I-229 EXIT 9 (BENSON ROAD) INTERCHANGE STUDY & ENVIRONMENTAL DOCUMENT

PL0100 (82) PCN 06MF - IM 2292(98)6 PCN 04XK

P 1200(04) PCN 06MM

Public Informational Meeting

February 27th, 2020
5:30 pm to 6:30 pm
Water Reclamation Facility

PRESENTATION AGENDA

- Project History
- Purpose and Need
- Environmental Scan Documentation
- Alternative Selection
- Next Steps – Design Schedule

Corridor Study Area Map

I-229 Major Investment Corridor Study:

Solberg Avenue Overpass to 60th Street N Overpass

Duration from 2013 – 2017

5 Interchange Studies

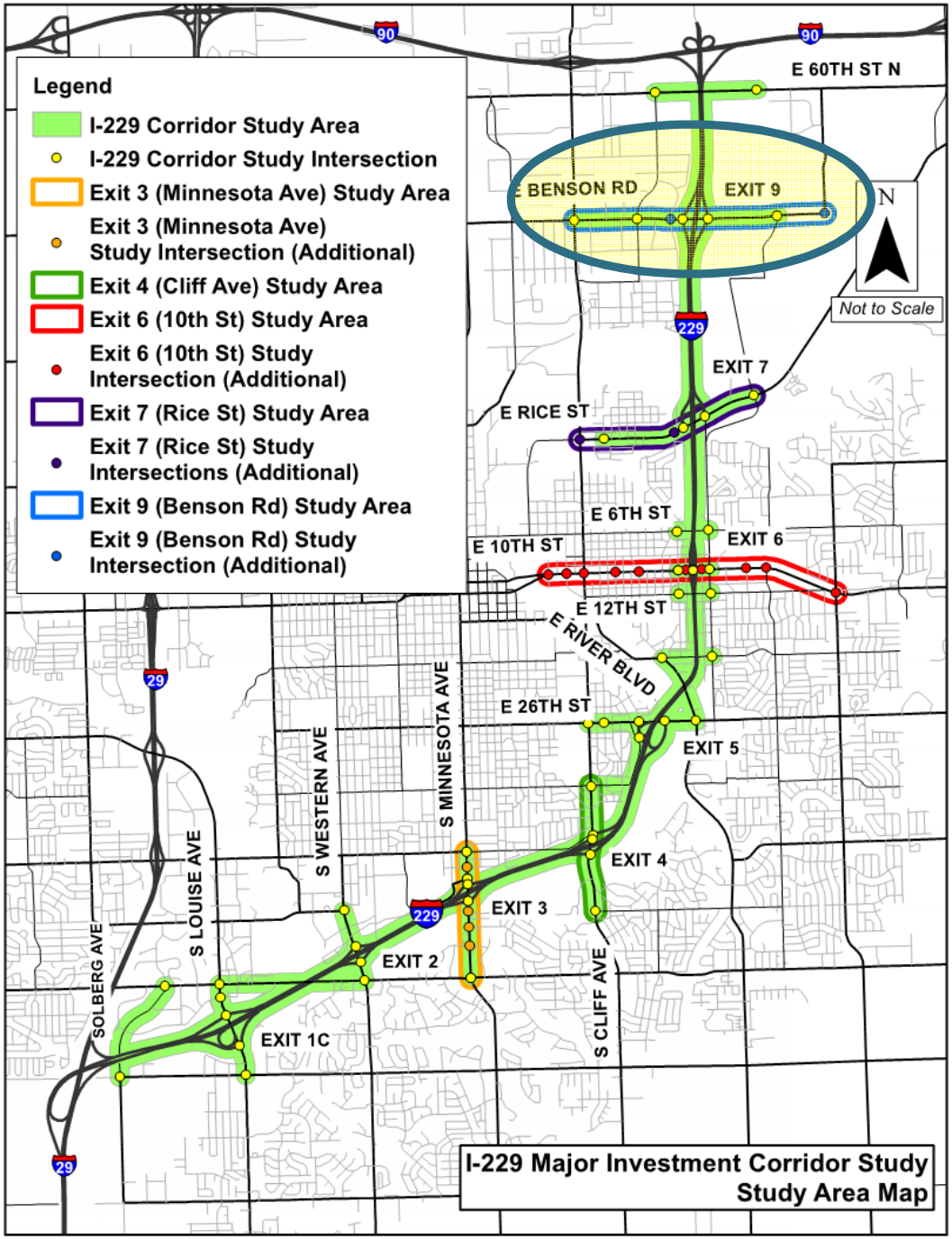
Overall I-229 Study

http://www.i229study.com

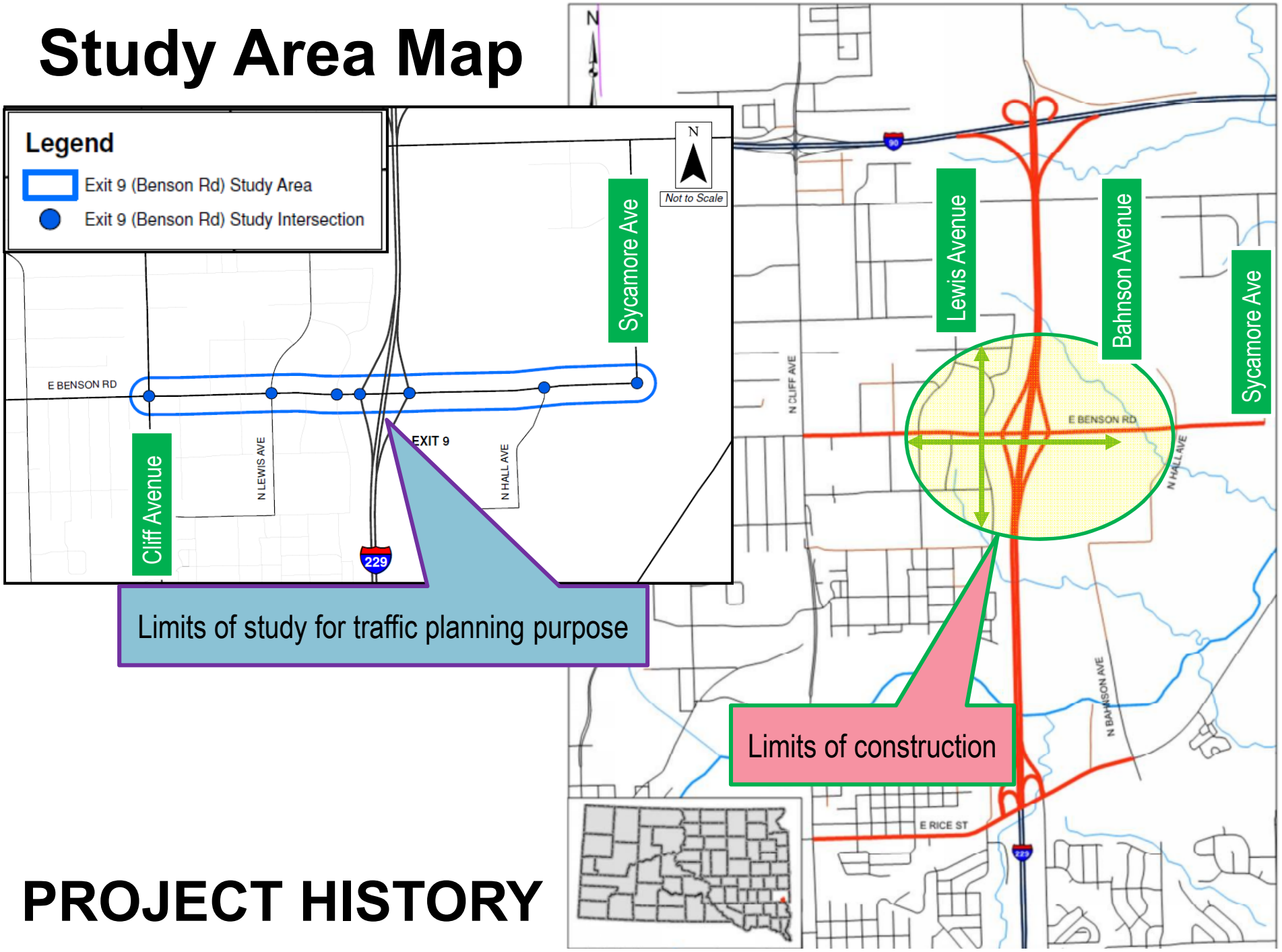
Project Purpose:

Define and Prioritize Improvements required for the corridor over the next 30-40 years

PROJECT HISTORY



Study Area Map



PROJECT HISTORY

PURPOSE AND NEED

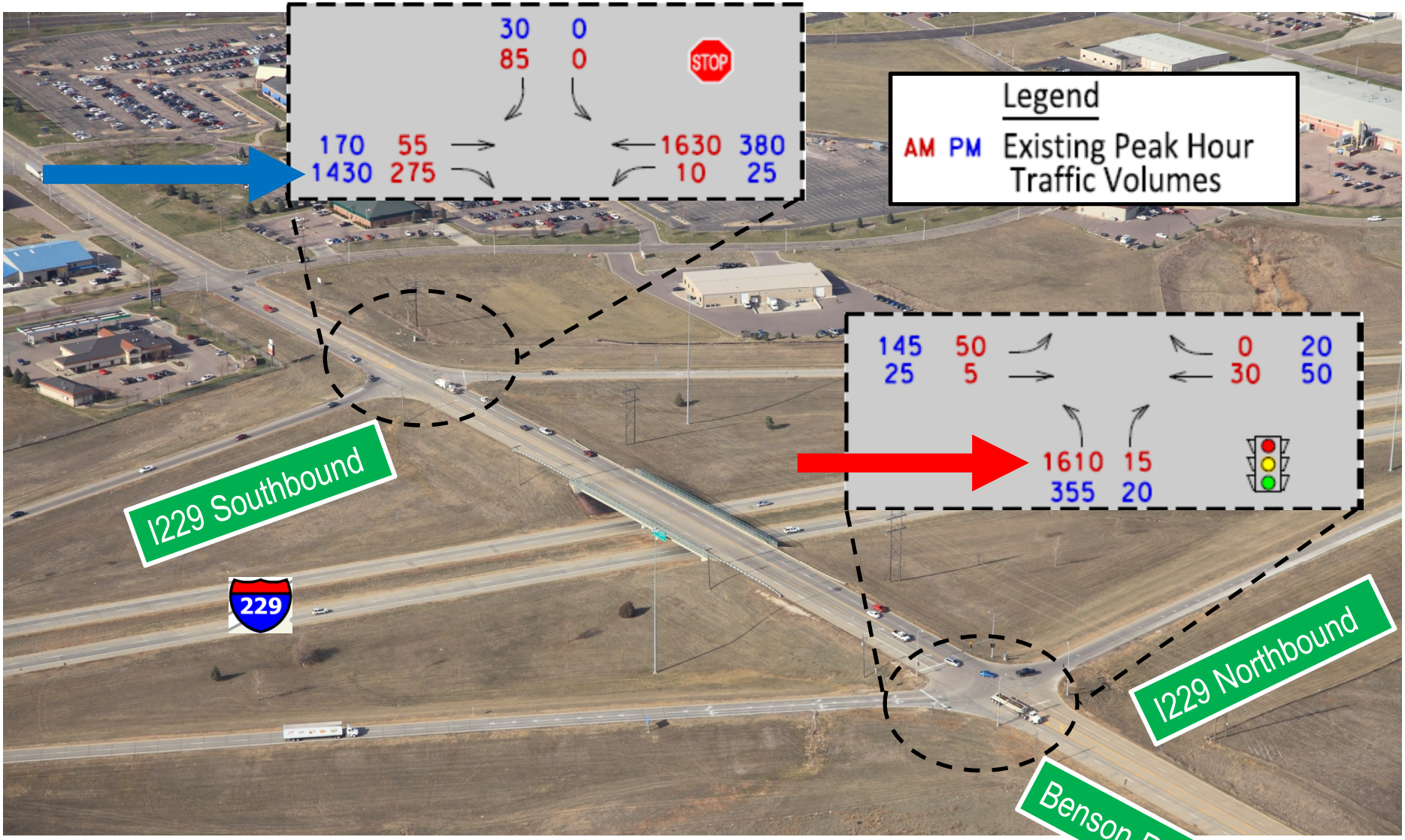
PROJECT PURPOSE: To improve traffic operations and enhance mobility for other modes of transportation (i.e. Transit, Bikes, Pedestrians)

PROJECT NEED:

1.) Capacity for existing and future traffic volumes
2.) lack of accessibility for non-automobile transportation

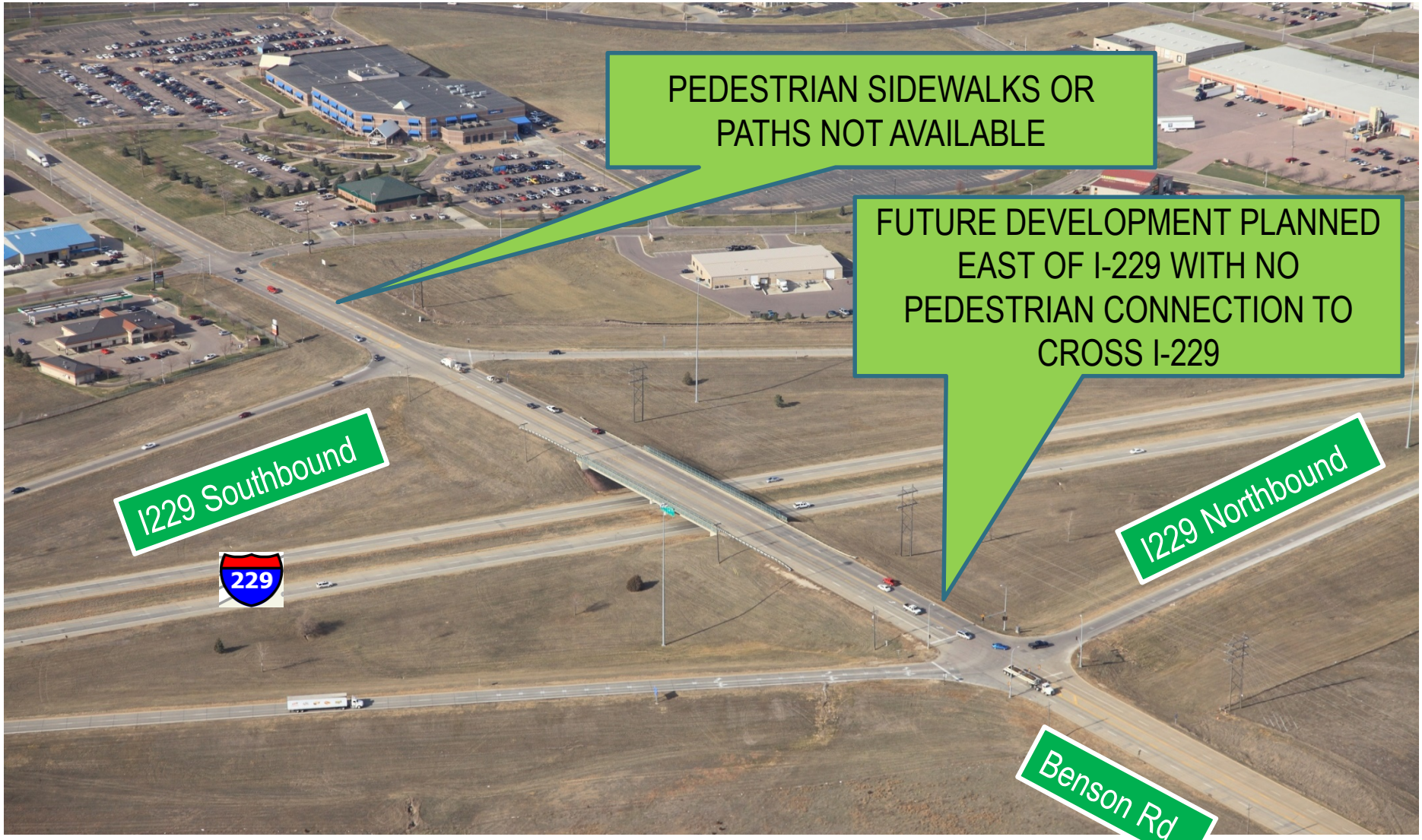
Location	Existing		2045 No-Build	
	AM	PM	AM	PM
Benson Road and Cliff Avenue	LOS B	LOS B	LOS B	LOS C
Benson Road and Lewis Avenue	LOS B	LOS C	LOS B	LOS C
Benson Road and Potsdam Avenue	**LOS F**	**LOS F**	**LOS F**	**LOS F**
Benson Road and I-229 SB Ramp Terminal	**LOS D**	LOS A	**LOS F**	**LOS F**
Benson Road and I-229 NB Ramp Terminal	**LOS F**	LOS B	**LOS F**	LOS B
Benson Road and Hall Avenue	LOS A	LOS B	**LOS F**	**LOS F**

EXISTING TRAFFIC VOLUMES



PURPOSE AND NEED

EXISTING BENSON ROAD CORRIDOR OVERVIEW



PURPOSE AND NEED

ENVIRONMENTAL DOCUMENTATION PER NATIONAL ENVIRONMENTAL POLICY ACT

CATEGORICAL EXCLUSION DETERMINATION (CATEX)

- A federal action may be "categorically excluded" from a detailed environmental analysis if the federal action does not, "individually or cumulatively have a significant effect on the human environment"

ENVIRONMENTAL ASSESSMENT/FINDING OF NO SIGNIFICANT IMPACT

- A federal agency can determine that a Categorical Exclusion (CATEX) does not apply to a proposed action. The federal agency may then prepare an Environmental Assessment (EA). The EA determines whether or not a federal action has the potential to cause significant environmental effects.

ENVIRONMENTAL RESOURCE REVIEW CATEGORIES

- LAND USE (ZONING, TRANSPORTATION, AND TRAFFIC)
- SURFACE WATER (SURFACE WATERS, FLOODPLAINS, WETLANDS)
- NATURAL RESOURCES (VEGATATION, WILDLIFE, T&E)
- CULTURAL RESOURCES (ARCHEOLOGICAL AND HISTORIC STRUCTURES)
- PHYSICAL RESOURCES (AIR, SOILS, PRIME FARMLANDS, NOISE RECEPTORS, CONTAMINATION)
- COMMUNITY RESOURCES (FED/STATE/TRIBALS LANDS, PARKS/RECREATION FACILITIES, SECTION 4(f) OR 6(f) PROPERTIES, RIGHT OF WAY RELOCATIONS)
- CUMULATIVE IMPACTS

Design Alternative Selection

LOOP RAMPS CONFIGURATIONS

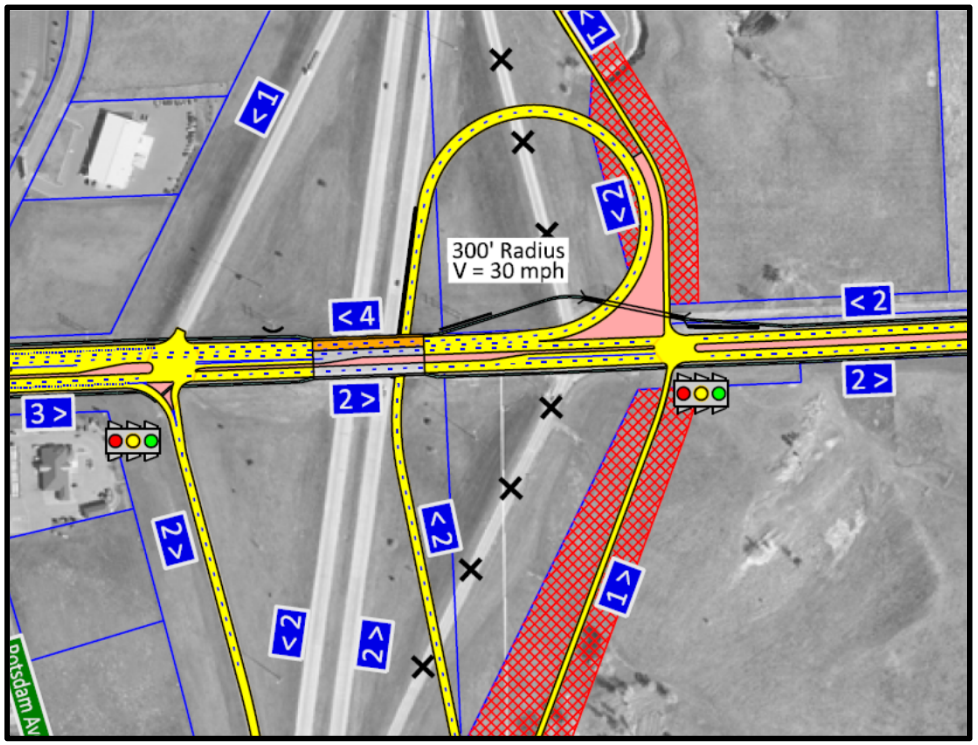
Figure I-1 – Alternative Scenario 1a

Figure I-2 – Alternative Scenario 1b

Figure I-3 – Alternative Scenario 1c

Figure I-4 – Alternative Scenario 1d

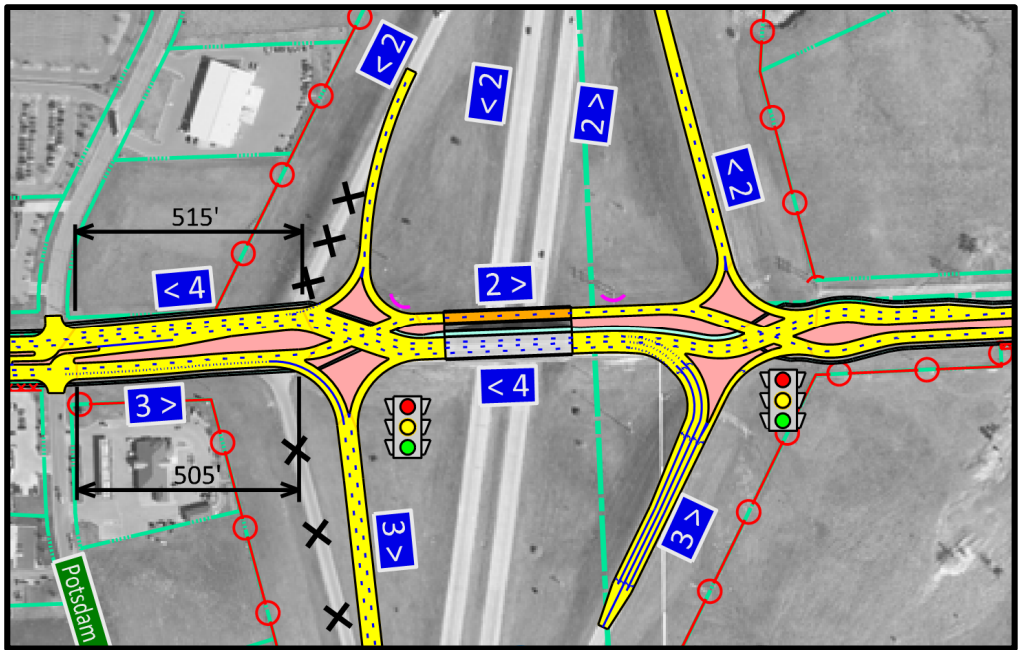
Figure I-5 – Alternative Scenario 1e



DIVERGING DIAMOND CONFIGURATIONS

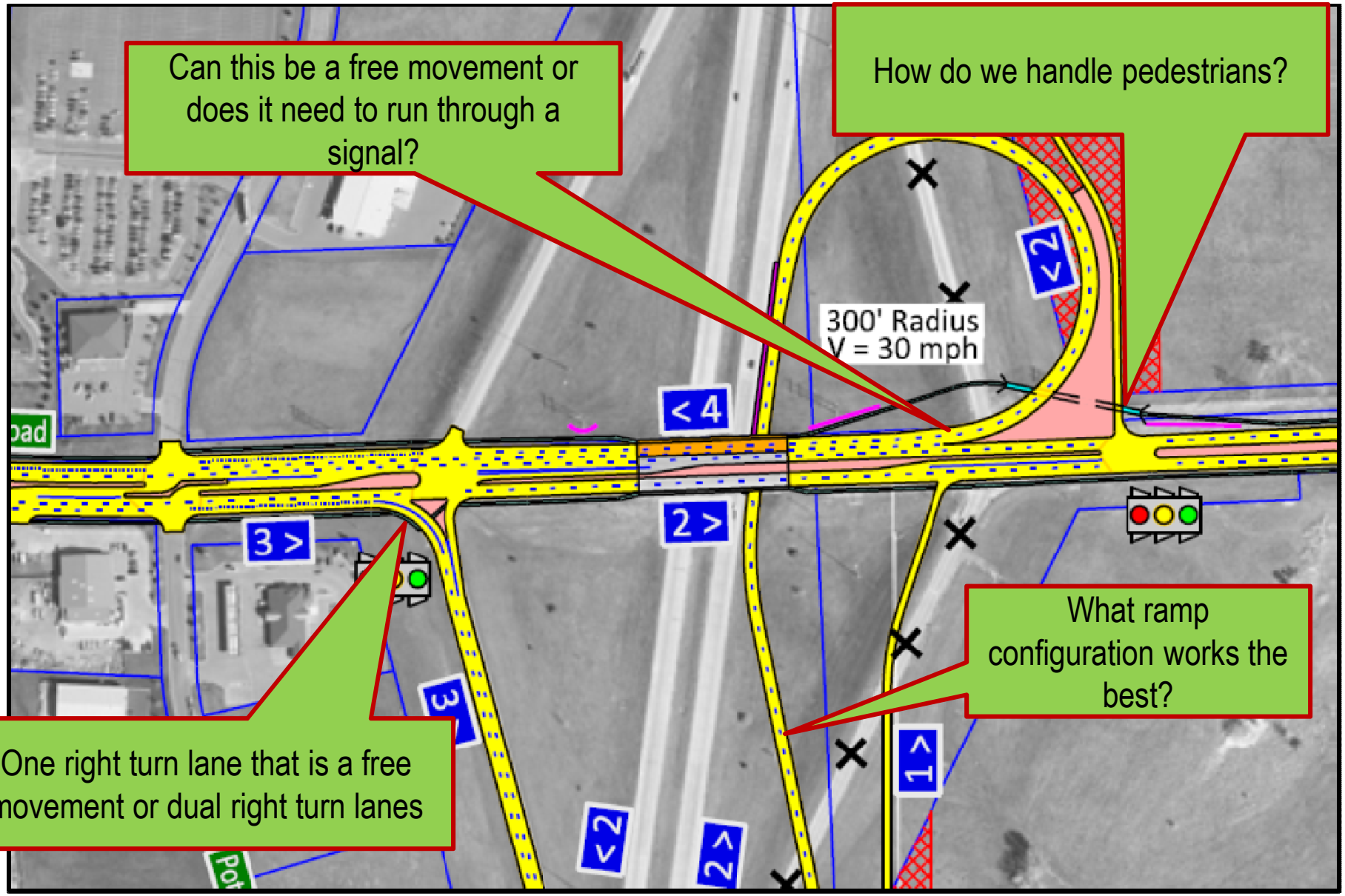
Figure I-6 – Alternative Scenario 4a

Figure I-7 – Alternative Scenario 4b



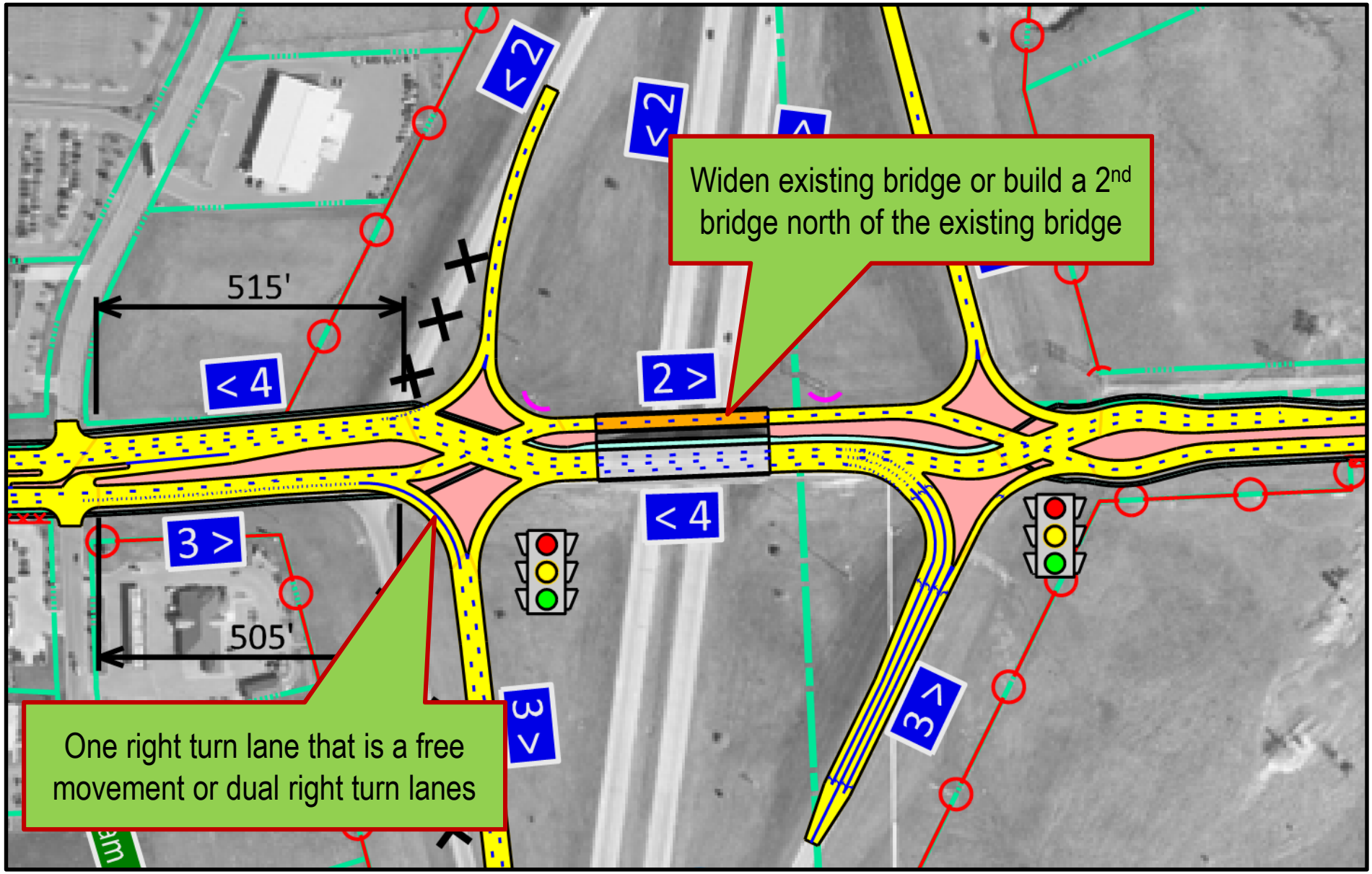
Design Alternative Selection

- CONSIDERATIONS FOR **LOOP RAMP OPTIONS**



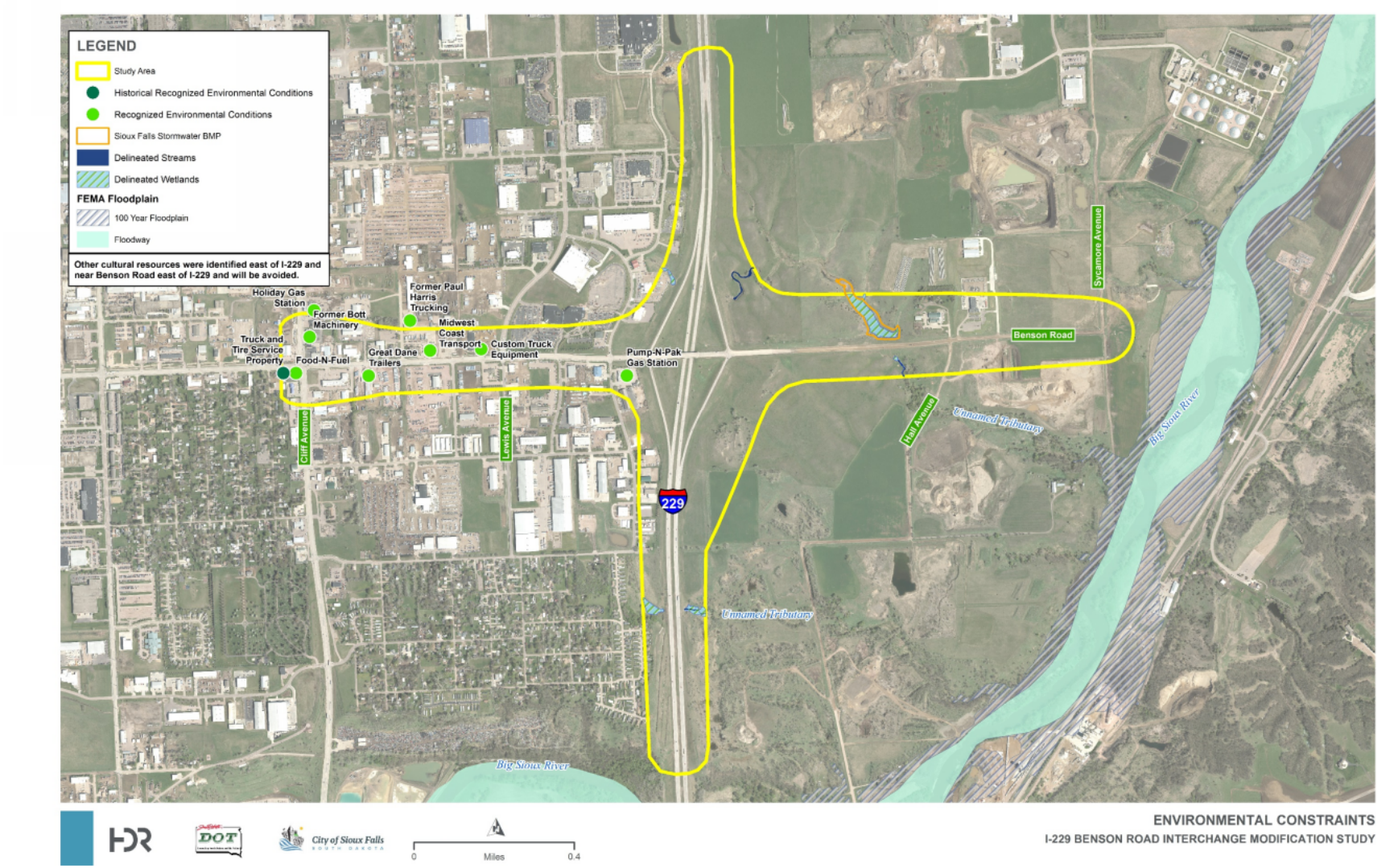
Design Alternative Selection

- CONSIDERATIONS FOR **DIVERGING DIAMOND OPTIONS**



ENVIRONMENTAL DOCUMENTATION

- Study Area for Environmental Clearance



ENVIRONMENTAL DOCUMENTATION

- ENVIRONMENTAL SCAN PROCESS REVIEWS ENVIRONMENTAL RESOURCES AND POTIENTIAL IMPACTS (APPROX. 26 RESOURCES SCREENED)

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.									

ENVIRONMENTAL DOCUMENTATION

- AGENCY COORDINATION AND PUBLIC CONCERNS SCREENING

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

ENVIRONMENTAL DOCUMENTATION

- RECOMMENDED PROJECT DOCUMENTATION

http://www.bensonroadproject.com/documents/EnrvironmentalScan.PDF

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

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 coordi[illegible]completed as part of the IMJR and the Environmental Scan, it is recommended that t[illegible]roject as proposed does not warrant preparation of environmental impact state[illegible]nt 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.

ENVIRONMENTAL DOCUMENT
CATEGORICAL EXCLUSION

Design Alternative Selection

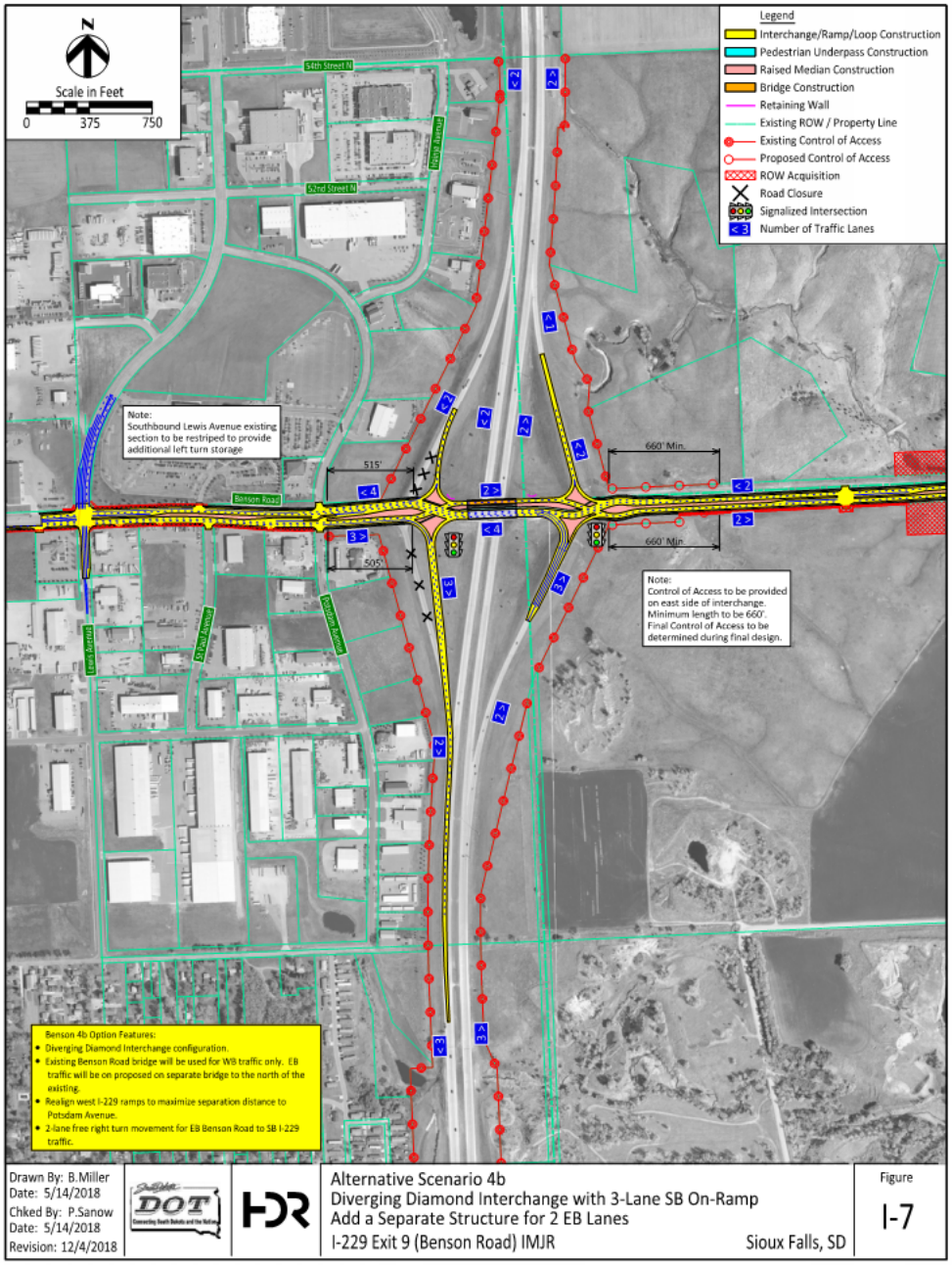
- OPTIONS MATRIX

		Meets Purpose and Need			Year 2045 Traffic Operations								Safety		Driver/ Public Perception	Construction Impacts		Comparative Costs								Potential Environmental Impacts		
Options	Alternative	Improve Traffic Operations	Improves Multimodal Mobility	Provide Adequate Separations to Nearest Access (1)	Northbound Ramp Intersection		Southbound Ramp Intersections		Southbound Off Ramp	Northbound Off Ramp	Southbound Weaving	Northbound Weaving	Predicted Annual Total Crashes Year of Opening to 2045	Predicted Annual Facility and Injury Crashes Year of Opening to 2045	Driver Familiarity	Maintenance of Traffic During Construction	Allows for Phased Construction	Bridge(6)	Retaining Wall	Pedestrian Underpass	Benson Road	I-229 Ramps	20% Contingencies (not included on bridge)	ROW Acquisition	Total	Wetlands (4)	Potential Traditional Cultural Properties	Habitat
					Worst LOS AM/ PM	Worst Delay AM/ PM	Worst LOS AM/ PM	Worst Delay AM/ PM	Worst LOS AM/ PM	Worst LOS AM/ PM	Worst LOS AM/ PM	Worst LOS AM/ PM	#	#				M $	M $	M $	M $	M $	M $	M $	M $	acre		
1A	2-Lane NE Quadrant Loop with 3-Lane SB On-Ramp. Widen Existing Structure	Yes	Yes	Yes	A/A	1.3/ 1.2	B/B	10.4/ 12.2	B/B	A/B	B/C	B/A	26.0	10.2	Fair	Good	Yes	2.4	1.1	0.6	19.7	8.0	5.9	3.4	41.1	< 1.0	Yes	Moderate
1B	2-Lane NE Quadrant Loop with 2-Lane SB On-Ramp. Widen Existing Structure	Yes	Yes	Yes	B/A	10.5/ 7.6	B/B	10.5/ 12.9	B/B	A/B	B/C	B/A	26.0	10.2	Fair	Good	Yes	2.4	1.1	0.6	19.7	6.5	5.6	4.4	40.3	<1.0	Yes	Moderate
1C	2-Lane Collector-Distributor (CD) Lane Northeast Quadrant Loop with 3-Lane SB On-Ramp. Widen Existing Structure	Yes	Yes	Yes	A/A	1.3/ 1.2	B/B	10.4/ 12.2	B/B	A/B	B/C	B/A	26.0	10.2	Fair	Good	Yes	2.4	0.5	0.6	19.7	8.9	5.9	2.0	40.0	<1.0	Yes	Moderate
1D	2-Lane Partial Clover Leaf Northeast Quadrant with 2-Lane SB On-Ramp. Widen Existing Structure	No	Yes	Yes	D/B	52.8/ 19.9	F/B	313.1/ 16.8	B/B	A/B	B/C	B/A	26.0	10.2	Fair	Good	Yes	1.5	0.8	0.0	19.4	6.1	5.3	4.4	37.5	<1.0	Yes	Moderate

Design Alternative Selection

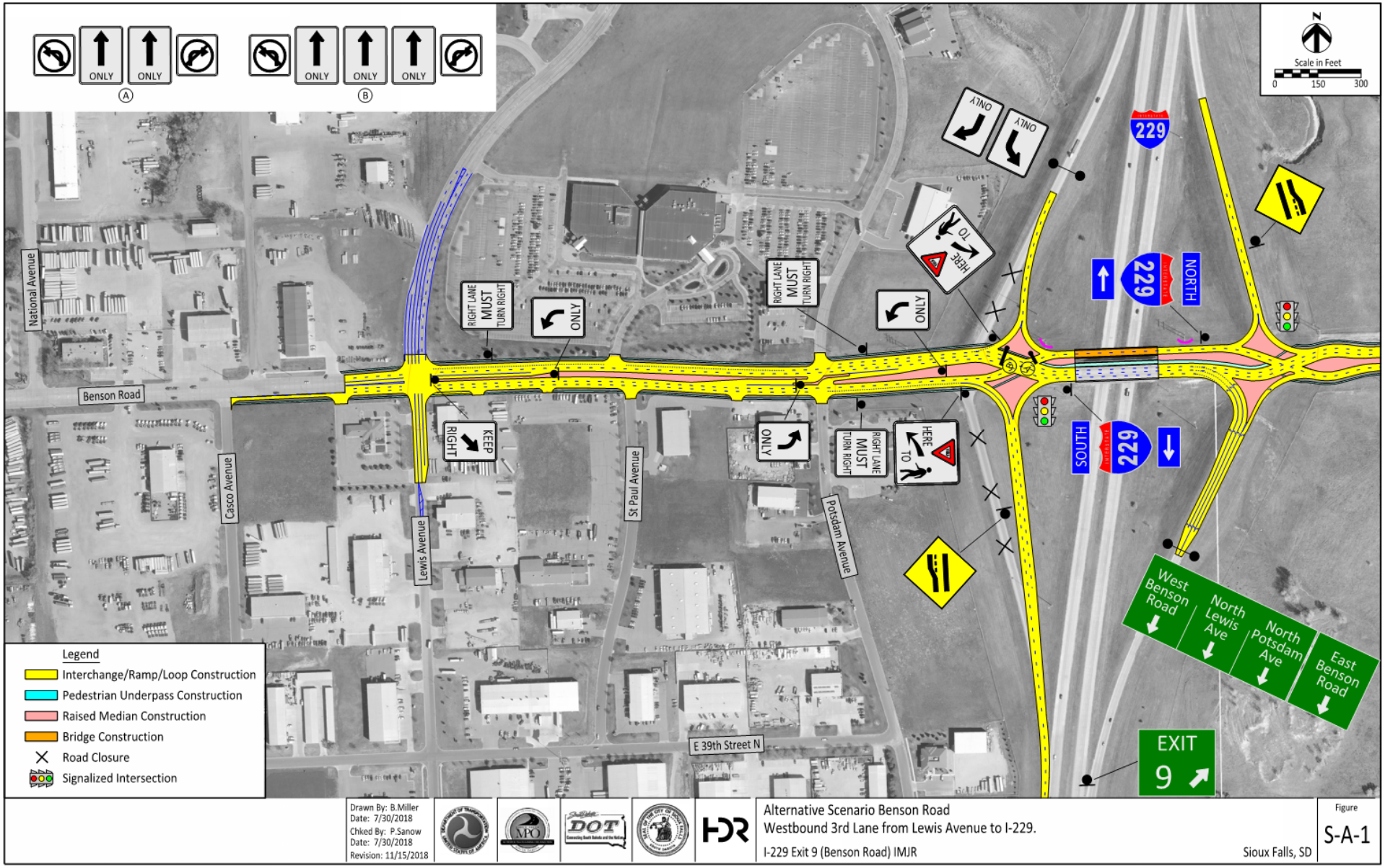
- DESIGN ALTERNATIVE SELECTED

- **Diverging Diamond Interchange**
  - Two Structures
  - Dual Right Turn Lanes EB to SB
  - Fits within Interstate Right of Way
  - Arterial Improvements include Raised Median to best reduce vehicle conflicts from driveways
  - Environmental Resources least affected



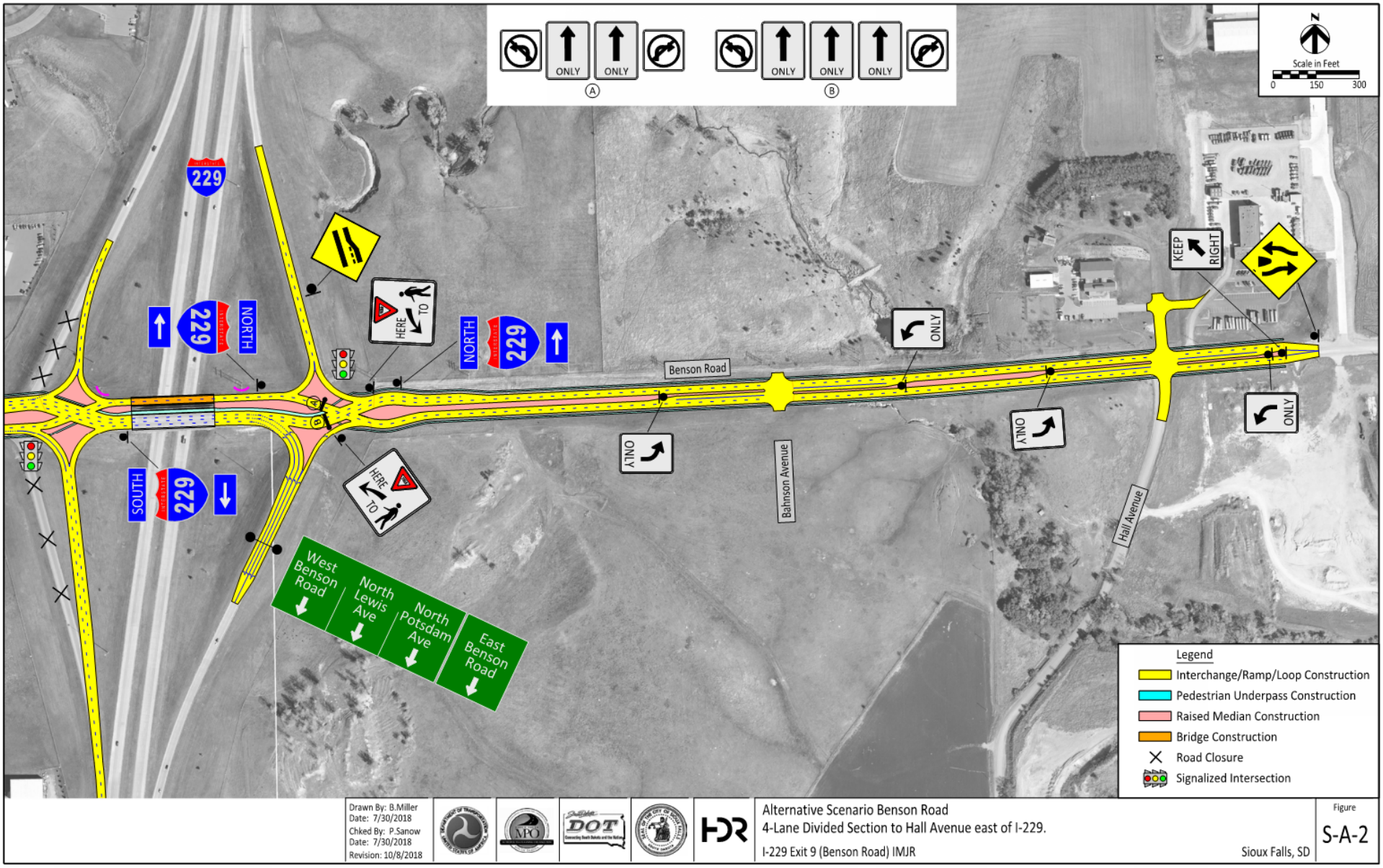
Design Alternative Selection

- DESIGN ALTERNATIVE SELECTED



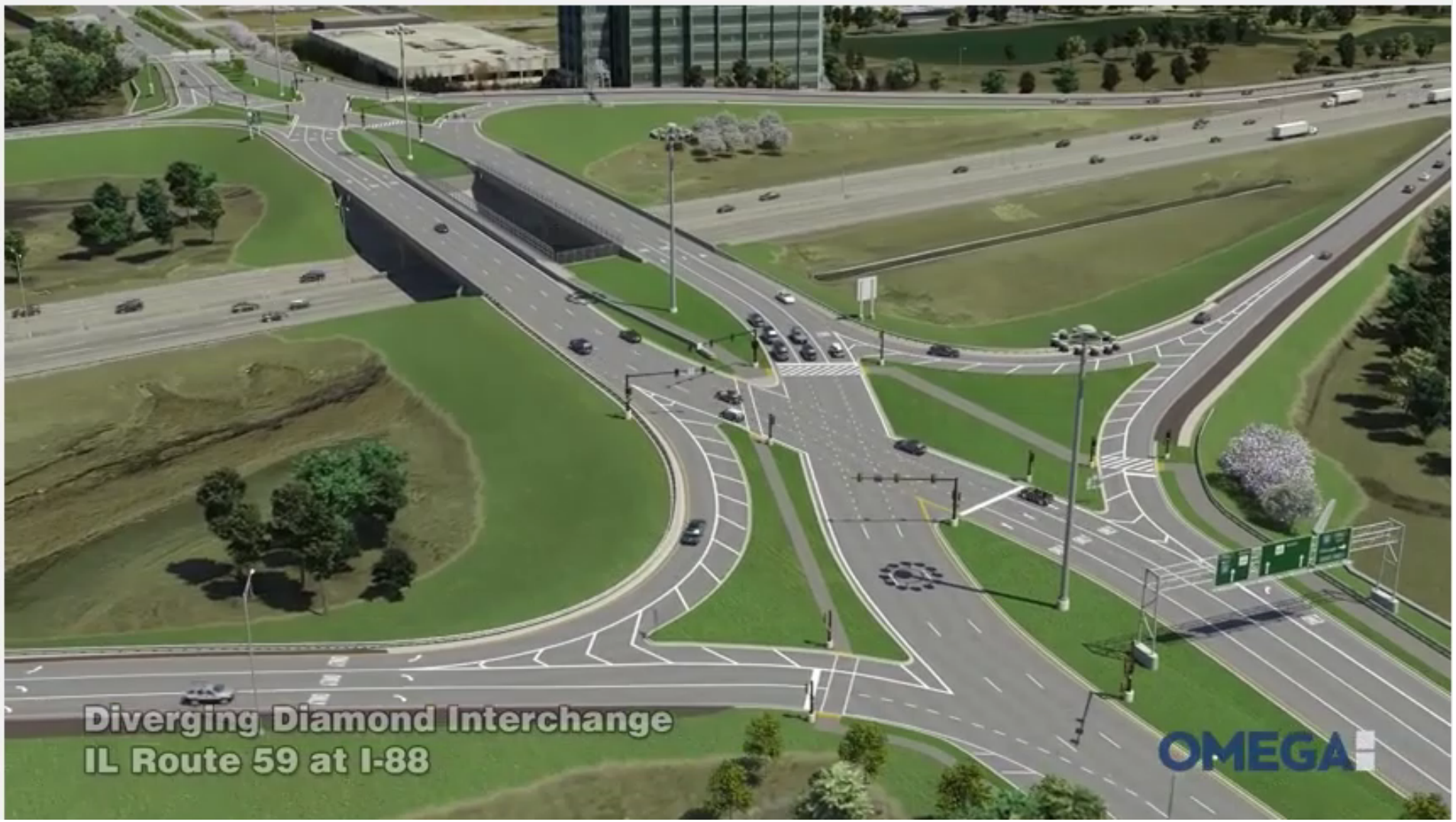
Design Alternative Selection

- DESIGN ALTERNATIVE SELECTED



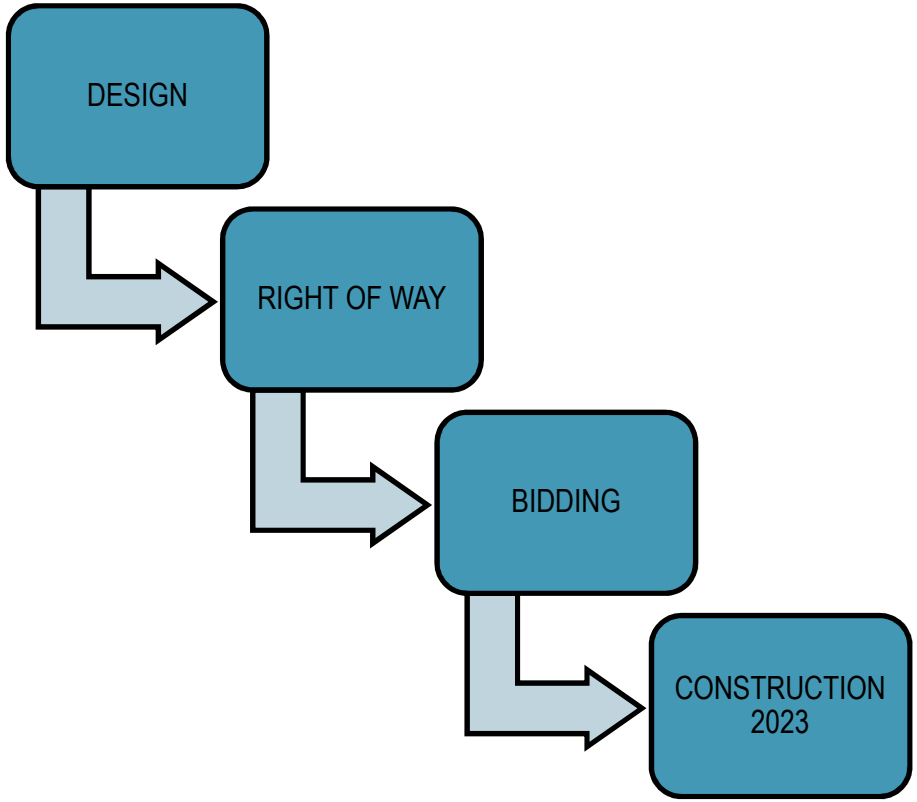
Design Alternative Selection

- DESIGN ALTERNATIVE SELECTED DIVERGING DIAMOND EXAMPLE



NEXT STEPS

- Preliminary and Final Design – June 2019 thru May 2022
- Landowner Meetings – March / April 2020
- Real Estate / ROW – anticipated to begin mid 2021
- Project Bid September – December 2022 with construction in 2023

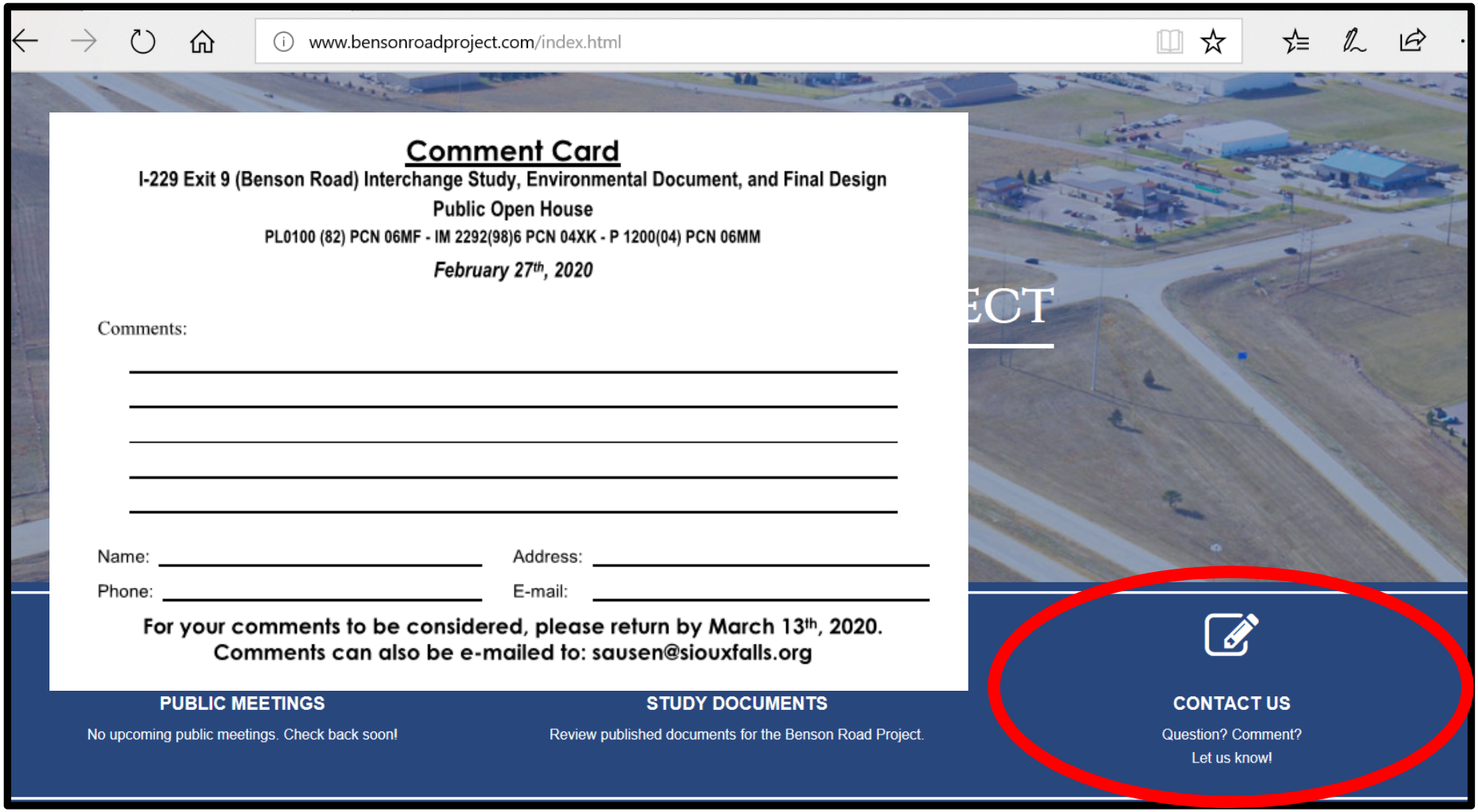


PROJECT WEBSITE

- Website: http://www.bensonroadproject.com

Comments

- Email me: Jason.Kjenstad@hdrinc.com
- Leave comment on Website: http://www.bensonroadproject.com



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Thanks for attending!

HDR