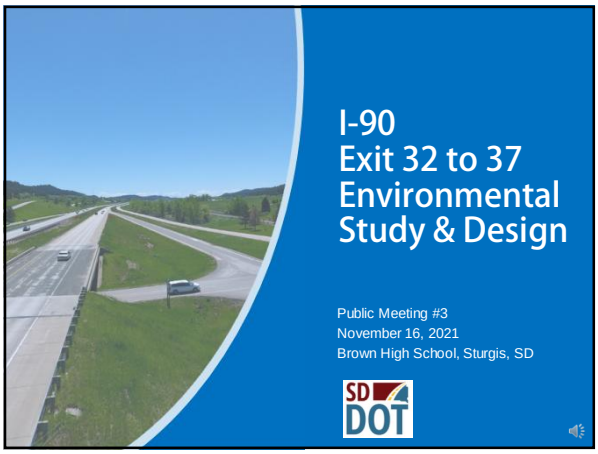


1

Agenda

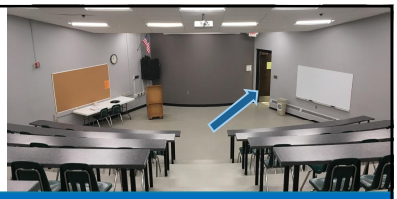
- Introductions
- Project Goals

Exit 34

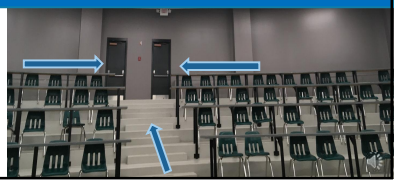
- Concept Development
- Alternative Evaluation
- Environmental Concerns

- Intelligent Transportation System
- Next Steps / Staying Involved

2



Housekeeping exit locations



3

Project Stakeholders

SD DOT

FHWA

WELCOME TO MEADE COUNTY
High Past, High Future.

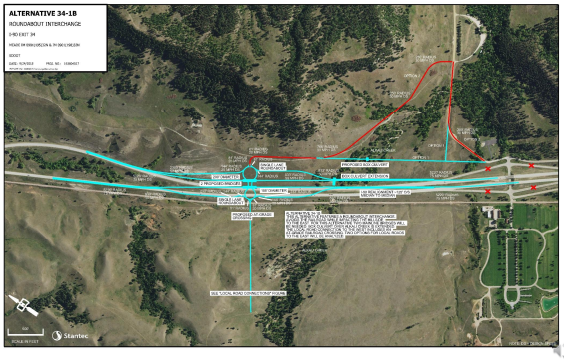
4

Project Goals

- Replace Eastbound Lanes
- Reconstruct Drainage Structures
- Bring Corridor Up to Current Design Standards
- Address Queuing at the Port of Entry
- ITS and Variable Speed Limits

5

Exit 34 – Previous Study Concept



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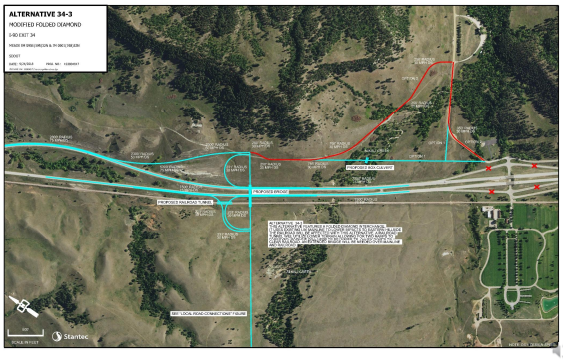
Exit 34 – Previous Study Concept



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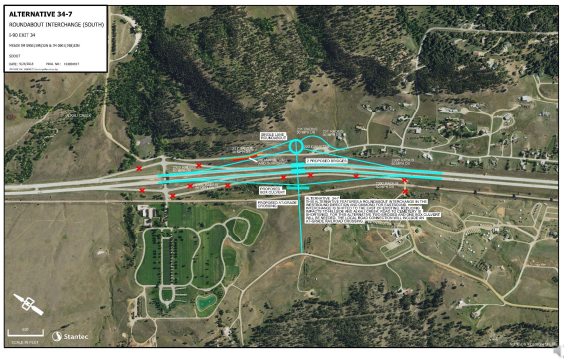
Exit 34 – Previous Study Concept



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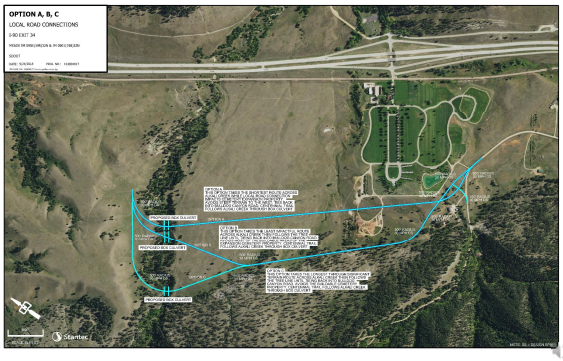
Exit 34 – Previous Study Concept



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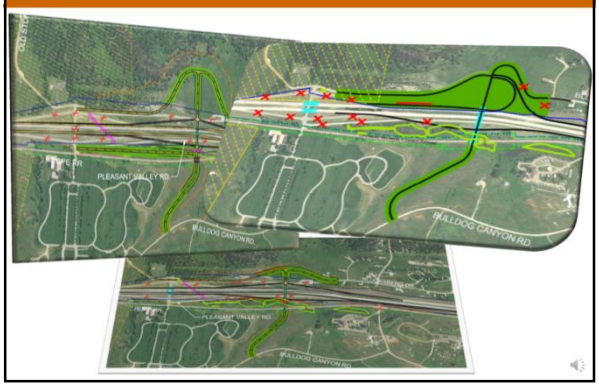
Exit 34 – Studied Options



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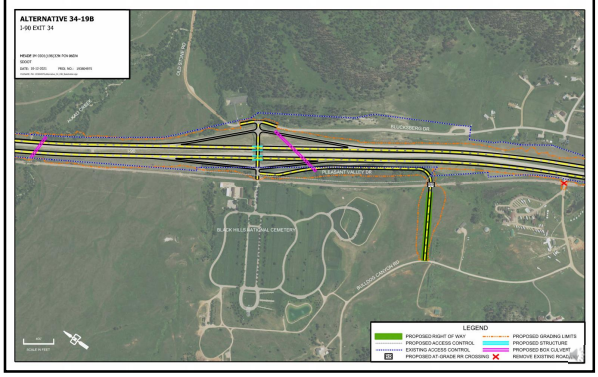
Exit 34 – Concept for Further Study



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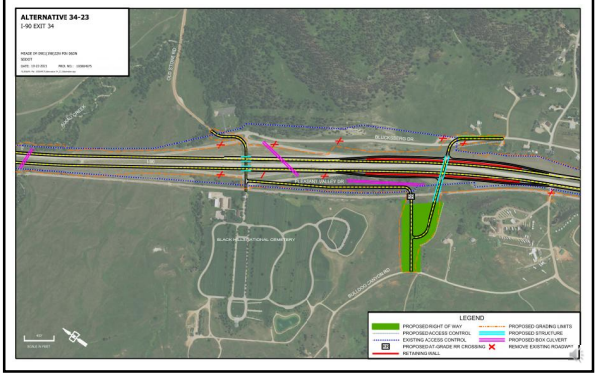
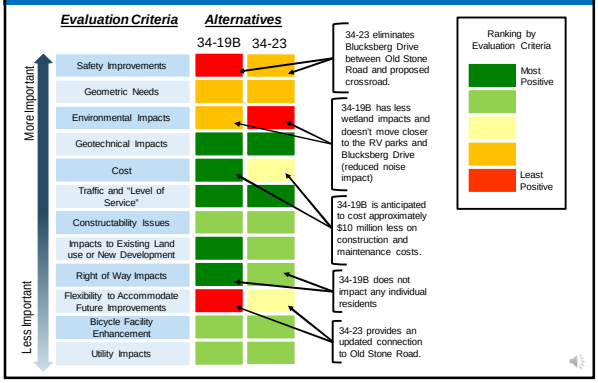
Exit 34 – Concept for Further Study



12

Alternative Evaluation



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Environmental Resources

Key Resources

- Water Resources
  - ✓ Wetlands/Floodplains/Surface waters
- Wildlife and Vegetation
  - ✓ Bird and Animal Movements/Threatened and Endangered Species
- Cultural Resources
  - ✓ Archaeological Sites and Structures/Historic Properties
- Parks and Recreation Facilities (4(f))
- Noise/Visual Resources

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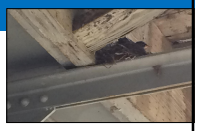
Agency Coordination

- Bureau of Land Management (BLM)
- U.S. Forest Service (USFS)
- U.S. Army Corps of Engineers (USACE)
- U.S. Fish and Wildlife Service (USFWS)
- Federal Highway Administration (FHWA)
- Black Hills National Cemetery/National Park Service (BHNC/NPS)
- S.D. Department of Agriculture and Natural Resources (SDDANR)
- S.D. Department of Environment and Natural Resources (SDDENR)
- South Dakota State Historic Preservation Office (SHPO)
- Tribal Historic Preservation Office (THPO)
- South Dakota Game Fish and Parks (SDGFP)
- City of Sturgis
- Black Hills Trails

15

Environmental Study



- Water Resources
  - ✓Desktop Delineation - Completed Spring 2018
  - ✓Field Work Delineation - Completed Spring/Summer 2018
  - ✓Reviewed FEMA Floodplain Mapping 100 year and 500 year
- Wildlife and Vegetation
  - ✓Consideration of Wildlife Movements
  - ✓USFWS Database and SDGFP Information (NatureServe)

Species	Status
Northern Long Eared Bat	Threatened
Red Knot	Threatened
Whooping Crane	Endangered
Monarch Butterfly	Candidate

  - ✓Field survey for Bats - Completed Summer 2021

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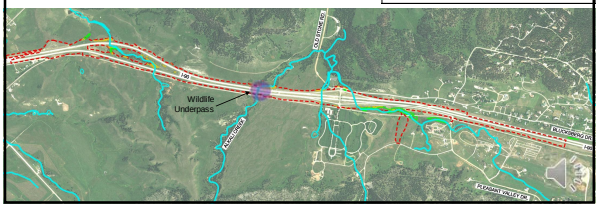
Exit 34 – Environmental Study

Wildlife and Threatened/Endangered Species

- NLEB/Indiana Bat Habitat
- Wildlife Vehicle Collision Mitigation

Water Resources

- Delineated Wetlands



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Environmental Study

- Cultural Resources
  - ✓Class I Survey
    (Windshield survey, records search, BLM data)
  - ✓Class III Survey (Pedestrian survey)
    Completed Summer 2021
- Noise
  - ✓Noise monitoring and modeling (underway)

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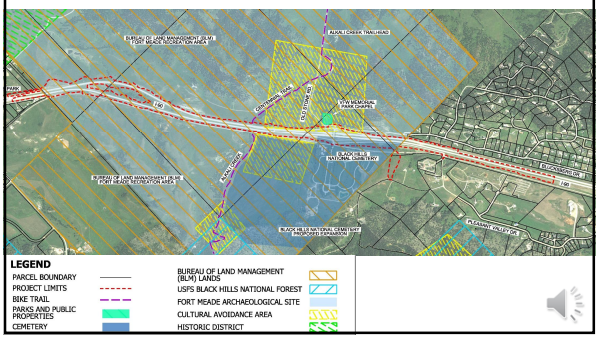
Exit 34 – Environmental Study

Public Lands/Cultural Resources



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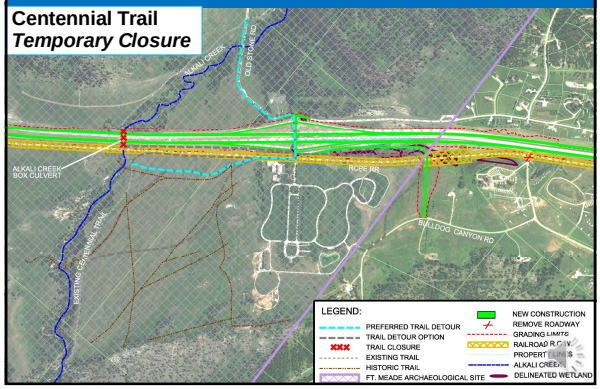
Exit 34 – Environmental Study

Centennial Trail
Temporary Closure



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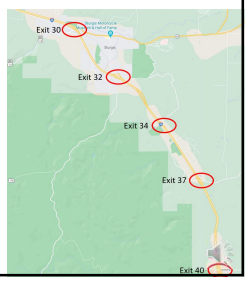
Making I-90 a "Smart" Highway!

Using smart technology to make highways safer and easier to travel is called "Intelligent Transportation Systems," or "ITS."

Smart Highway Goal:

Improve the driving experience for travelers by adding cameras, electronic messages boards and variable speed limit signs.



21

Why Make I-90 a Smart" Highway?

Smart technology adjusts to the many operating conditions typical of I-90 travel.

22

Corridor Challenges

- High Speed Crashes, Incidents
- Hazardous Winter Driving Snow, Sleet, Low Visibility
- Challenging Road Geometrics
- 11% Truck Traffic, Truck Safety, Wind Gust Tip Over
- Special Events/Sturgis Rally 739,000 Bikers (2015)
- Incident Management

23

What makes a highway Smart?

- Variable Speed Limit Signs
- Controllable Cameras on Roadside Poles
- Weather Measurement Sensors
- Overhead Electronic Message Boards
- Electronic Vehicle Detectors
- Commercial Vehicle Screening
- Fiber Optic Network

24

Electronic Message Boards

- Let drivers know about road conditions ahead such as crashes, road work, lane closures, alternative routes, weather conditions, and special events. Lets drivers know what is happening ahead!
- Provide accurate and timely information
- Even when there is no alternative road, it is good to know what is happening ahead!

25

Controllable Cameras

Moveable Cameras on Roadside Poles

- Road Managers can see problems that occur and take corrective actions
- Images can be shared with television stations, viewed through traveler apps and displayed on internet sites: “if we can see it, you can see it.”
- Views will be limited to interstate

26

Safe Speed Limits

To make I-90 safer during adverse weather conditions and incidents.

An Effective Way to

reduce crashes

reduce deaths

reduce road closures

maintain mobility during adverse conditions

NOT

a winter speed trap

a way to restrict speed during normal driving conditions

27

Variable Speed Limits Process

1. Assess conditions
   - weather
   - visibility
   - road surface
   - vehicle speeds
2. Determine appropriate speed
3. Display & publish speed limit(step down & back up)
4. No undue enforcement
5. Measure & evaluate results

28

Weather Measurement Devices

- Measures pavement temperature and friction, wind speed, visibility, etc.
- These measurements are needed to aid in determination of the safe speed during adverse weather condition.

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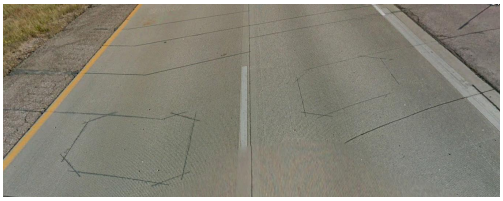
Vehicle Detection Sensors

- Sensors in the road will tell SDDOT computers how many cars and trucks are on the highway
- Provides road managers with average car speeds, so they can spot slow downs



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Electronic Screening at Tilford Port of Entry

$2.50 - $10.00 per minute savings to carriers

31

Queues at Exit Ramps

- Sometimes queue forms on I-90 and causes a big delay to travelers and may also cause crashes
- Vehicle detectors will sense when there is a queue on the ramp
- Electronic message boards will warn upstream drivers about the back of the queue

32

Fiber Optic Cables

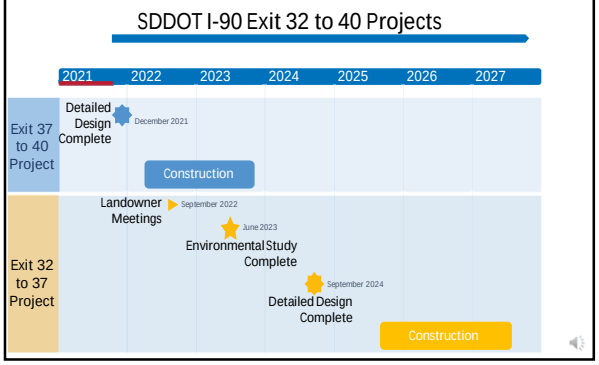
- Fiber optic cables will be installed during roadway construction to provide high speed communications
- Will connect all the technology devices to the SDDOT road management computers
- Using the fiber optic cable, the camera images can be seen by roadway managers and shared with the service patrols as well as public and TV stations

33

Smart technologies make I-90 safer for everyone!

34

Next Steps



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How to Stay Involved

Comments or concerns?

Please let us know.

Submit Comments:

Tonight

- Written (place in comment box)

After Tonight (Comments accepted until November 30, 2021)

- Written (Take a comment card with you)
- Website (www.i90exit32to40project.com)
- Contact Us (phone, email, letter)

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How to Stay Involved

Landowner Meetings - Fall 2022

Visit us on our webpage:
www.i90exit32to40project.com

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Thank You!

Thank you for coming.

Project Staff are available to answer questions (Stantec, SDDOT, Meade County, FHWA)

Please drive home safely!

Kevin Hoglund	Sam Gilkerson	Mike Carlson	Stacy Bartlett	Kit Bramblee	Clint Freeman
Stantec Consulting	Consultant Management Engineer	Rapid City Area Engineer	Access Management Engineer	Environmental Engineer Manager	Utility Coordinator
612-712-2061	605-773-6588	605-394-1635	605-773-2268	605-773-3721	605-773-4426
Kevin.Hoglund@stantec.com	Samuel.Gilkerson@state.sd.us	Mike.Carlson@state.sd.us	Stacy.Bartlett@state.sd.us	Kit.Bramblee@state.sd.us	Clint.Freeman@state.sd.us

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