

Environmental Scan

I-229 Benson Road Interchange Modification Study

Project # IM2292(98)67N, PCN 04XK

Sioux Falls, South Dakota

June 2019



Contents

1.0	Introduction	1
2.0	Purpose and Need	2
3.0	Alternatives Evaluated and Alternatives Carried Forward	3
4.0	Environmental Resource Review.....	4
4.1	Land Use	4
4.2	Water Resources	5
4.3	Natural Resources	6
4.4	Cultural Resources	7
4.5	Physical Resources	7
4.6	Community Resources.....	8
4.7	Cumulative Impacts	9
5.0	Agency Coordination and Public Involvement.....	16
6.0	Conclusion and Next Steps	20
7.0	References.....	21

Tables

Table 1. Description of Alternatives and Option Refinements Evaluated as Part of the IMJR and Environmental Scan.....	3
Table 2. Wetlands Delineated in the Study Area	5
Table 3. Environmental Resources and Potential Impacts	11
Table 4. Summary of Agency Coordination and Public Involvement Concerns.....	17

Figures

Figure 1 Study Area	2
Figure 2. Environmental Resources	10

Acronyms and Abbreviations

APE	Area of Potential Effects
CD	collector-distributor
City	City of Sioux Falls, South Dakota
DDI	diverging diamond interchange
ESA	Environmental Site Assessment
FHWA	Federal Highway Administration
I-229	Interstate 229
IMJR	Interchange Modification Justification Report
IPaC	Information Planning and Consultation
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
REC	Recognized Environmental Condition
ROW	right-of-way
SAT	Study Advisory Team
SDDENR	South Dakota Department of Environment and Natural Resources
SDDOT	South Dakota Department of Transportation
SDGFP	South Dakota Department of Game Fish and Parks
TCP	Traditional Cultural Properties
USFWS	United States Fish and Wildlife Service

1.0 Introduction

The South Dakota Department of Transportation (SDDOT), the City of Sioux Falls, South Dakota (City), and the Sioux Falls Metropolitan Planning Organization (MPO) with the Federal Highway Administration (FHWA) are studying alternatives to enhance traffic operations and travel conditions at the Interstate 229 (I-229) Exit 9 interchange (Benson Road Interchange) and along a portion of Benson Road (Benson Road Corridor) in Sioux Falls, South Dakota (Project). The Environmental Scan is intended to assist the Study Advisory Team (SAT)¹ in determining the level of documentation necessary to comply with the provisions of the National Environmental Policy Act (NEPA) and associated environmental laws for the proposed interchange improvements. The Environmental Scan incorporates by reference several separate technical memorandums or reports that have been prepared:

- *I-229 Exit 9 (Benson Road) Crossroad Corridor Study* (2017 Benson Road Corridor Study); part of the I-229 Major Investment Study²
- *I-229 Benson Road Methods and Assumptions Document*
- *I-229 Benson Road Purpose and Need*
- *I-229 Benson Road Options Evaluation*

Relevant information from these reports is summarized as necessary to support the findings of this report and to assist the SAT in determining the appropriate level of NEPA documentation. The Environmental Scan has been prepared in conjunction with the Interchange Modification Justification Report (IMJR). This scan documents environmental issues that will need to be analyzed as part of the NEPA phase of the Project for the alternatives being advanced. Issues that are not relevant or unlikely to be adversely affected, as noted in this document, will not be discussed in the subsequent NEPA document.

The study area extends from Cliff Avenue east to Sycamore Avenue along Benson Road including the Benson Road Interchange. The study area is divided into three projects that have independent utility and logical termini (HDR 2018a). This scan focuses on the area of proposed geometric improvements to the Benson Road Interchange and along the Benson Road Corridor from west of Lewis Avenue to approximately 2,700 feet east of the Benson Road Interchange as identified in Figure 1. The other projects in the 2017 Benson Road Corridor Study will be evaluated and constructed as separate projects: 1) west of Lewis Avenue along Benson Road including the intersection with Cliff Avenue and 2) farther east of I-229 along Benson Road to Sycamore Road.

¹ The SAT includes representatives for SDDOT, the City, Sioux Falls MPO, and FHWA.

² Environmental review used available online geographic information systems (GIS) data and aerial photographs. No fieldwork was conducted.

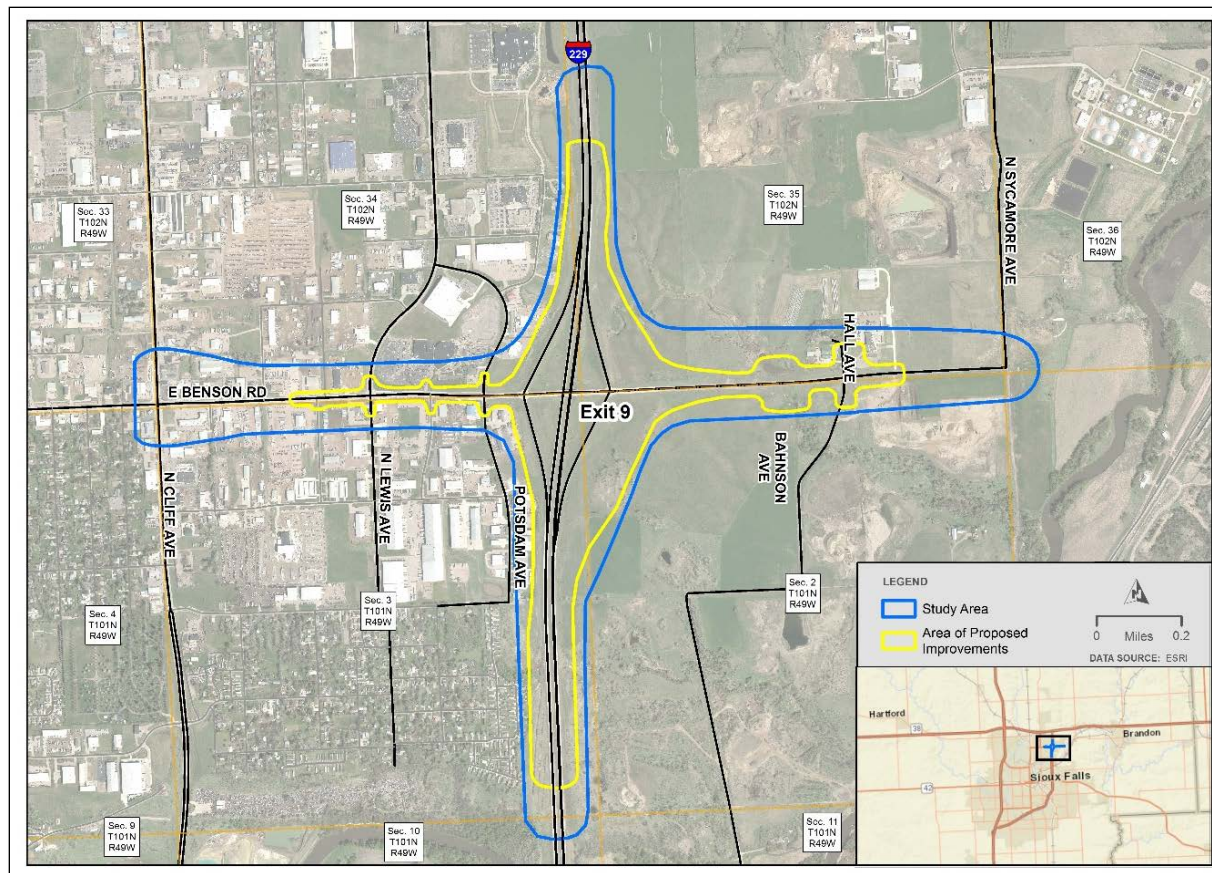


Figure 1. Study Area

2.0 Purpose and Need

The purpose of this Project is to improve traffic operations and to enhance mobility for other modes of transportation at the Benson Road Interchange and along the Benson Road Corridor.

The 2017 Benson Road Corridor Study identified the following two primary needs to be addressed:

- Reduced (existing and future) traffic capacity of the Benson Road Interchange and along the Benson Road Corridor due to congestion
- Lack of accessibility for non-automobile transportation modes along Benson Road

Updated analysis completed for the IMJR affirmed the capacity needs as the levels of service (LOS) for existing and future conditions were LOS D and F at multiple locations. More information about the purpose of and need for the Project can be found in the *I-229 Benson Road Purpose and Need Memorandum* (HDR 2018b), which was prepared according to provisions of NEPA, corresponding federal and state environmental regulations, and guidelines of FHWA, the lead federal agency, and the requirements of SDDOT, the joint lead agency. The *I-229 Benson Road Purpose and Need Memorandum* has been presented as part of SAT meetings, and prepared in coordination with resource agencies, local landowners, and the public.

3.0 Alternatives Evaluated and Alternatives Carried Forward

The 2017 Benson Road Corridor Study developed four alternatives that met the purpose of and need for the Project. The range of alternatives were screened using criteria consistent with development and screening under NEPA. These alternatives were presented to stakeholders, affected parties, and the public. Alternative 1 and Alternative 4 were recommended to be carried forward for further refinement and analysis as part of the IMJR and subsequent NEPA analysis.

As part of the IMJR, the SAT evaluated eight proposed option refinements: 1a, 1b, 1c, 1d, 1e, 4a, and 4b. The results of that evaluation are documented in the *Options Evaluation Memorandum* (HDR 2018c) and summarized in Table 1. The Options Evaluation looked at several screening criteria including engineering, environmental, and cost. The Environmental Scan considered several resources that could influence the alternatives selection or affect Project development. Impacts on waters of the United States, cultural resources, and wildlife were found to be differentiating environmental factors in evaluating the alternative options. These resources were added to the Options Evaluation in addition to engineering and cost factors. The resources considered as part of the Environmental Scan are documented in Section 4.0.

Table 1. Description of Alternatives and Option Refinements Evaluated as Part of the IMJR and Environmental Scan

Alternatives and Option Refinements Considered	Description
Benson 1a	2-Lane NE Quadrant Loop with 3-Lane SB On-Ramp
Benson 1b	2-Lane NE Quadrant Loop with 2-Lane SB On-Ramp
Benson 1c	2-Lane Collector-Distributor (CD) Lane Northeast Quadrant Loop with 3-Lane SB On-Ramp
Benson 1d	2-Lane Partial Clover Leaf Northeast Quadrant with 2-Lane SB On-Ramp
Benson 1e	2-Lane Partial Clover Leaf Northeast Quadrant with CD Lane and 2-Lane SB On-Ramp
Benson 4a	Diverging Diamond Interchange with 3-Lane SB On-Ramp. Add 2 WB Lanes to Existing Overpass
Benson 4b	Diverging Diamond Interchange with 3-Lane SB On-Ramp. Add a Separate Structure for 2 EB lanes
No Build ¹	No improvements would be made to interchange or along Benson Road

¹The No Build will be carried forward for comparison with Build Alternatives as a part of the NEPA analysis to provide a baseline from which to compare Project impacts.

The option refinements were presented as part of meetings held in August 2018 and a public meeting held in October 2018 (Section 5.0). The SAT considers the Build Alternatives and option refinements to be a reasonable range of alternatives consistent with NEPA and will be used as the alternatives for the NEPA compliance along with the No Build Alternative. Unless a new alternative is brought forward during the NEPA phase of development that warrants additional analysis, only the alternatives and option refinements recommended to be carried forward as part of the IMJR and the Environmental Scan will be revisited during the NEPA analysis.

4.0 Environmental Resource Review

A high-level review of environmental conditions was undertaken to assist in the evaluation of potential alternatives and address the level of NEPA documentation that would be necessary if the IMJR is approved. As a planning level scan, the information used to describe the resources is a combination of data collected from the 2017 Benson Road Corridor Study,³ review of

The Environmental Scan will allow the SAT to focus on important issues to be addressed in the NEPA documentation and to eliminate those issues unlikely to be adversely affected by the interchange improvements.

existing databases and online data, and fieldwork. This is not a detailed environmental investigation, and additional studies and further agency consultations will be required as part of compliance for NEPA and other environmental laws. The information contained within this Environmental Scan allows the SAT to focus on the important issues to be addressed in the NEPA documentation and eliminate those issues that are not relevant or unlikely to be adversely affected by interchange improvements.

The Environmental Scan document has been prepared to facilitate a smooth transition to the NEPA phase of

project development and allow SDDOT to continue refining the options for the proposed improvements and to minimize back tracking. Table 3 describes the existing conditions in the study area and potential impacts of each option refinement that was considered. The resources that can affect development are shown in Figure 2. If a resource is not present in or adjacent to the study area, it will be noted in Table 3 but not discussed in the text. The environmental resources that warrant additional description are discussed in the subsequent text with emphasis placed on the recommended option Benson 4b. Next steps or action items and possible mitigation solutions and construction measures are noted by resource when appropriate to guide NEPA analysis, to understand potential fiscal considerations for the Project, and in response to public and agency comments as part of the Environmental Scan.

4.1 Land Use

Land Use and Zoning

Land use around the Benson Road Interchange and along the Benson Road Corridor is a mix of agriculture, industrial, office, and commercial development. The area is in transition, in particular east of I-229, which has been designated a growth area for light industrial uses. The zoning is consistent with the existing and future land uses. The view shed within the study area is consistent with improving existing road facilities and no specialized analysis is required. No federal or Tribal lands exist in the study area. The State of South Dakota Department of Military and Veterans Affairs owns land within the study area and the City owns land in the area along the unnamed drainage, including land for the Humane Society.

Transportation and Traffic

Several roads east of I-229 are unpaved but planned for future improvement consistent with the growth and transition in the area. The transportation network is experiencing congestion issues

³ References to data used from this document are called out within the specific resource sections when use.

that are expected to worsen with planned growth. The proposed option refinements Benson 1a through 1e and Benson 4a and 4b would support the planned growth consistent with the future land use and transportation plans that have been prepared by the City and the Sioux Falls MPO.

4.2 Water Resources

Surface Waters

Unnamed tributaries of the Big Sioux River lie in the study area and drain southeast toward the Big Sioux River, which is located outside the study area. All option refinements would cross these tributaries. The South Dakota Department of Environment and Natural Resources (SDDENR) noted construction measures that would need to be implemented to protect the tributary as it drains into the Big Sioux River, which has been classified as a semipermanent warmwater fishery in addition to recreation and irrigation uses. A city-owned stormwater facility has been constructed north of Benson Road within one of the unnamed tributaries.

Floodplains

The Big Sioux River is the only water with a designated 100-year floodplain within or near the study area. None of the proposed option refinements cross the floodplain as it is outside of the study area.

Wetlands

Several likely jurisdictional wetlands were delineated in the study area (Table 2). A jurisdictional wetland determination will be needed. It is likely that all of the proposed option refinements would result in fill to waters of the United States and require permitting under Section 404 of the Clean Water Act. Potential wetland impacts would be similar between option refinements Benson 1a through 1e and Benson 4a and 4b due to a large percentage of the impacts being on Benson Road east of I-229. Each option would potentially affect more than 0.5 acre but less than 1.0 acre based on the conceptual level of design. Any option selected would require avoidance and minimization measures and establishment of wetland mitigation options. Currently, there are four “third party” wetland mitigations options in the form of either private or in-lieu fee (ILF) wetland mitigation banks within the Lower Big Sioux River Geographic Service Area (GSA) and wetland mitigation credits are available and together offer depressional, slope, and riverine wetland credits.

Table 2. Wetlands Delineated in the Study Area

Feature	Area (acres)	Cowardin Classification	HGM Classification
Wetland 1a	0.246	PEM1C	Slope
Wetland 1b	2.406	PEM1Ch	Slope
Wetland 1c	0.002	PEM1C	Riverine
Wetland 1d	0.004	PEM1C	Riverine
Wetland 1e	0.003	PEM1C	Riverine
Wetland 1f	0.009	PEM1C	Riverine

Feature	Area (acres)	Cowardin Classification	HGM Classification
Wetland 1g	0.003	PEM1C	Riverine
Wetland 1h	0.004	PEM1C	Riverine
Wetland 1i	0.006	PEM1C	Riverine
Wetland 2a	0.609	PEM1Fh	Slope
Wetland 2b	0.275	PEM1C	Riverine
Wetland 2c	0.205	PEM1C	Riverine
Total Wetland	3.772		

4.3 Natural Resources

Vegetation

The study area west of I-229 is urbanized and the area east of the Benson Road Interchange is transitioning from agricultural to urban uses. This area consists of mixed grasslands that are currently being grazed.

Wildlife

The grasslands in the study area are suitable for many wildlife species. No nesting habitat was noted in the study area and no bald or golden eagle nests were noted within 600 feet of the study area. Construction measures limiting mowing and clearing outside of the nesting season could be implemented to avoid adverse impacts on migratory birds. Generally, proposed option refinements Benson 4a and 4b minimize impacts on vegetation and wildlife habitat compared to Benson 1a through 1e because of the need for less right-of-way (ROW) and grading to construct the loop ramps.

Threatened and Endangered Species

The United States Fish and Wildlife Service (USFWS) Information Planning and Consultation (IPaC) tool was used to generate the list of federally listed threatened and endangered species. IPaC noted the potential for the northern long-eared bat, red knot, and western prairie fringed orchid to be present. No suitable habitat for the red knot is present in the study area. Trees are present in the study area, and though no peeling bark was observed, time constraints for tree removal should be implemented during construction for northern long-eared bat because of the size of the trees and their location near other potential bat habitat. Marginal habitat for the western prairie fringed orchid exists and it is unlikely the orchid would be present. Biologists will need to visit the study area to check for the presence of the orchid. Consultation will need to be completed in conjunction with the NEPA documentation but it is likely that a *may affect not likely to adversely effect* determination can be made for any of the Build Alternatives and proposed option refinements.

The South Dakota Department of Game Fish and Parks (SDGFP) reviewed the South Dakota Natural Heritage Database. No state-listed threatened, endangered, or rare species have been documented in or within the vicinity of the study area. However, SDGFP noted that not all areas of South Dakota have been surveyed. During the NEPA phase, the potential to encounter state-listed threatened, endangered, or rare species should be evaluated. SDGFP concluded that, as proposed, the Project would have no effect on state-listed threatened, endangered, or

rare species. The proposed option refinements Benson 4a and 4b would require less ROW and less habitat than Benson 1a through 1e.

4.4 Cultural Resources

Archeological Resources

No new archaeological sites were identified during the archaeology and historic structures survey completed on May 22–23, 2018, by HDR.

Historic Structures

Two properties, aged 45 years or older, within the indirect area of potential effects (APE) were surveyed. Both surveyed properties are recommended not eligible for listing in the National Register of Historic Places. A report of these findings has been submitted to SDDOT (HDR 2018d). Consultation with the State Historic Preservation Office (SHPO) will need to be completed during the NEPA phase of the Project.

Other Cultural Properties

During the survey, HDR identified four potential areas of cultural concern. These four areas of concern may contain unrecorded stone features. It is anticipated, but not possible to determine without additional engineering, that all of the proposed option refinements can be designed to avoid these features. Proposed option refinements Benson 4a and 4b are further away from the two areas along I-229 than options 1a through 1e. All of the proposed option refinements are the same distance from the two areas along Benson Road. If the stone features cannot be avoided, an examination of the stone features should be completed during the NEPA study.

4.5 Physical Resources

Air Quality

The City is within attainment for all criteria pollutants in compliance with the Clean Air Act; therefore, no additional analysis is needed for the Project. There is potential for point source emissions from equipment and fugitive dust during construction. A permit may be needed for the point source emissions according to SDDENR.

Geology and soils

The area west of I-229 is urbanized and there is some development east of I-229. There is an area of untilled soils that could be disturbed during construction. Soil disturbance would be minimized under proposed option refinements Benson 4a and 4b.

Prime farmlands

Soil types that are considered Prime Farmlands and Farmlands of Statewide Importance are located within the study area (National Resources Conservation Service 2018). Some have already converted to urban uses but there is potential for some that have not been previously converted to urban uses to be disturbed by the proposed Project improvements. If adversely

affected, the Farmland Conversion Impact Rating Form AD-1006 will need to be completed during the NEPA phase of the Project and as design progress. Soil disturbance would be minimized under proposed option refinements Benson 4a and 4b.

Noise receptors

The Project is a Type I project according to the SDDOT Noise Analysis and Abatement Guidance and Code of Federal Regulations 772. As part of the 2017 Benson Road Corridor Study, it was determined that noise sensitive receptors were not located in the study area; therefore, noise modeling at discrete, individual noise receptors was not warranted. Local officials were provided an estimation of future noise levels at various distances from the highway to assist in noise compatible future planning. The current study area is slightly larger than the study area in the 2017 Benson Road Corridor Study; therefore, during the NEPA phase, a reassessment of the noise report should be completed. It is anticipated that localized and temporary noise impacts would likely occur during construction.

Contaminated sites

A Phase 1 Environmental Site Assessment (ESA) is being finalized for the study area. Preliminary results indicate that there are six Recognized Environmental Conditions (RECs) including active and former underground storage tank sites located west of I-229 along Benson Road (Figure 2). Additional investigation may be needed if subsurface disturbance occurs near RECs along Benson Road west of I-229. Other RECs are located outside of, but adjacent to, the study area. During the NEPA phase and as design progresses, evaluating the potential for adverse effects from the Project on these resources will be necessary including a determination of what additional work will be required.

4.6 Community Resources

Businesses

The study area consists of light industrial, commercial, and agricultural uses, including several businesses located along Benson Road and west of the interchange. Access will not be eliminated for these businesses but employees and customers of the businesses could experience delays or detours during construction.

Federal, state, Tribal or other locally owned lands

Land owned by the State of South Dakota Department of Military and Veterans Affairs (South Dakota Army National Guard) and land owned by the City of Sioux Falls are located east of the interchange. SDDOT and Sioux Falls are coordinating with the South Dakota Army National Guard to ensure transport vehicles using the proposed readiness center can safely navigate either Benson 4a or 4b.

Parks, recreation facilities, including bicycle and pedestrian

As noted in the 2017 Benson Road Corridor Study and the *Purpose and Need Technical Memorandum* (HDR 2018), there are sidewalks present west of the Benson Road Interchange and on the bridge over I-229 but not east of the interchange. The lack of facilities is contributing to a diminished multimodal LOS. The proposed Project improvements would provide pedestrian

and bicycle access through the Benson Road Interchange and include sidewalks along Benson Road Corridor east of the interchange.

Section 4(f) or 6(f) properties

There are no publicly owned parks or recreation facilities or wildlife and waterfowl refuges (Section 4(f) properties) within the study area. As noted in Section 4.4, no archaeological or historic properties eligible for listing in the National Register of Historic Places were identified. Four areas with stone features were identified; it is anticipated that these areas can be avoided and were not evaluated. During design, if it determined that these features cannot be avoided, they may need to be evaluated. No properties in the study area have been developed using Land and Water Conservation Fund dollars.

Right-of-way (ROW) Relocations

No residential areas exist in the study area, although there is a small area of manufactured housing along I-229 near the southern end of the study area. The proposed Project improvements would be located within the existing ROW in this area and would not require relocation of any of these residences. ROW would be needed to accommodate any of the proposed option refinements with more ROW needed for proposed option refinements Benson 1a through 1e compared to Benson 4a and 4b. No relocations would be needed for any of the proposed option refinements. Access may be modified, but would be maintained for all properties.

4.7 Cumulative Impacts

Potential impacts on resources would be expected to be minor with proposed option refinements Benson 4a and 4b because most of the impacts occur within the existing ROW. As discussed, the study area is an industrial growth area for the City. It is anticipated that these resources affected by land use conversion will be adversely affected with or without the proposed Project interchange improvements. Because the contributions of the Project to any cumulative impacts are expected to be minor, no mitigation would be necessary for indirect or cumulative impacts.

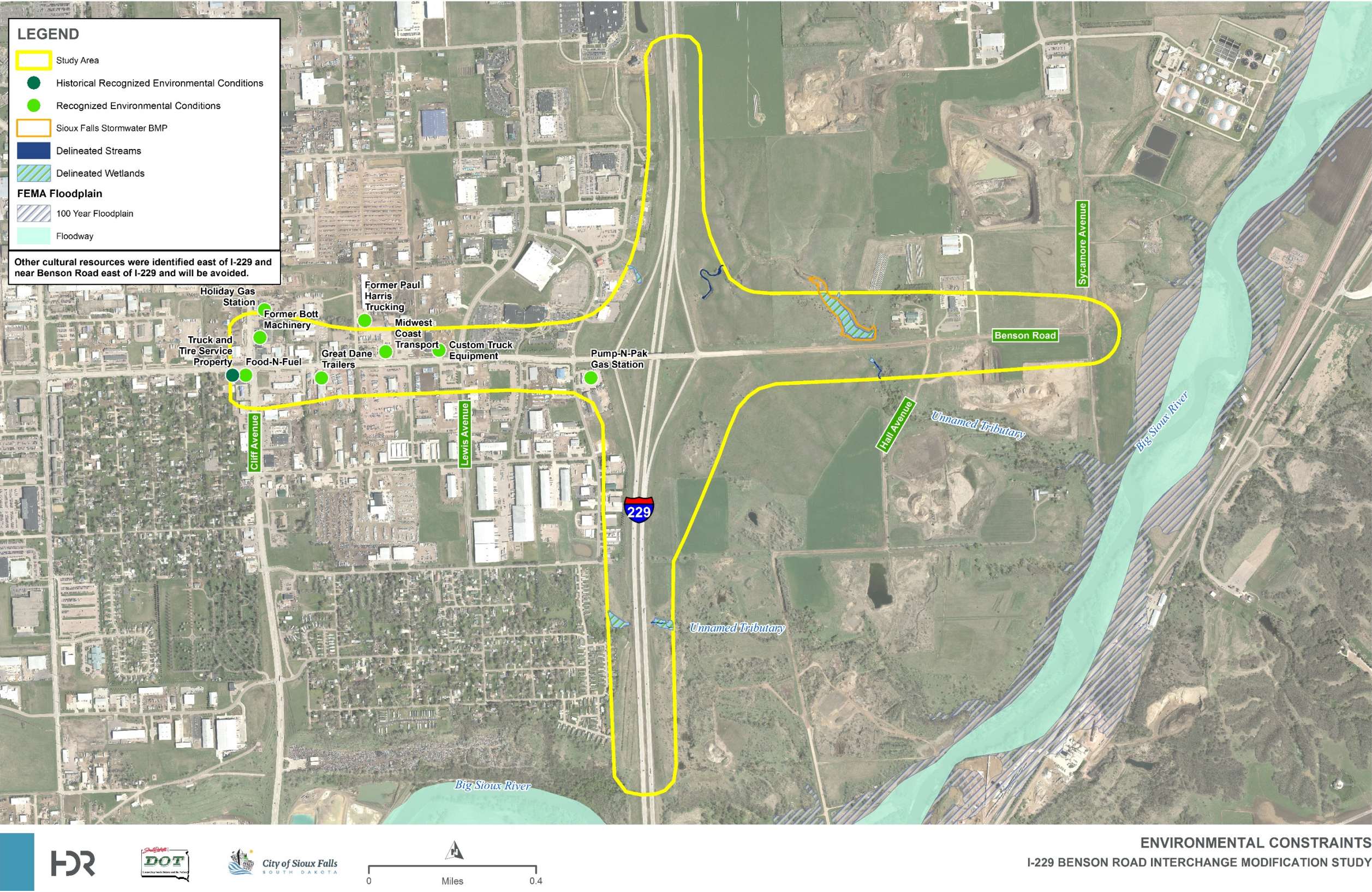


Figure 2. Environmental Constraints

Table 3. Environmental Resources and Potential Impacts

Resource	Resource or concern within or adjacent to study area	Description of Resource	Affected by No Build	Affected by Option 1a	Affected by Option 1b	Affected by Option 1c	Affected by Option 1d	Affected by Option 1e	Affected by Option 4a	Affected by Option 4b
Land Use										
Land use and zoning	Yes	Existing land use is transitioning from agricultural to light industrial uses consistent with future land use map and zoning designations	Without improvements land use changes may be slowed	Improvements benefits land use transition that is occurring	Improvements benefits land use transition that is occurring	Improvements benefits land use transition that is occurring	Improvements benefits land use transition that is occurring	Improvements benefits land use transition that is occurring	Improvements benefits land use transition that is occurring	Improvements benefits land use transition that is occurring
Transportation and traffic	Yes	Benson Road Interchange and Benson Road Corridor experience congestion resulting in long vehicle queues, traffic delays, and an overall increased travel time	Without improvements traffic operations are expected to diminish	Improved traffic operations	Improved traffic operations	Improved traffic operations	Improved traffic operations	Improved traffic operations	Improved traffic operations	Improved traffic operations
Water Resources										
Surface waters	Yes	Unnamed tributaries of the Big Sioux River are located east of I-229 and north of Benson. South Dakota Department of Environment and Natural Resources (SDDENR) noted that construction measures will be needed due to the beneficial use designation of the Big Sioux River. A stormwater facility is located on the unnamed tributary north of Benson Road.	No	Limited soil disturbance and minor run off to unnamed tributary and Big Sioux River during construction with if construction measures are implemented.	Limited soil disturbance and minor run off to unnamed tributary and Big Sioux River during construction with if construction measures are implemented.	Limited soil disturbance and minor run off to unnamed tributary and Big Sioux River during construction with if construction measures are implemented.	Limited soil disturbance and minor run off to unnamed tributary and Big Sioux River during construction with if construction measures are implemented.	Limited soil disturbance and minor run off to unnamed tributary and Big Sioux River during construction with if construction measures are implemented.	Construction measures would be implemented to reduce soil disturbance and runoff to unnamed tributary and Big Sioux River.	Construction measures would be implemented to reduce soil disturbance and runoff to unnamed tributary and Big Sioux River.
Floodplains	Yes	100-year floodplain along Big Sioux River south of study area	No	No	No	No	No	No	No	No
Wetlands	Yes	Wetlands are present along the unnamed drainages. A jurisdictional determination will be necessary.	No	<1.0 acre	<1.0 acre	<1.0 acre	<1.0 acre	<1.0 acre	<1.0 acre	<1.0 acre
Wetlands Note:	Wetland impacts are similar between options due to a large percentage of the impacts being on Benson Road east of I-229. Each option potentially affects more than 0.5 acre but less than 1.0 acre based on the conceptual level of design; there is a less than 0.05 acre difference between the options. Avoidance and minimization as well as mitigation would be considered for any option selected.									

Resource	Resource or concern within or adjacent to study area	Description of Resource	Affected by No Build	Affected by Option 1a	Affected by Option 1b	Affected by Option 1c	Affected by Option 1d	Affected by Option 1e	Affected by Option 4a	Affected by Option 4b
Wild and Scenic Rivers	No	The Big Sioux River is located southeast of the Benson Road interchange. It is not a designated Wild and Scenic River.								
Natural Resources										
Wildlife	Yes	West of I-229 is urbanized. East of I-229 is transitioning but suitable habitat for wildlife species, especially along unnamed drainage.	Yes	Migratory bird habitat may be removed due to grading of loop ramps and drainage improvements along Benson Road. No critical habitat removed.	Migratory bird habitat may be removed due to grading of loop ramps and drainage improvements along Benson Road. No critical habitat removed.	Migratory bird habitat may be removed due to grading of loop ramps and drainage improvements along Benson Road. No critical habitat removed.	Migratory bird habitat may be removed due to grading of loop ramps and drainage improvements along Benson Road. No critical habitat removed.	Migratory bird habitat may be removed due to grading of loop ramps and drainage improvements along Benson Road. No critical habitat removed.	Migratory bird habitat may be removed due to drainage improvements along Benson Road. No critical habitat removed.	Migratory bird habitat may be removed due to drainage improvements along Benson Road. No critical habitat removed.
Vegetation	Yes	West of I-229 is urbanized. East of I-229 is transitioning but mixed grasslands present that are currently being grazed.	No	Removed due to grading of loop ramps and drainage improvements along Benson Road	Removed due to grading of loop ramps and drainage improvements along Benson Road	Removed due to grading of loop ramps and drainage improvements along Benson Road	Removed due to grading of loop ramps and drainage improvements along Benson Road	Removed due to grading of loop ramps and drainage improvements along Benson Road	Removed due to drainage improvements along Benson Road	Removed due to drainage improvements along Benson Road
Threatened and endangered species	Yes	IPaC noted potential for federally listed: northern long-eared bat, red knot, and western prairie fringed orchid. Marginal habitat for western prairie fringed orchid present. The South Dakota Department of Game Fish and Parks (SDGFP) did not identify potential for state-listed species	No	Potential habitat for threatened and endangered species removed depending on final grading for loop ramps and drainage improvements on Benson	Potential habitat for threatened and endangered species removed depending on final grading for loop ramps and drainage improvements on Benson	Potential habitat for threatened and endangered species removed depending on final grading for loop ramps and drainage improvements on Benson	Potential habitat for threatened and endangered species removed depending on final grading for loop ramps and drainage improvements on Benson	Potential habitat for threatened and endangered species removed depending on final grading for loop ramps and drainage improvements on Benson	Potential habitat for threatened and endangered species removed depending on drainage improvements on Benson	Potential habitat for threatened and endangered species removed depending on drainage improvements on Benson
Cultural Resources										
Archeological resources	Yes*	No archaeological properties eligible for listing in the National Register of Historic Places were observed in the APE.	No	No	No	No	No	No	No	No
Historic structures	Yes*	Two structures over 50 years in the APE were evaluated but are not eligible for listing in the National Register of Historic Places.	No	No	No	No	No	No	No	No

Resource	Resource or concern within or adjacent to study area	Description of Resource	Affected by No Build	Affected by Option 1a	Affected by Option 1b	Affected by Option 1c	Affected by Option 1d	Affected by Option 1e	Affected by Option 4a	Affected by Option 4b
Other cultural properties	Yes*	Stone features were identified within the within APE that may or may not be traditional cultural properties. Features can be avoided and have not been evaluated.	No	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features than DDI (Options 4a – 4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features than DDI (Options 4a – 4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features than DDI (Options 4a – 4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features than DDI (Options 4a – 4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features than DDI (Options 4a – 4b).	Expected construction limits will avoid stone features.	Expected construction limits will avoid stone features.
Physical Resources										
Air quality	Yes	Sioux Falls is within attainment for all criteria pollutants in compliance with the Clean Air Act. The traffic volumes do not warrant a MSAT analysis.		Minor equipment point source emissions and fugitive dust during construction	Minor equipment point source emissions and fugitive dust during construction	Minor equipment point source emissions and fugitive dust during construction	Minor equipment point source emissions and fugitive dust during construction	Minor equipment point source emissions and fugitive dust during construction	Minor equipment point source emissions and fugitive dust during construction	Minor equipment point source emissions and fugitive dust during construction
Geology and soils	Yes	West of I-229 is urbanized. Some development east of I-229 is present but untilled soils are present	No	Soils disturbed for loop ramps and improvements on Benson	Soils disturbed for loop ramps and improvements on Benson	Soils disturbed for loop ramps and improvements on Benson	Soils disturbed for loop ramps and improvements on Benson	Soils disturbed for loop ramps and improvements on Benson	Soils disturbed for DDI ramps and improvements on Benson	Soils disturbed for DDI ramps and improvements on Benson
Prime farmlands	Yes	Prime Farmlands and Farmlands of Statewide Importance present; large percentage the designated soils have been previously converted to urban uses	No	Possible conversion depending on final grading for loop ramps and drainage improvements on Benson	Possible conversion depending on final grading for loop ramps and drainage improvements on Benson	Possible conversion depending on final grading for loop ramps and drainage improvements on Benson	Possible conversion depending on final grading for loop ramps and drainage improvements on Benson	Possible conversion depending on final grading for loop ramps and drainage improvements on Benson	Possible conversion depending on final drainage improvements on Benson	Possible conversion depending on final drainage improvements on Benson
Noise receptors	Yes	No receptors along Benson. Receptors are present south of Benson and west of I-229 adjacent to the study area.		Localized and temporary noise during construction	Localized and temporary noise during construction	Localized and temporary noise during construction	Localized and temporary noise during construction	Localized and temporary noise during construction	Localized and temporary noise during construction	Localized and temporary noise during construction
Contaminated sites	Yes	Six Recognized Environmental Conditions (REC) are located west of I-229 along Benson Road. Other RECs are located outside of but adjacent to the study area.	No	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229	Additional investigation may be needed if subsurface disturbance occurs in proximity to RECs along Benson west of I-229

Resource	Resource or concern within or adjacent to study area	Description of Resource	Affected by No Build	Affected by Option 1a	Affected by Option 1b	Affected by Option 1c	Affected by Option 1d	Affected by Option 1e	Affected by Option 4a	Affected by Option 4b
Community Resources										
Community facilities	No	No publicly or privately owned community or recreation facilities are present in the study area.								
Environmental Justice populations	No	No environmental justice populations were identified within the census tract during the 2017 Benson Road Corridor Study.								
Businesses	Yes	There are several businesses located along Benson Road.	Worsening congestion could affect access to existing businesses	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.	Temporary delays and detours may be needed during construction. Access will not be eliminated but could be modified in some locations.
Federal, state, Tribal, or locally owned lands	Yes	There is land owned by the State of South Dakota Department of Military and Veterans Affairs and land owned by the City of Sioux Falls.	No	Potential minor impacts for improvements to Benson Road	Potential minor impacts for improvements to Benson Road	Potential minor impacts for improvements to Benson Road	Potential minor impacts for improvements to Benson Road	Potential minor impacts for improvements to Benson Road	Potential minor impacts for improvements to Benson Road. Coordination is on-going with South Dakota Army National Guard to ensure vehicles using proposed readiness center can safely navigate proposed improvements.	Potential minor impacts for improvements to Benson Road. Coordination is on-going with South Dakota Army National Guard to ensure vehicles using proposed readiness center can safely navigate proposed improvements.
Parks, recreation facilities, including bicycle and pedestrian	Yes	Sidewalks are present west of the Benson Road Interchange and on the bridge over I-229 but there are no facilities on the east side of the interchange.	Pedestrian and bicycles will be continue to be limited east of I-229	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements	Sidewalks and pedestrian/ bicycle facility at interchange to improve pedestrian and bicycle movements

Resource	Resource or concern within or adjacent to study area	Description of Resource	Affected by No Build	Affected by Option 1a	Affected by Option 1b	Affected by Option 1c	Affected by Option 1d	Affected by Option 1e	Affected by Option 4a	Affected by Option 4b
Section 4(f) or 6(f) properties	Yes*	No publicly owned park, recreation areas or wildlife refuges are located in the study area. No NRHP eligible sites have been identified. If stone features cannot be avoided, additional evaluation and consultation would be needed to determine NRHP eligibility. No Land and Water Conservation Funds were used to purchase lands or make recreation improvements in the study area.	No	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features near interchange than DDI options (4a-4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features near interchange than DDI options (4a-4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features near interchange than DDI options (4a-4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features near interchange than DDI options (4a-4b).	Expected construction limits will avoid stone features. Loop ramps with this option will be closer to stone features near interchange than DDI options (4a-4b).	Expected construction limits will avoid stone features.	Expected construction limits will avoid stone features.
Visual and aesthetics	No	The area is developed west of I-229 with a mix of light industrial and commercial buildings. East side of I-229 is transitioning from agriculture to industrial uses. Views within the study area consistent with improving existing road facilities.								
Right-of-way (ROW)/ Relocations	Yes	Existing road ROW sufficient for existing operations but would not accommodate road improvements.	No additional ROW or relocations needed.	Substantial ROW needed to reconstruct loop ramp; no relocations needed	Substantial ROW needed to reconstruct loop ramp; no relocations needed	Substantial ROW needed to reconstruct loop ramp; no relocations needed	Substantial ROW needed to reconstruct loop ramp; no relocations needed	Substantial ROW needed to reconstruct loop ramp; no relocations needed	Minimal ROW needed for DDI; no relocations needed	Minimal ROW needed for DDI; no relocations needed

5.0 Agency Coordination and Public Involvement

As part of the *I-229 Major Investment Corridor Study*, which included the 2017 Benson Road Corridor Study, three public meetings in addition to several landowner and business group meetings were held between 2015 and 2016. At those meetings, information regarding the purpose of and need for the Project, alternatives, and environmental constraints used to screen alternatives were presented. Proposed option refinements 1a through 1e and 4a and 4b were recommended for further refinement during the next phase of development.

Specific to the IMJR and Environmental Scan, SDDOT requested agency comments from SDDENR and South Dakota Department of Game, Fish and Parks (SDGFP) on June 6, 2018. Responses were received from SDGFP on June 11 and 25, 2018, and from SDDENR on June 14 and July 2, 2018. The USFWS IPaC tool was used to generate the list of federally listed threatened and endangered species. Potential for the northern long-eared bat, red knot, and western prairie fringed orchid was noted.

Tribal coordination letters were mailed to the Sisseton-Wahpeton Oyate, Standing Rock Sioux, Lower Brule Sioux, Flandreau Santee Sioux, and Chippewa Cree Tribe of the Rocky Boy's Reservation Tribes on June 11, 2018. No responses from the Tribes have been received to date.

Meetings were held with Poet on August 7, 2018, and Sanford on August 8, 2018, to discuss the proposed option refinements and discuss Project-related concerns. Their comments are noted in Table 4. A public information meeting was held on October 25, 2018. The meeting was made available on the City's live meeting system and posted to the Project website: www.bensonroadproject.com. A short presentation was made to share the purpose of and need for the Project and the proposed option refinements. Information about the environmental resources from the Environmental Scan were shared. Meeting materials were made available on the Project website.

Twenty-four people signed in at the meeting and 15 live, on-line viewings of the presentation occurred during the meeting. Over 800 hits to the video link were logged from the website after the meeting. No comments forms were returned during the meeting or comment period, which ended on November 5, 2018. Two individuals asked questions during the presentation question and answer portion of the meeting. Informal questions and comments were taken by staff during the open house portion of the meeting. A summary of the input received is found in Table 4 along with additional environmental analysis to be considered resulting from public and agency input.

As noted in the table, no additional alternatives were brought forward for consideration either as part of the IMJR or subsequent NEPA documentation. Meeting attendees indicated a preference for the DDI options over the loop ramp options. Additional analysis should be completed during the NEPA phase for federally and state-listed species, a Phase 1 ESA will be finalized, and the appropriate mitigation requirements will be incorporated into design to be implemented as part of construction.

For the resources noted in Section 4.0 that need additional coordination, consultation, or permits (for example, a Section 404 permit for impacts on waters of the United States), those consultations will need to be completed during development of the NEPA document or during final design.

Table 4. Summary of Agency Coordination and Public Involvement Concerns

Summary of Public/ Agency/ Tribal Comment or Concern	Is a new alternative needed to address concern?	Is additional environmental analysis needed to respond to the concern?	Can concern be mitigated?
South Dakota Game Fish and Parks (SDGFP) responded on June 11, 2018, that no Land and Water Conservation Fund grant assistance has been provided to properties in the study area	No	No	N/A
SDGFP noted on June 25, 2018, that the Natural Heritage Database search resulted in no documented threatened, endangered, or rare species near the study area. As proposed, the Project will have no effect on state-listed species.	No	National Environmental Policy Act (NEPA) documentation should evaluate potential to encounter state-listed species in study area	Yes
IPaC noted potential habitat for the northern long-eared bat, red knot, and western prairie fringed orchid.	No	Trees are present in the study area. Time constraints for tree removal should be implemented during construction for northern long-eared bat. Biologists will need to visit the study area to check for the presence of the western prairie fringed orchid. Consultation will need to be completed in conjunction with the NEPA documentation.	Yes
South Dakota Department of Environment and Natural (SDDENR) responded on June 14, 2018, that the office has no objections to the Project, which should not result in any violations of applicable statutes or regulations provided the Department of Transportation or its contractor comply with the requirements for each surface water quality, hazardous and solid wastes, and air quality.	No	NEPA documentation should include requirements into analysis completed and commitments will be documented in Environmental Commitments checklist and a in Section A - Estimates of Quantities and environmental Commitments of the plan sheets	Yes
SDDENR responded on July 2, 2018, that there are two regulated underground storage tank facilities and seven reported releases along the above proposed Project.	No	Phase 1 Environmental Site Assessment will be finalized for NEPA documentation.	Yes

Summary of Public/ Agency/ Tribal Comment or Concern	Is a new alternative needed to address concern?	Is additional environmental analysis needed to respond to the concern?	Can concern be mitigated?
Poet meeting participants commented on the congestion and travel time for employees. Indicated preference for DDI but would like to see renderings or visualization since it is a new interchange configuration.	No	No	Yes
Sanford meeting participants commented on access related to the proposed median with Benson Road improvements and cut through traffic between Lewis Avenue and Potsdam Avenue.	No	No, additional environmental analysis is not needed. Design will provide appropriate u-turn opportunities. Additional signage may be needed for unfamiliar drivers and visitors to Sanford facility.	Yes
Public meeting Q&A – How would snow removal work? Snow removal could be more difficult for the DDI option than under the current interchange configuration.	No	Project team will review snow removal case studies and options and present information to the SAT.	Yes
Public meeting Q&A – Can the loop ramp option be designed to reduce impacts to water quality?	No	The loop ramp cannot be adjusted to reduce water quality impacts and continue to meet design speeds and safety criteria. No additional analysis needed.	No
Open House Input – Preference for DDI options over loop ramps.	No	No	N/A
Open House Input – Preference for purchasing less ROW from adjacent landowners	No	No	Yes
Open House Input – Concern for trucks crossing over into other lanes during turning movements	No	During the design phase of the Project, the team will evaluate road geometrics to reduce the likelihood of trucks crossing into other lanes during turns.	Yes
Open House Input – Concern for losing current free right movement at current interchange with proposed options	No	No. Signals would be necessary under DDI or loop options	No

Summary of Public/ Agency/ Tribal Comment or Concern	Is a new alternative needed to address concern?	Is additional environmental analysis needed to respond to the concern?	Can concern be mitigated?
South Dakota Army National Guard provided information on December 10, 2018, regarding a new army readiness center including traffic projections and vehicle types using the new facility.	No	No. Project team will review interchange geometrics including turning radii to ensure army vehicles can safely navigate the new interchange.	Yes

6.0 Conclusion and Next Steps

The SAT has determined that there is a need to make improvements at the Benson Road Interchange and along Benson Road Corridor from just west of Lewis Avenue to approximately 2,700 feet east of the Benson Road Interchange. Eight proposed option refinements were screened as part of the options evaluation for the IMJR and considered as part of the Environmental Scan. The SAT recommended that proposed option refinements Benson 4a and 4b, the diverging diamond interchange (DDI), be carried forward for further Project development because these options would require substantially less ROW and would have fewer adverse effects on environmental resources.

Based on the findings of the Environmental Scan, it is recommended that documentation for a categorical exclusion be prepared for compliance with NEPA.

Proposed option refinement Benson 4b is preferred over Benson 4a. Agencies and stakeholders were favorable to these options and no known controversy with these options has been identified.

As noted in Section 4.0, the Environmental Scan is not a detailed environmental investigation and as the Project continues, compliance with NEPA will be required.

The following resources have the potential to be affected as noted in Table 3:

- Surface waters and wetlands
- Vegetation and wildlife habitat, including habitat for listed species
- Other cultural sites are in close proximity to the Project but expected to be avoided
- Air quality through minor point source and fugitive dust emissions
- Soils, including prime farmland soils
- Contaminated sites
- Businesses due to construction related impacts

Based on the engineering, environmental evaluation, and stakeholder coordination completed as part of the IMJR and the Environmental Scan, it is recommended that the Project as proposed does not warrant preparation of environmental impact statement or environmental assessment. Instead documentation for a categorical exclusion and additional analysis where noted should be prepared along with all necessary agency consultation and permits prior to construction.

7.0 References

- City of Sioux Falls. 2016. *Shape Sioux Falls 2040 Comprehensive Plan*. Accessed February 20, 2018. <http://www.sioxford.org/shape-sf>
- HDR. 2016. *Noise Study Technical Report for the I-229 Major Investment Corridor Study Sub-Study #4*.
- HDR. 2018a. *I-229 Benson Road Methods and Assumptions Document*.
- HDR. 2018b. *I-229 Benson Road Purpose and Need Technical Memorandum*
- HDR. 2018c. *I-229 Benson Road Options Evaluation Technical Memorandum*
- HDR. 2018d. *Level III Archaeological Survey and Intensive Historic Structures Survey for I-229 Benson Road Interchange Modification Project*.
- Natural Resources Conservation Service. 2018. "Web Soil Survey". Accessed July 20, 2018. <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>
- SDDOT. 2017. *I-229 Exit 9 (Benson Road) Crossroad Corridor Study*. Accessed February 15, 2018. http://www.i229study.com/docs/I229_SS4_FINALReport&Appendices_June2017.pdf