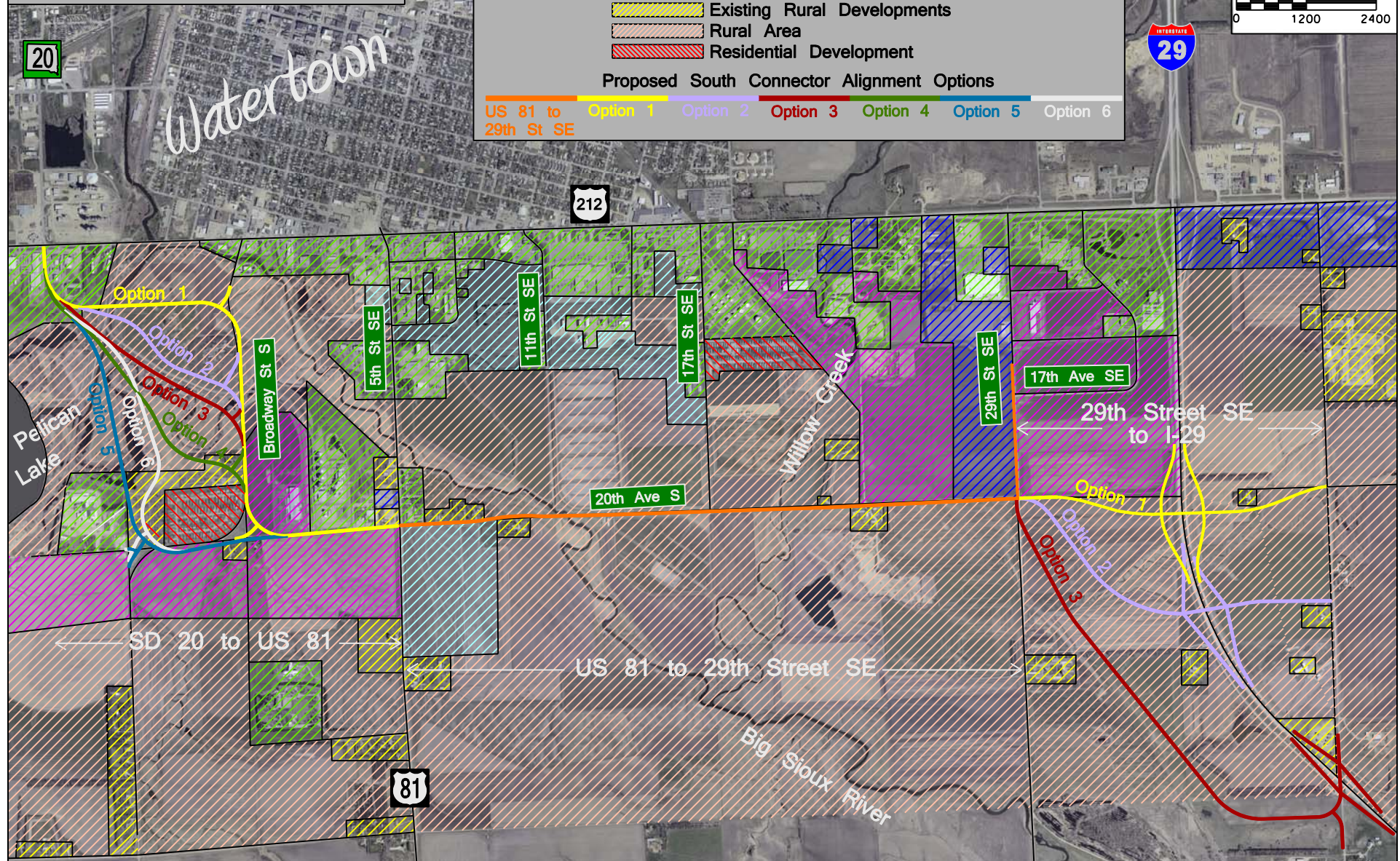
US 81 to 29th St SE Option 1 Option 2 Option 3 Option 4 Option 5 Option 6



SCALE IN FEET



0 1200 2400

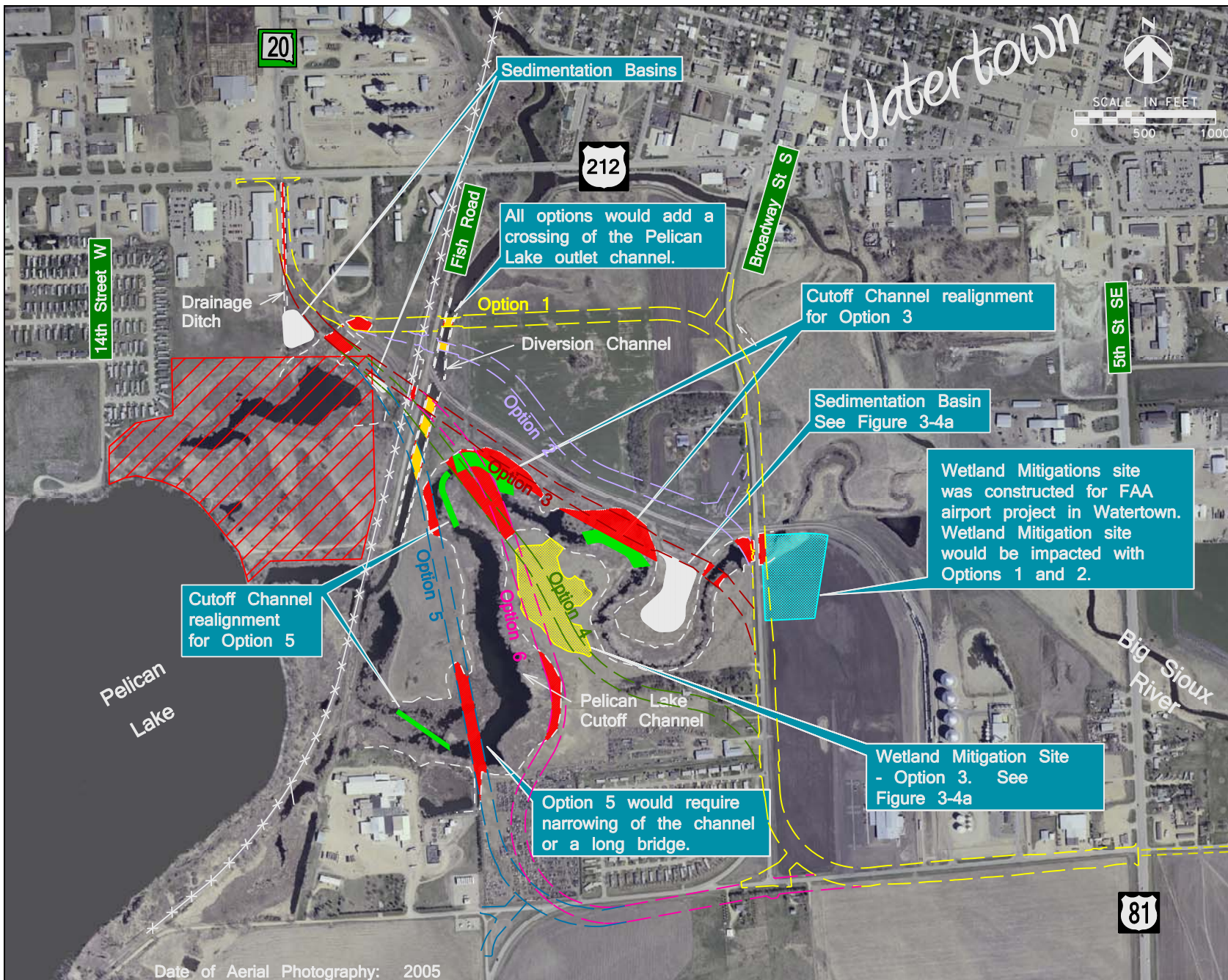



Drawn by: B. Miller
 Date: 03/06/07
 Checked by: J. Unruh
 Date: 03/06/07
 Revision Date:
 January 2008
 October 2009



Future Land Use (South of US 212 only)
 Watertown South Connector - SD 20 to US 81
 Project EM 4020(01) PCN 00RW

Figure 3-3



Wetland Impact Summary

Option	Wetland Impacts (Ac)
1	0.9
2	1.0
3	3.0
4	2.3
5	3.1
6	3.4

Stream Channel Realignment

Option	Realignment (ft)
1	0
2	0
3	900
4	0
5	600
6	300

Pelican Lake Game Production Area Impact Summary

Option	Impacts (Ac)
1	0
2	0
3	0.25
4	0.25
5	0.25
6	0.25

Legend

- Channel Realignment
- Existing Wetland
- Wetland Impacted
- Pelican Lake Game Production Area
- Pelican Lake Outlet Channel Crossing
- Wetland Mitigation Site Constructed in 2006
- Wetland Mitigation Site
- Sedimentation Basin
- BNSF Railroad

South Connector Roadway

- Option 1
- Option 2
- Option 3
- Option 4
- Option 5
- Option 6
- Bridges or Box Culverts

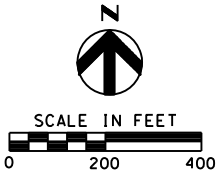
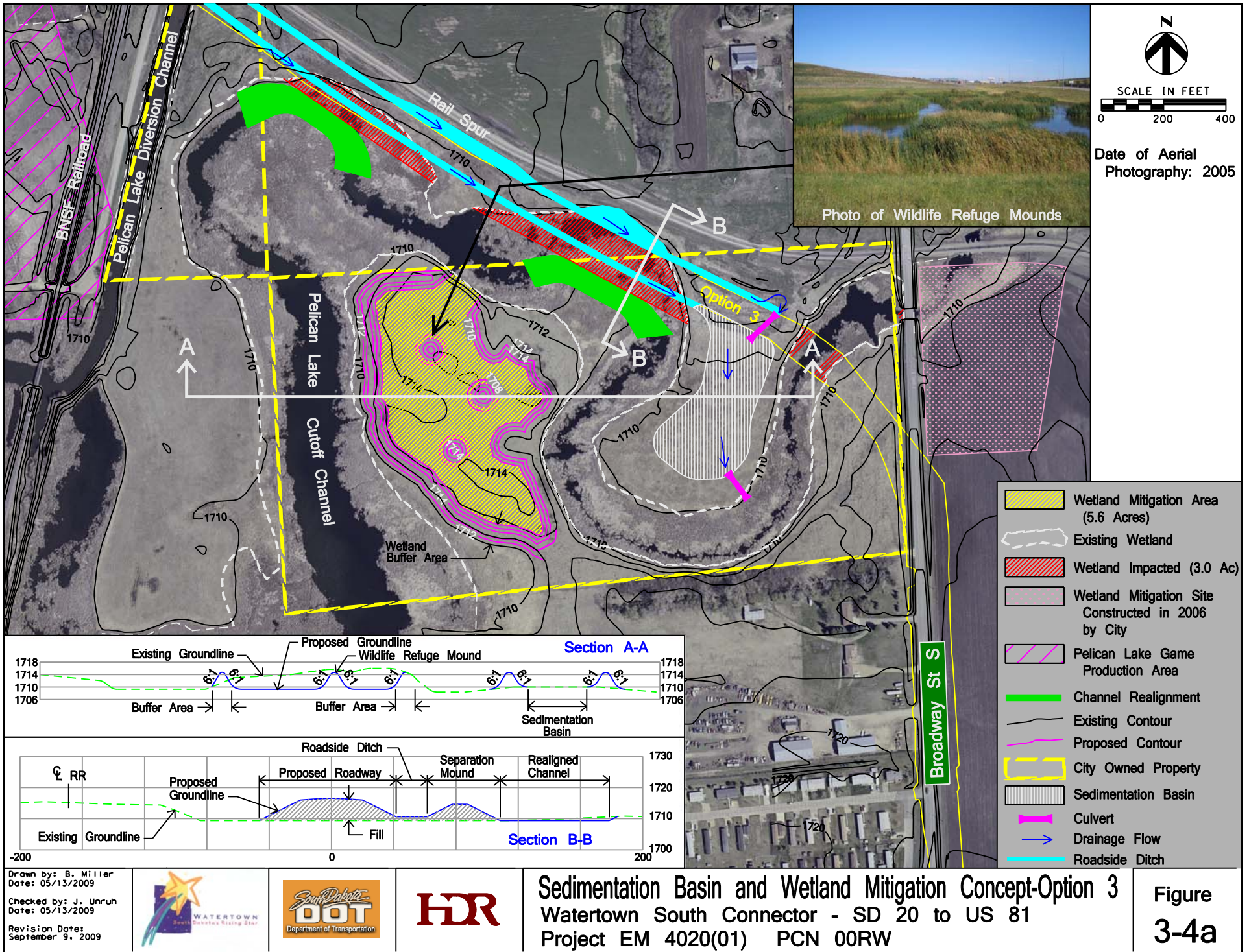
Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 03/06/07
Checked by: J. Unruh
Date: 03/06/07
Revision Date:
September 9, 2009
October 2009



Natural Environment
Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

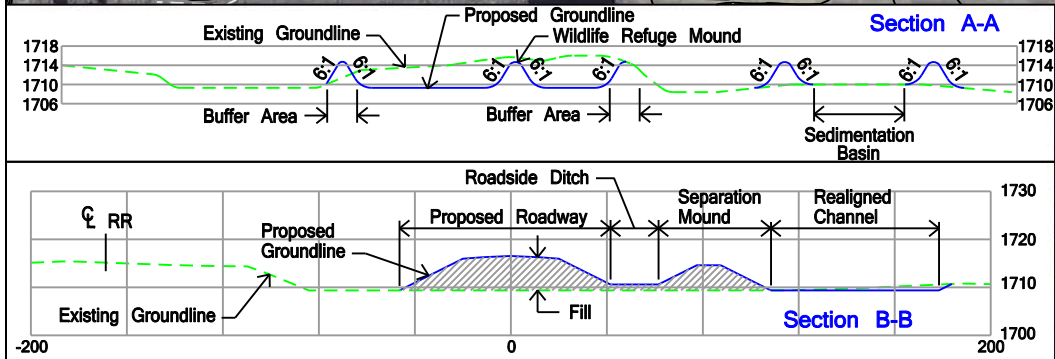
Figure 3-4



Date of Aerial Photography: 2005

Photo of Wildlife Refuge Mounds

- Wetland Mitigation Area (5.6 Acres)
- Existing Wetland
- Wetland Impacted (3.0 Ac)
- Wetland Mitigation Site Constructed in 2006 by City
- Pelican Lake Game Production Area
- Channel Realignment
- Existing Contour
- Proposed Contour
- City Owned Property
- Sedimentation Basin
- Culvert
- Drainage Flow
- Roadside Ditch

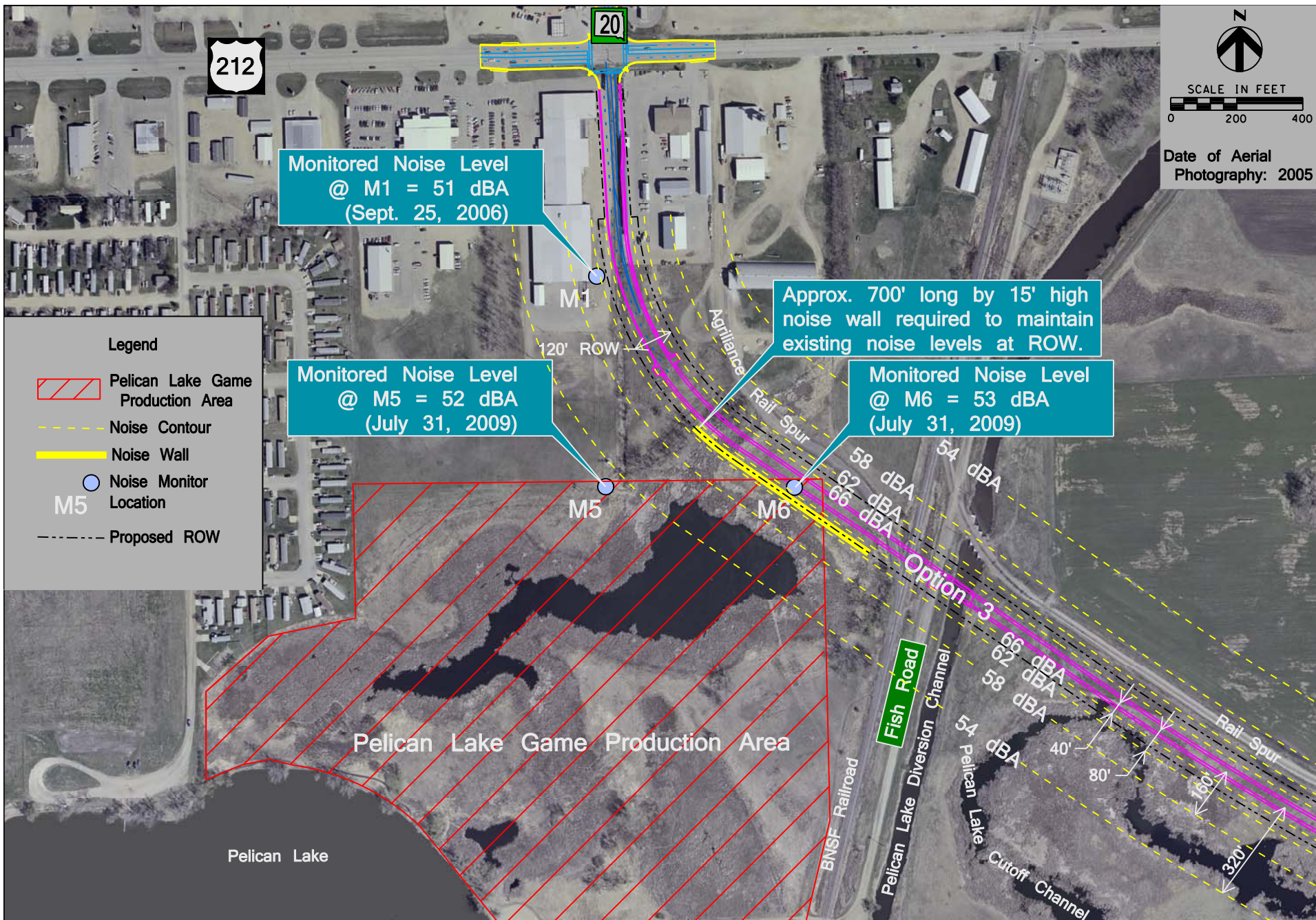


Drawn by: B. Miller
Date: 05/13/2009
Checked by: J. Unruh
Date: 05/13/2009
Revision Dates:
September 9, 2009



Sedimentation Basin and Wetland Mitigation Concept-Option 3
 Watertown South Connector - SD 20 to US 81
 Project EM 4020(01) PCN 00RW

Figure 3-4a



N

SCALE IN FEET

0 200 400

Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 09/04/2009

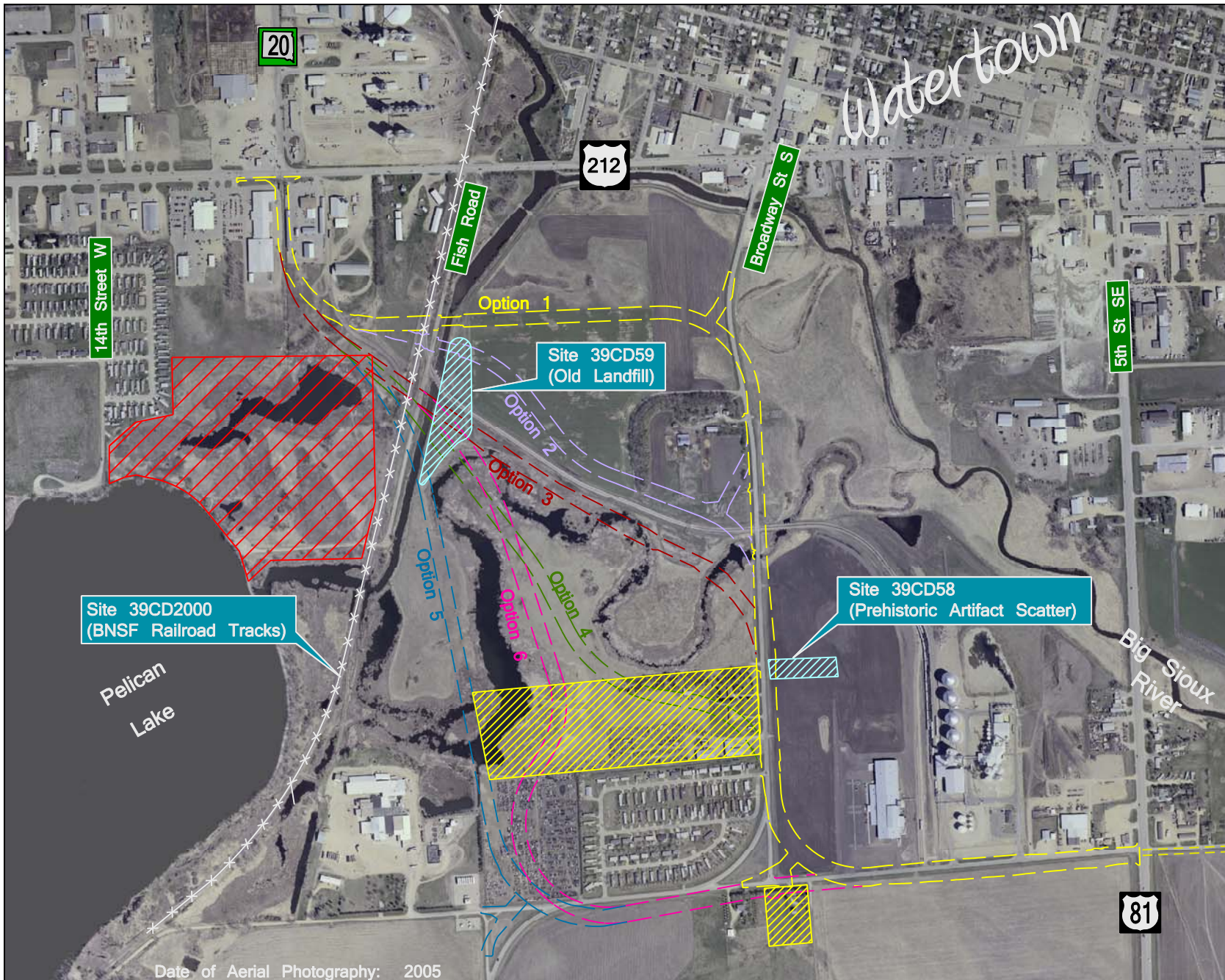
Checked by: J. Unruh
Date: 09/04/2009

Revision Date:



Noise at Pelican Lake Game Production Area - Option 3
 Watertown South Connector - SD 20 to US 81
 Project EM 4020(01) PCN 00RW

Figure 3-4b



N

SCALE IN FEET

Legend

- Potential Historic Site Location
- No Landowner Permission
- Pelican Lake Game Production Area
- BNSF Railroad

South Connector Roadway

- Option 1
- Option 2
- Option 3
- Option 4
- Option 5
- Option 6
- Bridges or Box Culverts

Date of Aerial Photography: 2005

Drawn by: B. Miller
Date: 03/06/07
Checked by: J. Unruh
Date: 03/06/07
Revision Date:
October 2009



Cultural Resources
Watertown South Connector - SD 20 to US 81
Project EM 4020(01) PCN 00RW

Figure
3-5

CHAPTER 4 DISPOSITION OF THE EA

4.1 DOCUMENT DISPOSITION

This EA documents the analysis of the Project in accordance with NEPA. The full range of potential environmental impacts was studied in detail, as reported herein. Active and early public involvement was encouraged by various means during the process of developing concepts, analyzing potential environmental impacts, and identifying the preferred alternative. The Draft EA was provided for agency comment (refer to Chapter 5.0, Comments and Coordination). This EA concludes that the Project is necessary for improved capacity in the foreseeable future. A preferred Build Alternative Option has been identified.

4.2 REQUIRED PERMITS

4.2.1 Section 404 of the Clean Water Act

A Section 404 permit from USACE would be required for impacts on wetlands and other waters of the U.S. within the Study Area (see Chapter 3, Affected Environment and Environmental Consequences). USACE requires prior authorization for discharges of dredged or fill material into waters of the U.S. (33 USC 1344). Upon submittal of the Section 404 permit application, the USACE determines the type of permit required (individual, nationwide, or no permit required); if a permit is required USACE provides conditions for the permit as necessary.

4.2.2 Section 401, Water Quality Certification

As part of the Section 404 permit process, Section 401, Water Quality Certification, must be obtained from SDDENR. This certifies that the permitted action will not violate State water quality standards (33 USC 1341). For a Nationwide Permit within South Dakota, a Section 401 is issued as part of the Section 404 permit process. For an Individual Permit, the Section 401 is obtained concurrently from the SDDENR, while the Section 404 permit is issued by the USACE. Any specific conditions required for compliance with the State's water quality standards would be specified in the Section 401 certification and in the permit conditions of the issued Section 404 permit.

4.2.3 Section 402, National Pollutant Discharge Elimination System

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

4.2.4 Threatened and Endangered Species Act

Formal consultation with the USFWS in accordance with Section 7 of the Endangered Species Act would be required if it is determined that any threatened or endangered species would be adversely affected by the Project (16 U.S.C. 1531, et seq.). USFWS has concurred with a 'No Effect Finding' for threatened and endangered species (see Appendix D, Item 20).

CHAPTER 5 COMMENTS AND COORDINATION

This chapter includes a summary of agency coordination and public involvement that has taken place during development of this EA. Appendix D contains agency coordination letters received through the development of this EA.

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

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

The following describes the efforts and events included for agency coordination and public involvement during the development of this EA.

5.1 AGENCY/CITY COORDINATION

Early agency coordination commenced on June 21, 2006 through letters to Federal and State agencies as well as local government agencies to announce the initiation of the of the South Connector Route Project. Seven responses were received.

Table 5-1 summarizes these responses as well as additional correspondence/coordination with agencies.

Agency correspondence is provided in Appendix D.

**Table 5-1
Agency/City Responses**

Agency	Date	Response
South Dakota State Historical Society	June 30, 2006	At least four known archeology sites are located within or near the three study areas. A ground archeological survey is recommended.
U.S. Department of Agriculture Natural Resources Conservation Service	July 10, 2006	The project has the potential of impacting prime and important farmlands.
South Dakota Department of Game, Fish and Parks	July 17, 2006	In the preliminary stages, it appears that wetlands and drainages exist in both study areas. If a project may impact wetlands or other important fish and wildlife habitats, the SDDGFP, Division of Wildlife, first recommends avoidance of these areas, if possible; followed by minimization of adverse impacts to

		these areas; and then replacement of any lost acres.
U.S. Fish and Wildlife Service	August 2, 2006	The project has the potential of impacting threatened and endangered species.
Department of Public Safety-Emergency Management	September 28, 2006	The project has two water sources that have floodplains. One of the water sources is the Big Sioux River, and the other is Willow Creek. The other water source is Willow Creek which has a floodplain.
U.S. Army Corp of Engineers	October 10, 2006	Based on the preliminary information provided, it appears that some of the proposed construction activities may involve the discharge of dredged or fill material in jurisdictional waterways. Therefore, a Department of Army permit may be required.
South Dakota Department of Environment and Natural Resources	November 7, 2006	This office has no objections to the project, which should not result in any violations of applicable statutes or regulations provided the Department of Transportation and/or its contractor(s) comply with the following SDDENR requirements for Surface Water Quality, Hazardous Wastes, and Air Quality. See Appendix D for the SDDENR requirements.
City of Watertown Parks and Recreation Board	July 30, 2008	Parks and Recreation Board concluded that there would be no adverse affect on Hanten Park associated with the proposed cul-de-sac of Fish Road immediately south of Hanten Park.
South Dakota State Historical Society	April 7, 2009	SD State Historical Society concurs that the project will have no adverse effect to site 39CD2000, the Burlington Northern Railroad and therefore the project will have No Adverse Affect on potential historic properties.
Agency Coordination Meeting	May 14, 2009	SDDOT updated agencies on the project and specifically discussed preferred Option 3. Agencies did not raise any objections to the preferred option. Wetland mitigation concept plan was submitted to Corps of Engineers.
SD Department of Game, Fish and Parks	May 19, 2009	Department concurs with the potential relocation of Fish Road from the existing location on the east side of the BNSF railroad tracks to the west side of the tracks and onto the Pelican Lake Game Production Area
SD Department of Game, Fish and Parks	June 2, 2009	Department concurs with the proposed <i>de minimis</i> impact to Pelican Lake Game Production Area.
Agency Coordination Meeting	Sept 8, 2009	SDDOT updated agencies on the project and specifically discussed: <ul style="list-style-type: none"> • Noise impacts at Pelican Lake GPA and the 9/4/09 memo regarding that topic. • Roadside ditch and sedimentation basin concept plans for water quality and the 9/4/09 memo regarding that topic.
SD Department of Game, Fish and Parks	Sept 18, 2009	Department concurs with the proposed <i>de minimis</i> noise impact to Pelican Lake Game Production Area.
US Department of Agriculture	Sept 21, 2009	Department concurs with Option 3 as the preferred option.
US Fish and Wildlife Service	Sept 29, 2009	Service concurs with Option 3 as the preferred option.
SD Department of Game, Fish and Parks	Sept 29, 2009	Department concurs with Option 3 as the preferred option.
US Fish and Wildlife Service	Sept 29, 2009	Service concurs with 'No Effect Finding' for threatened and endangered species.

SD Department of Environment and Natural Resources	Oct 1, 2009	Department concurs with Option 3 as the preferred option.
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5.2 TRIBAL COORDINATION

The FHWA prepared and sent early coordination letters to American Indian Tribes who may have an interest in the initiation of the Watertown South Connector Route Project.

The tribal parties consulted regarding the Project area:

- Crow Creek Sioux Tribe
- Three Affiliated Tribes of ND
- Lower Brule Sioux Tribe
- Sisseton-Wahpeton Oyate
- Standing Rock Sioux Tribe

See Appendix D for a copy of the early coordination letter sent January 23, 2007 to the tribes.

5.3 PUBLIC INVOLVEMENT

5.3.1 Public Information Meeting

One public information meeting was held on August 8, 2006, to solicit comments and answer questions on the alternatives being evaluated for the Project. A total of 49 people attended this meeting (not including Process Team members). Eight written comments were received, and all were considered. In general, comments received at the public meeting favored the Project. A second public meeting was held on October 23, 2007. No written comments were received on this project. Appendix K contains the detailed information regarding the public information meetings

5.3.2 Public Hearing

A public hearing will be held for the South Connector Route- SD 20 to US 81 Project subsequent to distribution of the Draft EA. Comments received during the public review period and provided at the hearing will be summarized and addressed in this section of the EA.

5.4 FUTURE PUBLIC INVOLVEMENT

The public review period for this EA will extend for 30 calendar days from the time the public notice announcing the publication of the EA is issued. Comments received on the EA will be incorporated into the NEPA decision document and/or sent directly to the commentor. Subsequent to the completion of the NEPA process, the roadway and bridge design process will continue. A public meeting will be held with affected landowners and other interested public to show and discuss the planned design. Comments on the design will be considered for preparing the final design.

CHAPTER 6 REFERENCES

- 7 CFR 657. Prime and Unique Farmlands.
- 7 CFR 658. Farmland Protection Policy Act of 1981.
- 23 CFR 772. Procedures for Abatement of Highway Traffic Noise and Construction Noise.
- 23 CFR 777.9. Mitigation of Impacts.
- 33 CFR 328. Definition of Waters of the United States.
- 40 CFR 81.342. Attainment Status Designations, South Dakota.
- 40 CFR 93.102. Transportation Conformity Rule.
- 40 CFR 1500-1508. Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA.
- 40 CFR 1508.7. Cumulative impact.
- 40 CFR 1508.8. Effects.
- 42 FR 26951. May 24, 1977. Executive Order 11988, Floodplain Management.
- 59 FR 7629. February 11, 1994. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations.
- 16 USC 1531 et seq. Endangered Species Act of 1973, as amended.
- 16 USC 3801-3862. Food Security Act of 1985.
- 16 USC 4601-4 to -11 et seq., as amended. Land and Water Conservation Fund Act of 1965
- 33 USC 1341. Certification.
- 33 USC 1342. National Pollutant Discharge Elimination System.
- 33 USC 1344. Permits for Dredged or Fill Material.
- 42 USC 2000d et seq. Title VI of the Civil Rights Act of 1964.
- 49 USC 303. Section 4(f).
- Adams, Roger, 2006. Director, City of Watertown Parks and Recreation. Personal communication regarding city owned recreational property. October 12 and 13.
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- American Association of State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges, 17th Edition
- ARSD Article 74:51, Surface Water Quality. January 1999.
- Atkins, Craig, 2007. President, Focus Watertown. Personal communication regarding future development along 20th Avenue South west of U.S. 81. February 6.

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- Codington County Historical Society, 2007. A Brief History of Codington County.
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- EDR, August 2006. DataMap Area Study.
- EDWDD. Undated. North-Central Big Sioux River Watershed Assessment Final Report and TMDLs: Brookings, Hamlin, Deuel, and Codington Counties. East Dakota Water Development District, Brookings, SD. SD Department of Environment and Natural Resources
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