WELCOME

SDDOT INTERSTATE 90, EXIT 48
INTERCHANGE STUDY

An interchange redesign on I-90 at Stagestop Rd. will address aging infrastructure, address operational concerns, improve safety, and enhance multimodal accessibility.

https://fhu.mysocialpinpoint.com/i-90-exit-48-interchange-study

Purpose and Need

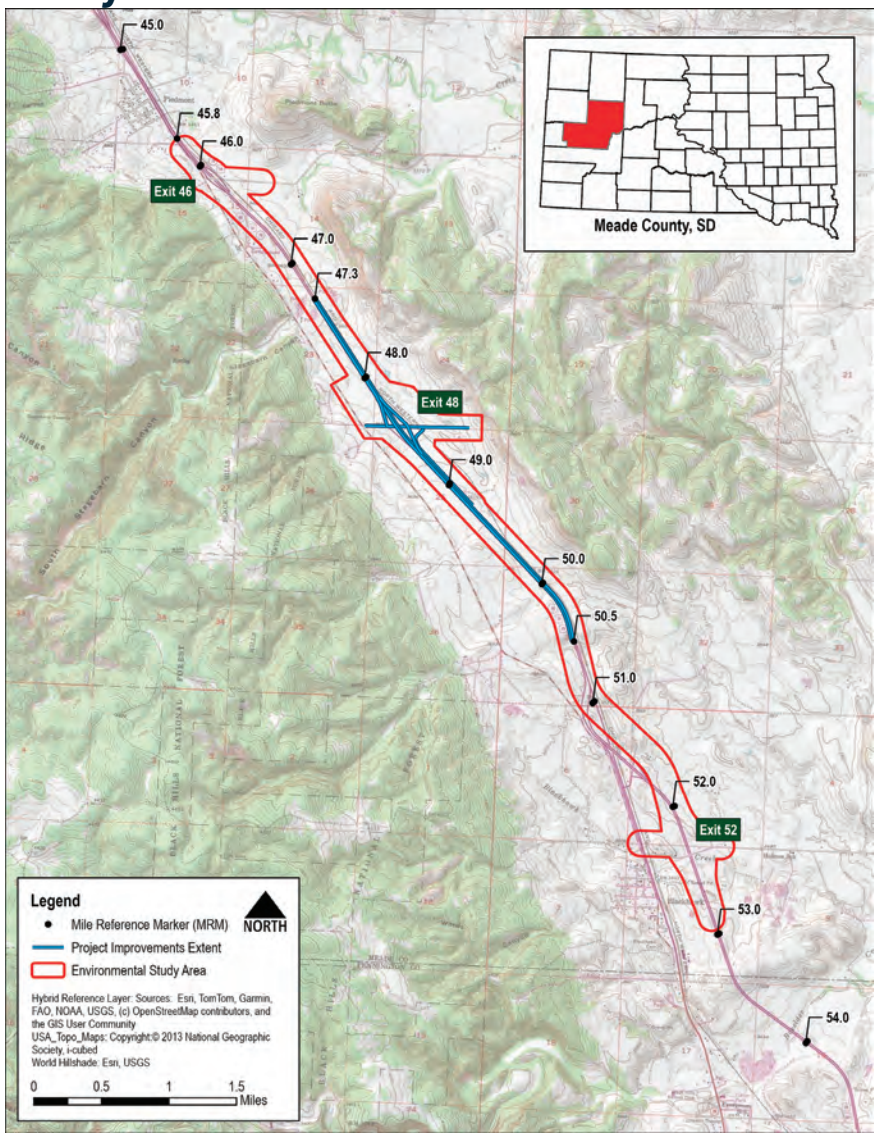
Purpose

The purpose of the I-90 Exit 48 Interchange Project is to provide a safe and efficient transportation system by bringing the interchange, bridge, and I-90 up to current standards while also preserving future mainline I-90 expansion opportunities.

Need

This Project is needed to bring the I-90 Exit 48 interchange into compliance with current FHWA and SDDOT standards, improve roadway/facility deficiencies along the I-90 corridor through the interchange area (mile marker 47 to mile marker 50), and preserve expansion opportunities for future mainline I-90.

Study Area



Why are We Here

I-90 Black Hawk to Sturgis Corridor Preservation Study (2004) Recommendations:

JB Road Relocation

Access Change Recommended



Final Improvement



Siouxland Road Closure

Access Change Recommended



Direct Access Closure



Reconstruct Interchange (not completed)

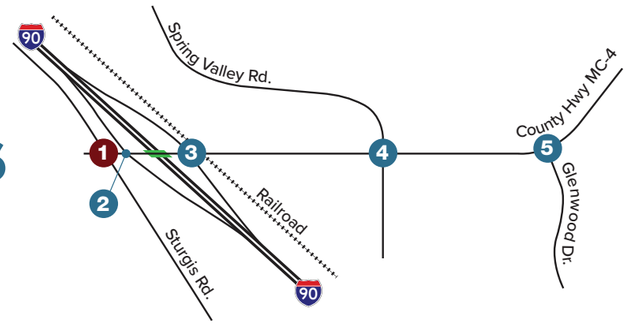
Subsequent studies also identified the need for interchange reconstruction, including the I-90 Exit 40 to Exit 51 Environmental Assessment (2008), the 2010 Decennial Interstate Corridor Study, and the 2020 Decennial Interstate Corridor Study.

Other Area Plans

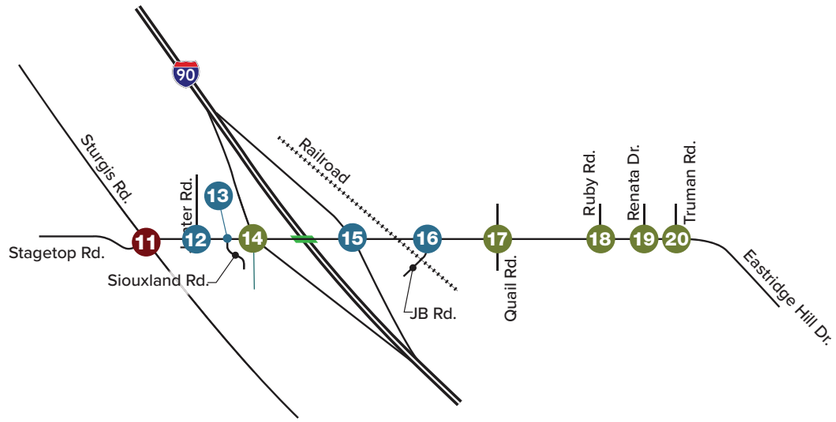
The Summerset Comprehensive Plan (2016) identifies a connection of the Piedmont Valley Shared Use Trail across I-90 along Stagestop Road. It also identifies the extension of Glenwood Road from Stagestop Road to Elk Creek Road along the east side of I-90. The Meade County Transportation Plan (2022) includes widening of Quaal Road southeast of the interchange and bicycle / pedestrian improvements along Stagestop Road.

2023 Traffic Conditions

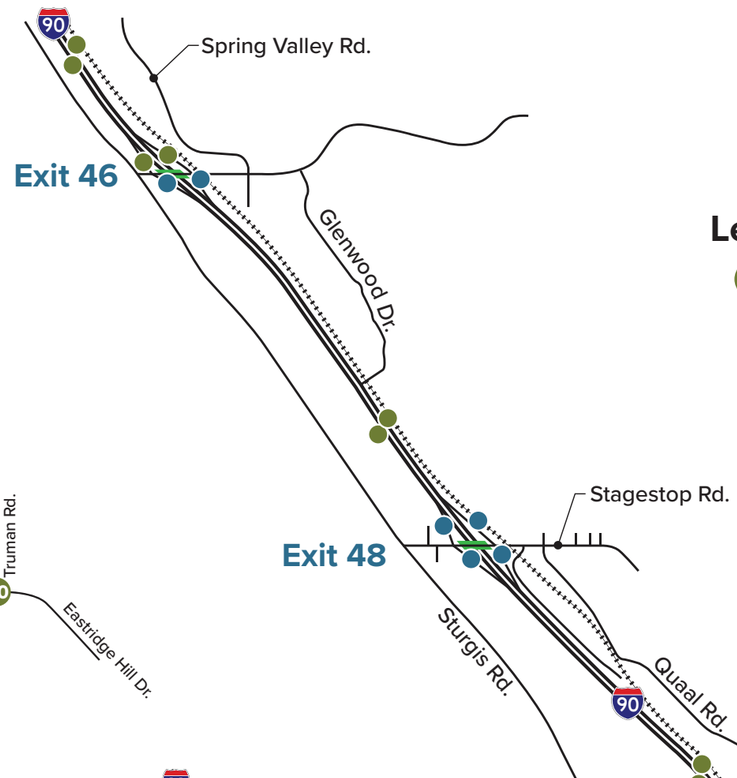
Exit 46



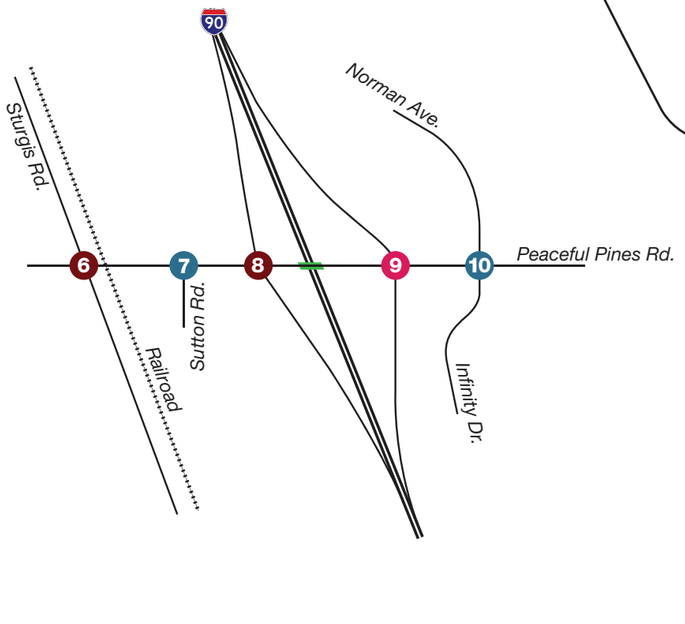
Exit 48



Exit 46



Exit 52

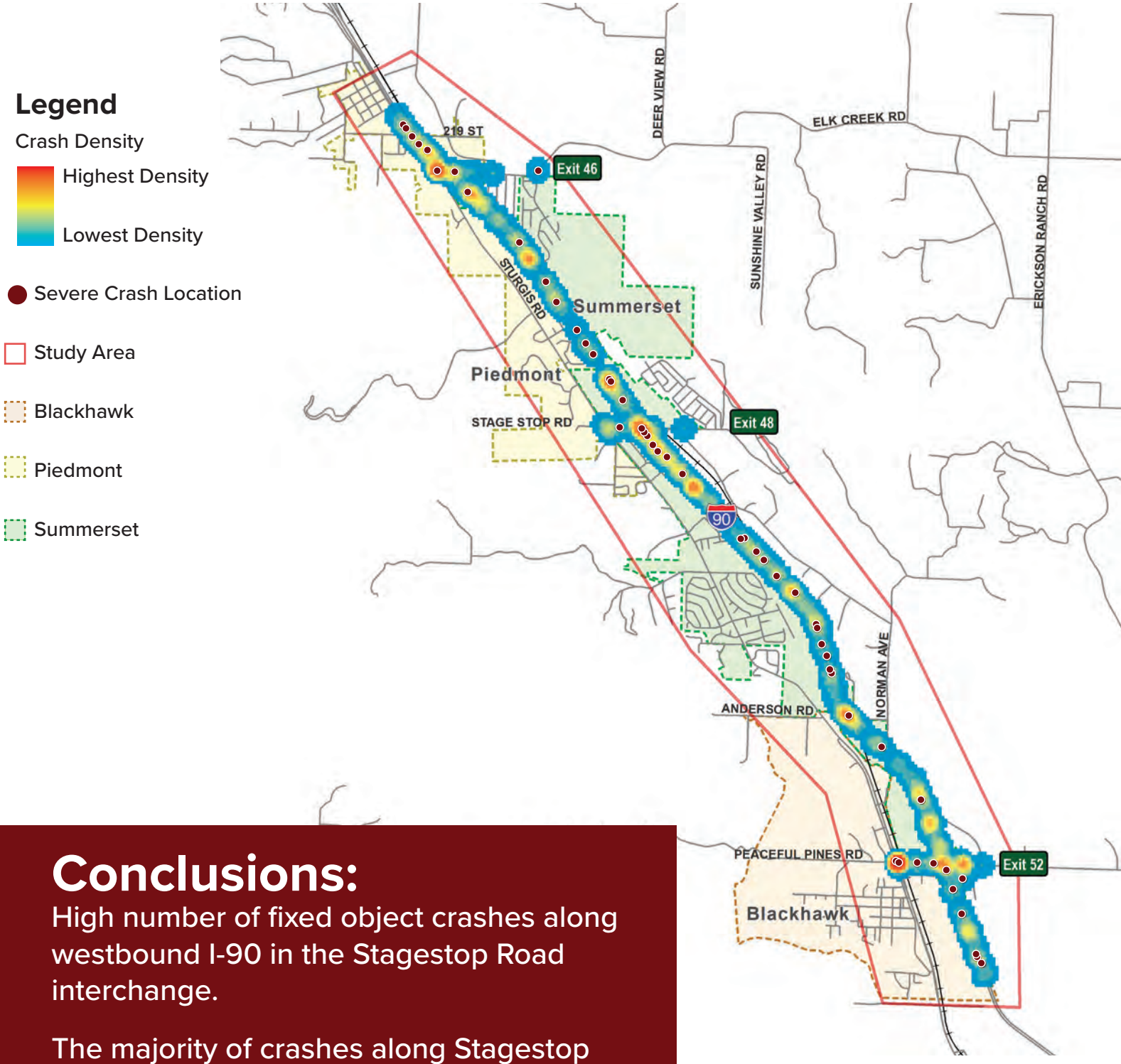


Level of Service Legend:

A B C D E F

Conclusion:
Acceptable year 2023 traffic operations for I-90 and crossroads.

Existing Safety Conditions

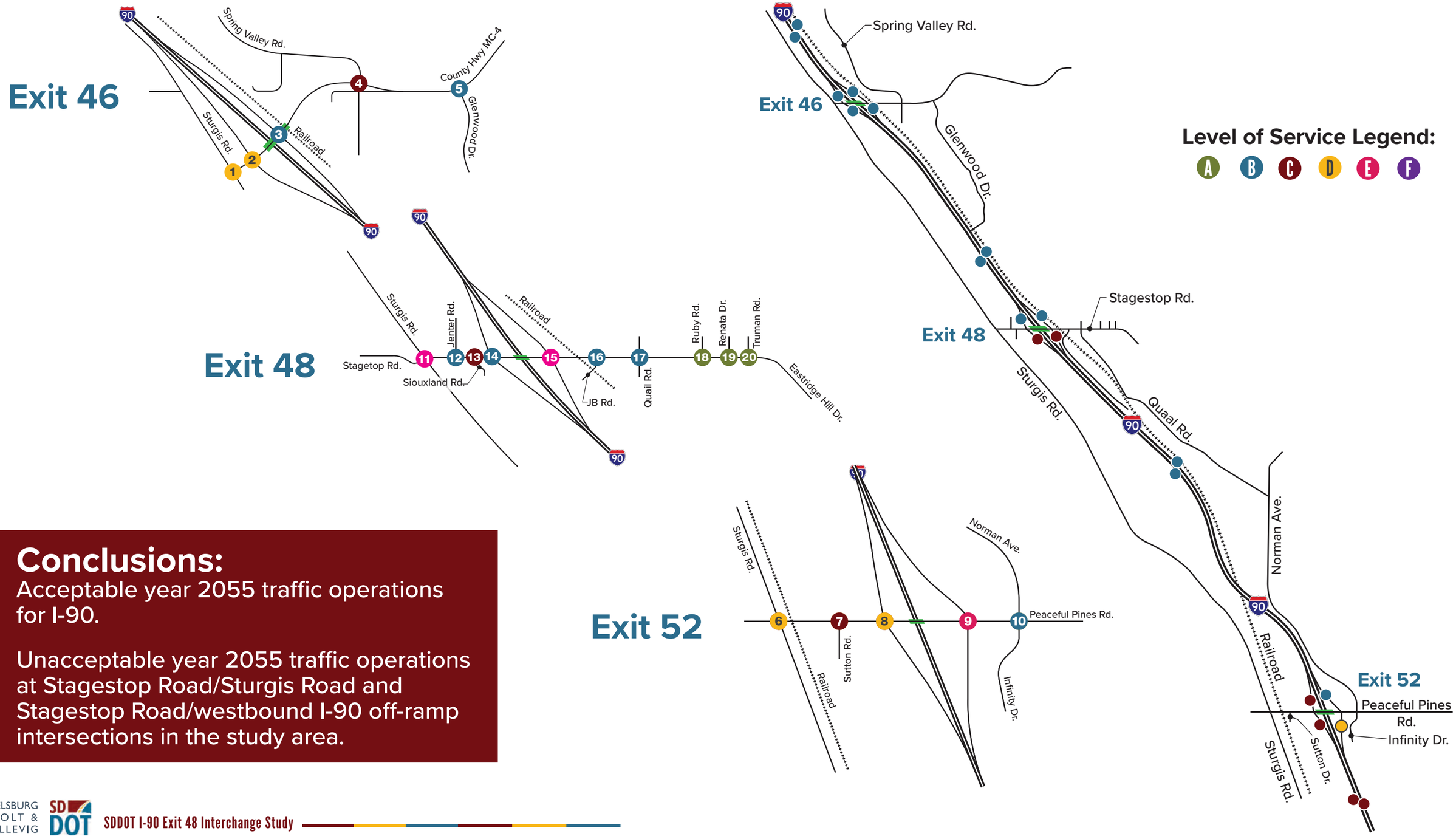


Conclusions:

High number of fixed object crashes along westbound I-90 in the Stagestop Road interchange.

The majority of crashes along Stagestop Road occurred at Sturgis Road.

Future (year 2055) Traffic Conditions



Conclusions:

Acceptable year 2055 traffic operations for I-90.

Unacceptable year 2055 traffic operations at Stagestop Road/Sturgis Road and Stagestop Road/westbound I-90 off-ramp intersections in the study area.

Area Concerns

- Future growth and intersection operations
- At-grade railroad crossing
- Future I-90 widening to 6 lanes
- Proximity of side streets and driveways
- Skewed interchange and ramp intersections
- Proximity to RCP&E railroad and existing development
- Sight distance and safety at ramp intersections
- Pedestrian and bicycle connections
- Bridge condition and age



Bridge Condition


At-Grade Rail Crossing

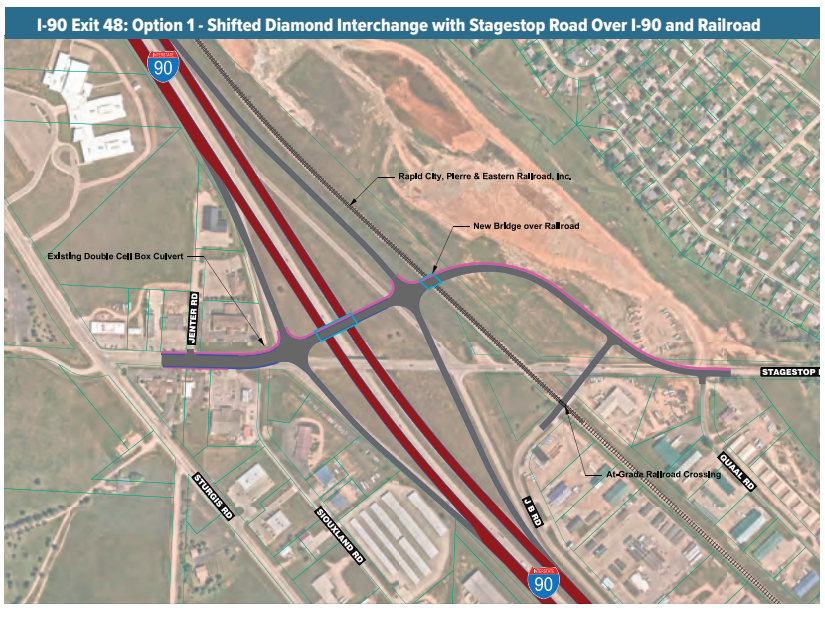

Growth

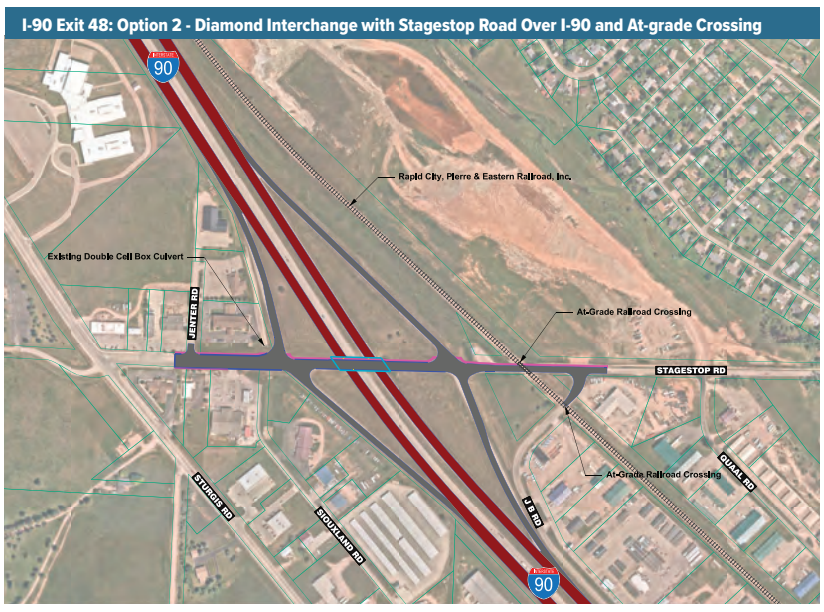

Access Proximity

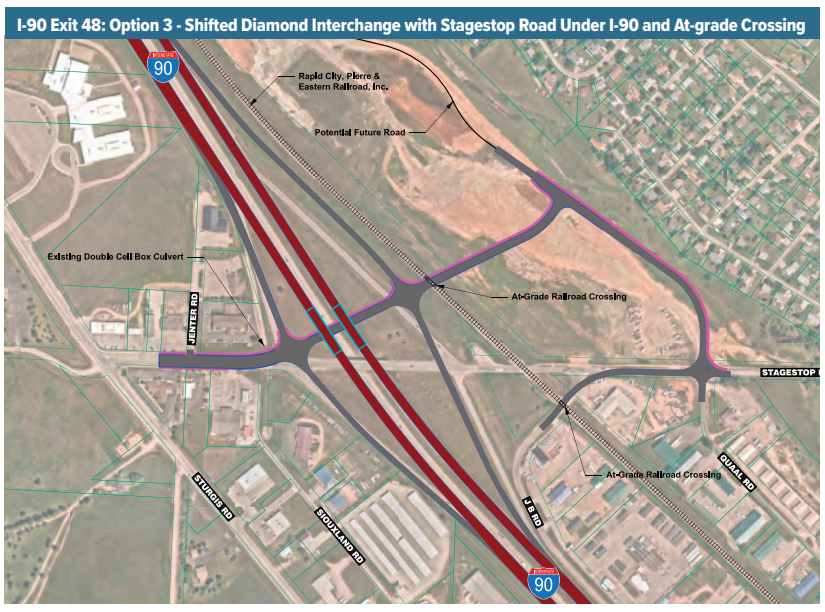
Alternatives Screening

LEVEL 1: Broad Look at Many Options (2024):





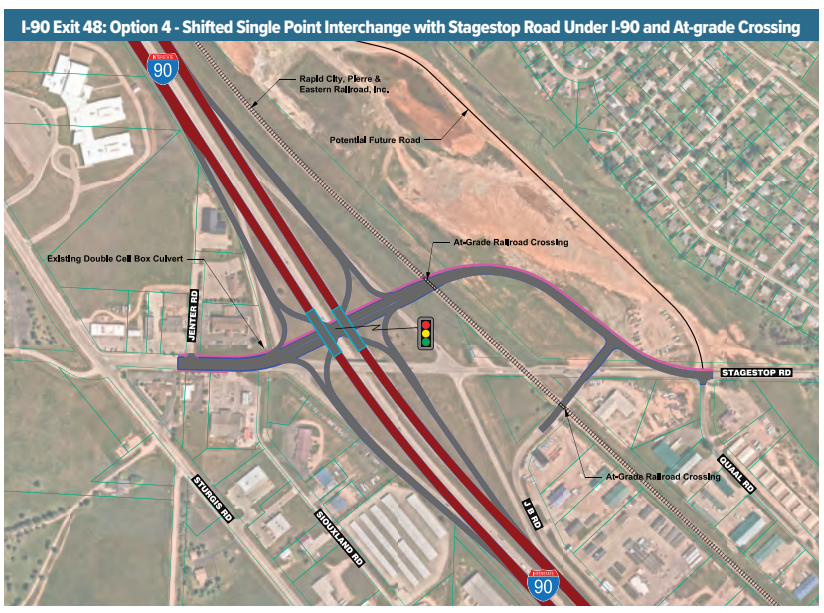


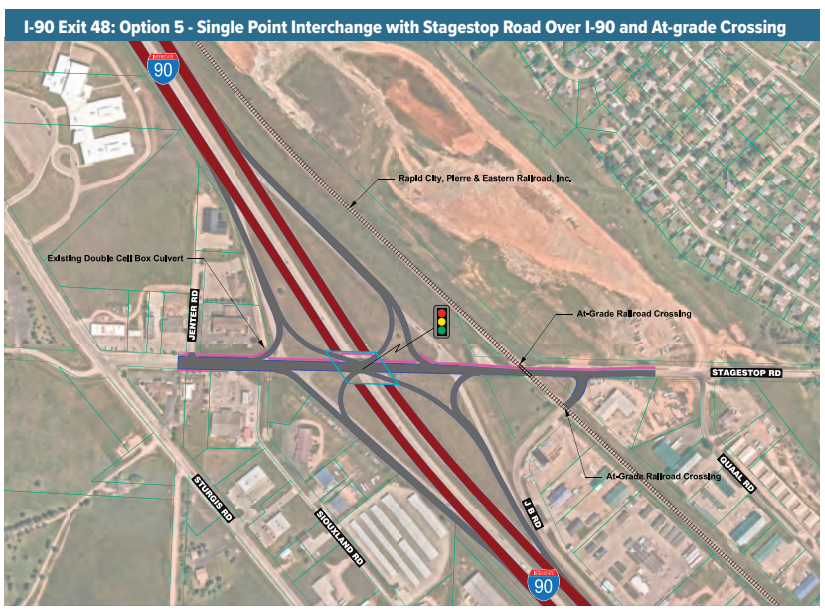


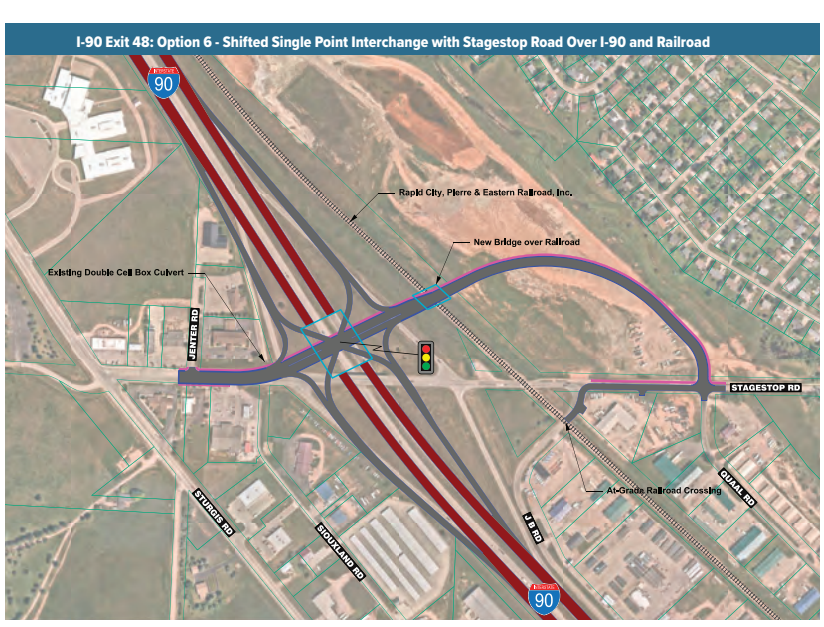
LEGEND

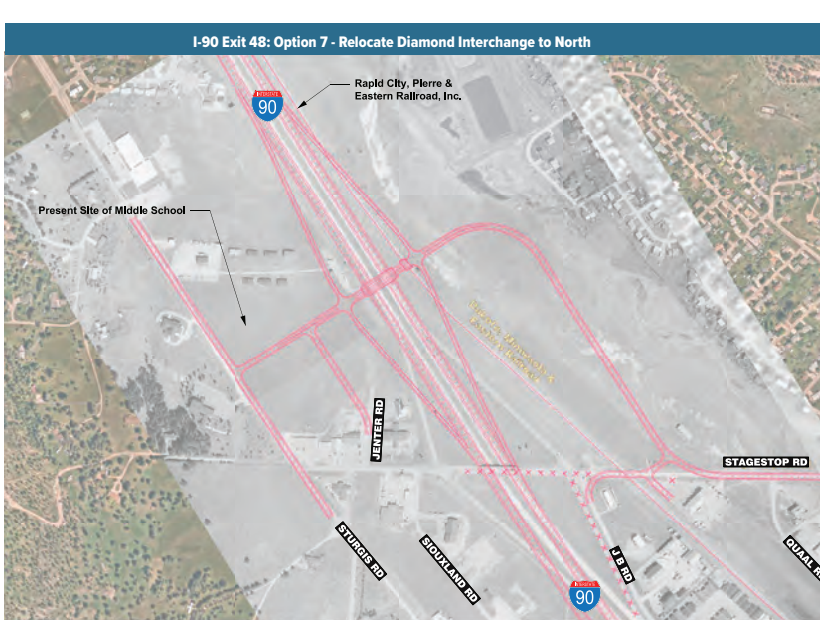
- Interstate 90
- I-90 Ramp & 2 Lane Road
- 3 Lane Road
- 5 Lane road
- New Bridge
- Shared Use Path
- Existing GIS Parcel Line

N









Key takeaways:

All options improved traffic operations compared to “no build.”

Some designs required more land or affected nearby homes and businesses.

Bicycle, pedestrian, and trail connections could be added in most build options, but not in the “no build.”

Safety benefits varied, with some concepts better at addressing sight distance and railroad crossing issues than others.

Alternatives Screening

Level 2 Screened Alternatives:

I-90 Exit 48: Option 1 - Shifted Diamond Interchange with Stagestop Road Over I-90 and Railroad



I-90 Exit 48: Option 2 - Diamond Interchange with Stagestop Road Over I-90 and At-grade Crossing



I-90 Exit 48: Option 6 - Shifted Single Point Interchange with Stagestop Road Over I-90 and Railroad



LEGEND

- Interstate 90
- I-90 Ramp & 2 Lane Road
- 3 Lane Road
- 5 Lane road
- New Bridge
- Shared Use Path
- Existing GIS Parcel Line

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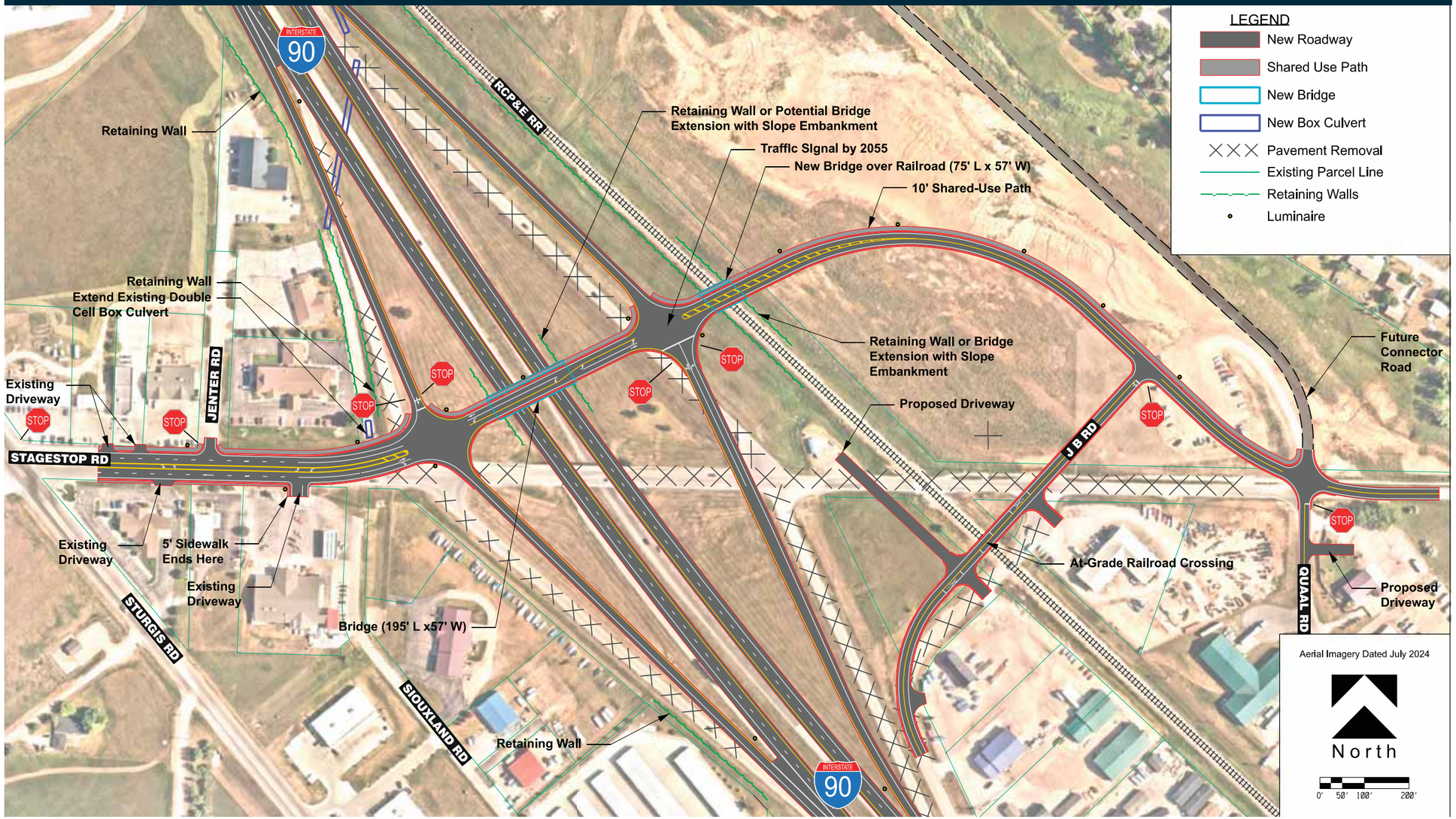
Key takeaways:

- All three build options significantly improve safety by reducing crashes and improving sight lines.
- They also handle future traffic much better, reducing congestion compared to “no build.”
- Each design comes with trade-offs: some need more land, others require more retaining walls, or have more visual impacts.
- Noise and wetland impacts vary but are manageable.
- Walking and biking connections to Stagebarn Middle School and through the area can be included in all three build options.

Alternatives Screening

Most Technically Feasible Alternative

I-90 Exit 48: Option 1 - Shifted Diamond Interchange with Stagestop Road Over I-90 and Railroad



Benefits:

- Improved achievement of FHWA and SDDOT design standards
- Improved interchange ramp acceleration and deceleration lanes increases safety
- Widening I-90 to accommodate future 6-lane section
- Construct I-90 banked curves to improve safety
- Reduced skew of Stagestop Road to I-90 improves sight distance and turning movements
- Maintains access to private properties
- Minimal or no impacts to private properties
- Improved vertical clearance of Stagestop Road bridge over I-90
- Stagestop Road bridge over railroad removes conflict and delays
- Implements continuous 10-foot shared use path along Stagestop Road
- Potential addition of roadway lighting
- Accommodate future connector road to the north

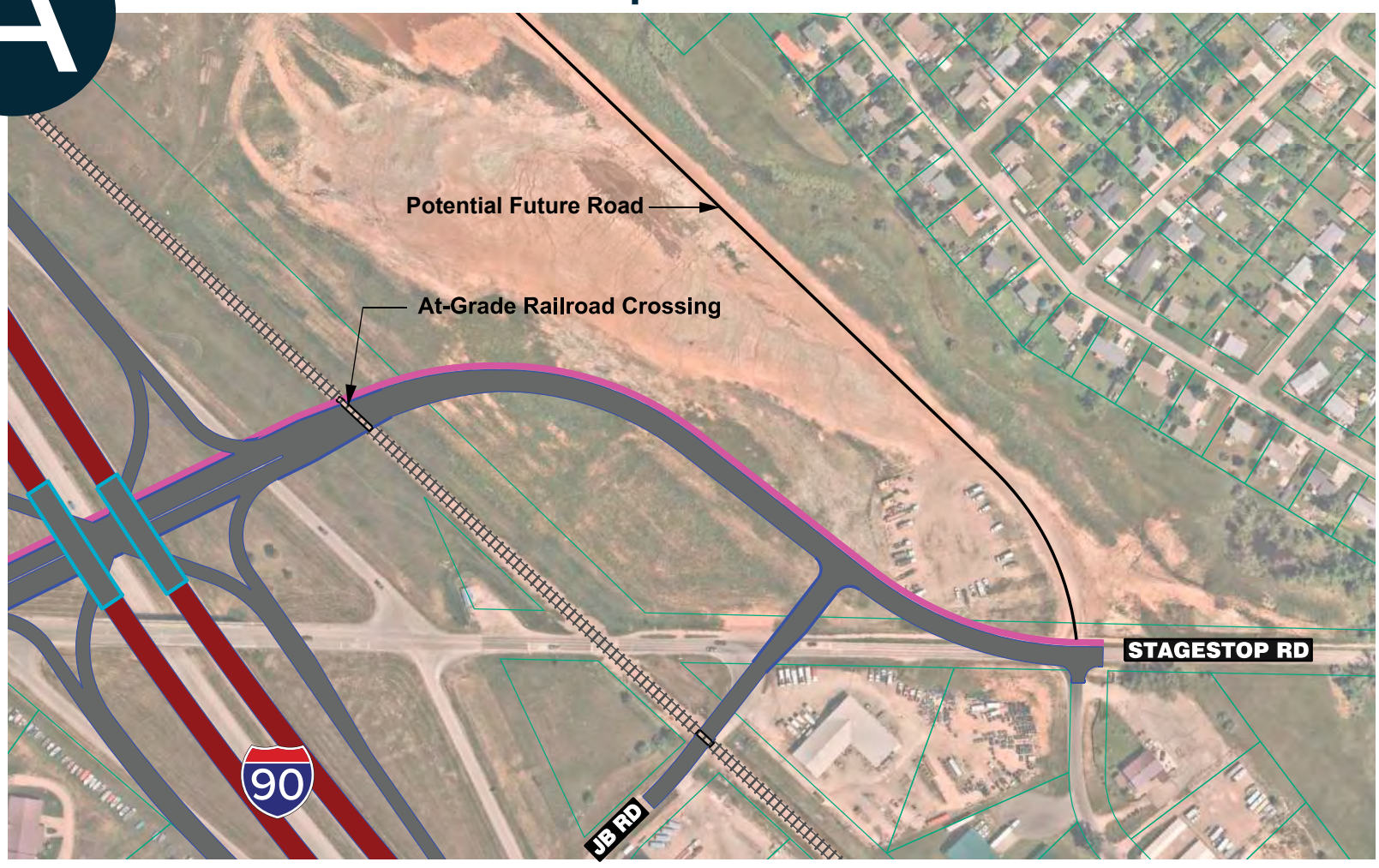
Potential Cross Road Options



Realignment Selection

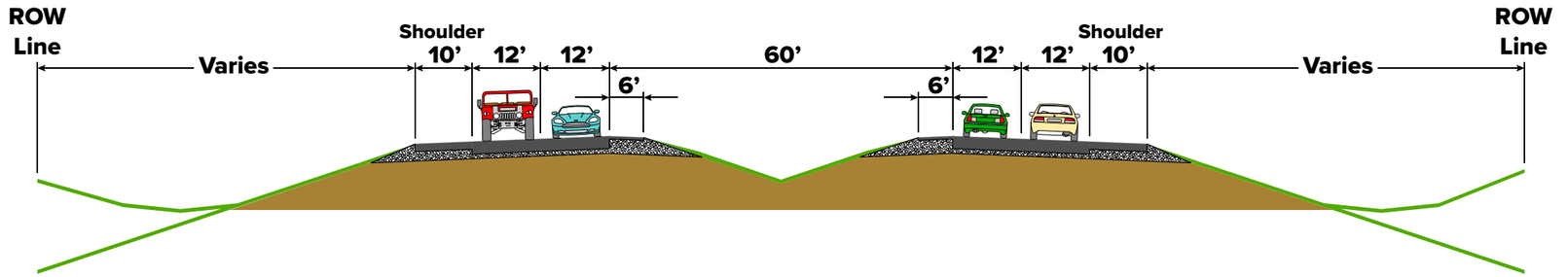
For the alternatives with a shifted diamond interchange, potential Stagestop Road realignment options, east of I-90, were reviewed and analyzed. Based on analysis, screening evaluation, connectivity to existing and future roadways, and Public Meeting #1 input, Option A was selected.

A Selected Cross Road Option

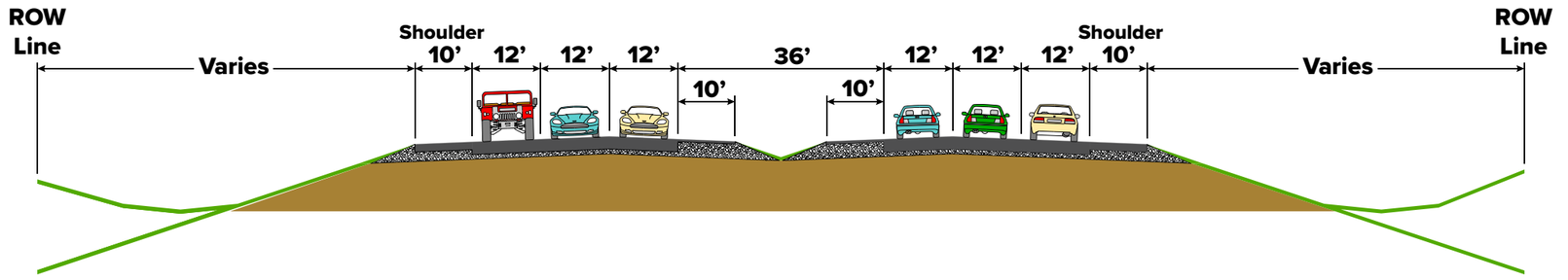


Proposed Typical Sections

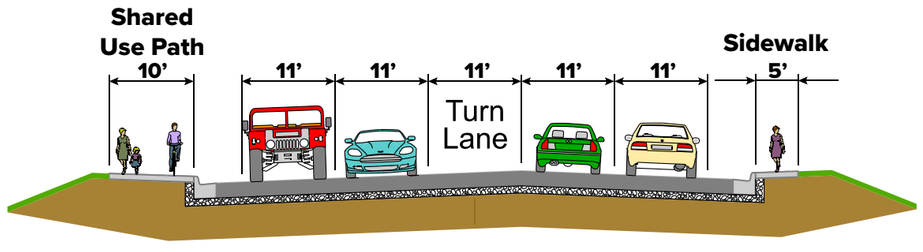
Mainline I-90: Proposed 4 Lanes



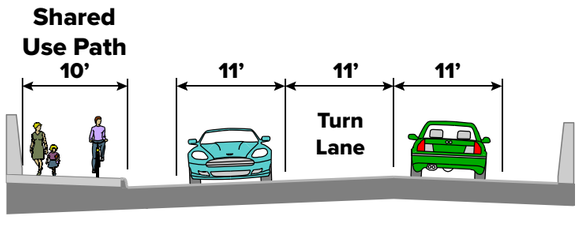
Mainline I-90: Future Widening 6 Lanes



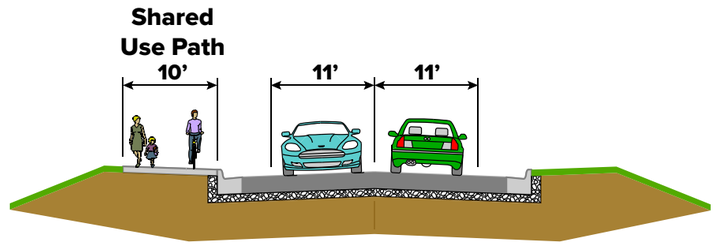
Stagestop Road: West of I-90



Stagestop Road: Bridge Over I-90



Stagestop Road: East of I-90

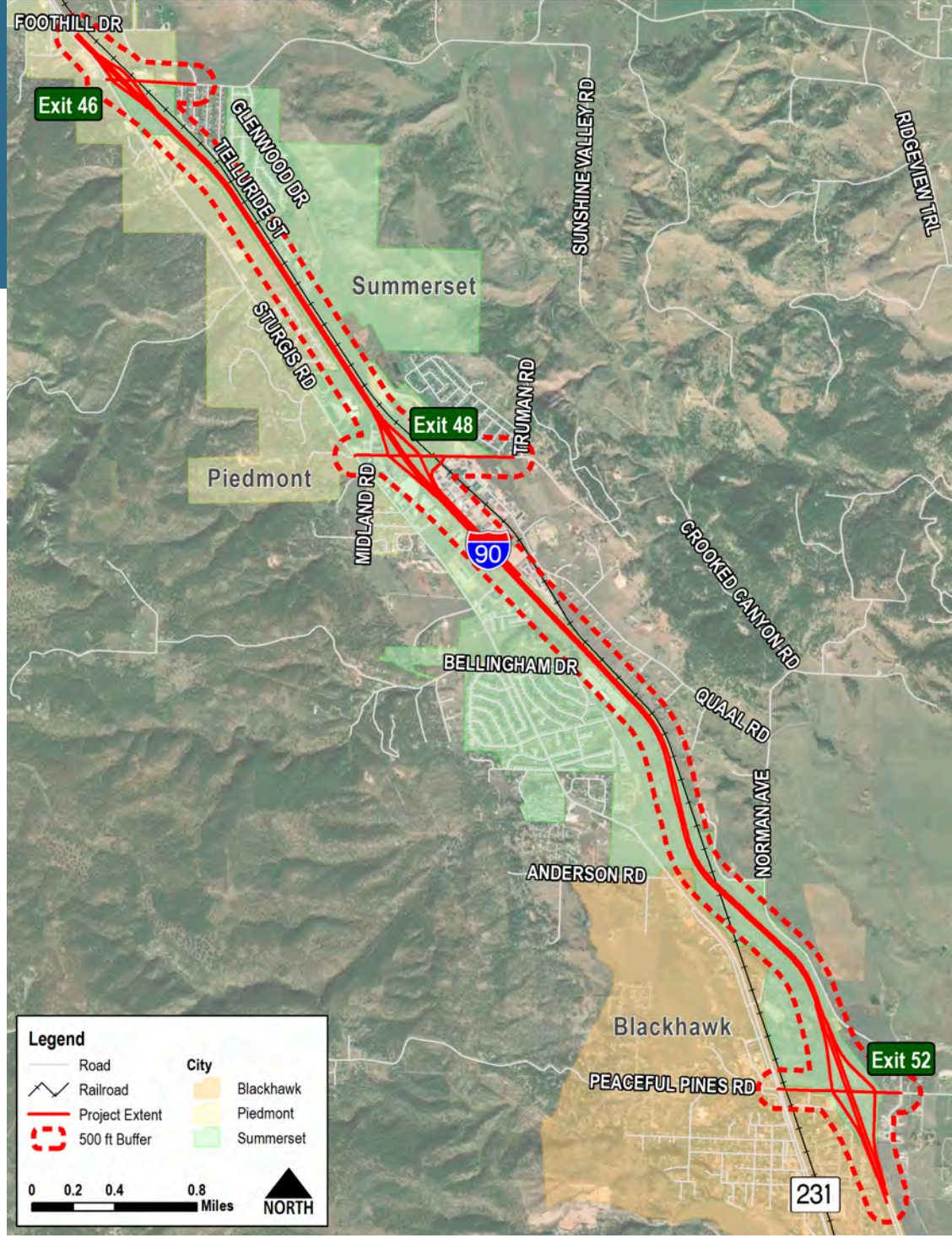


Environmental, Social, & Economic Concerns

An Environmental Screening Study is being developed in accordance with applicable State and Federal environmental regulations.

The environmental study area is a 500-foot buffer along I-90 between Exit 46 and Exit 52.

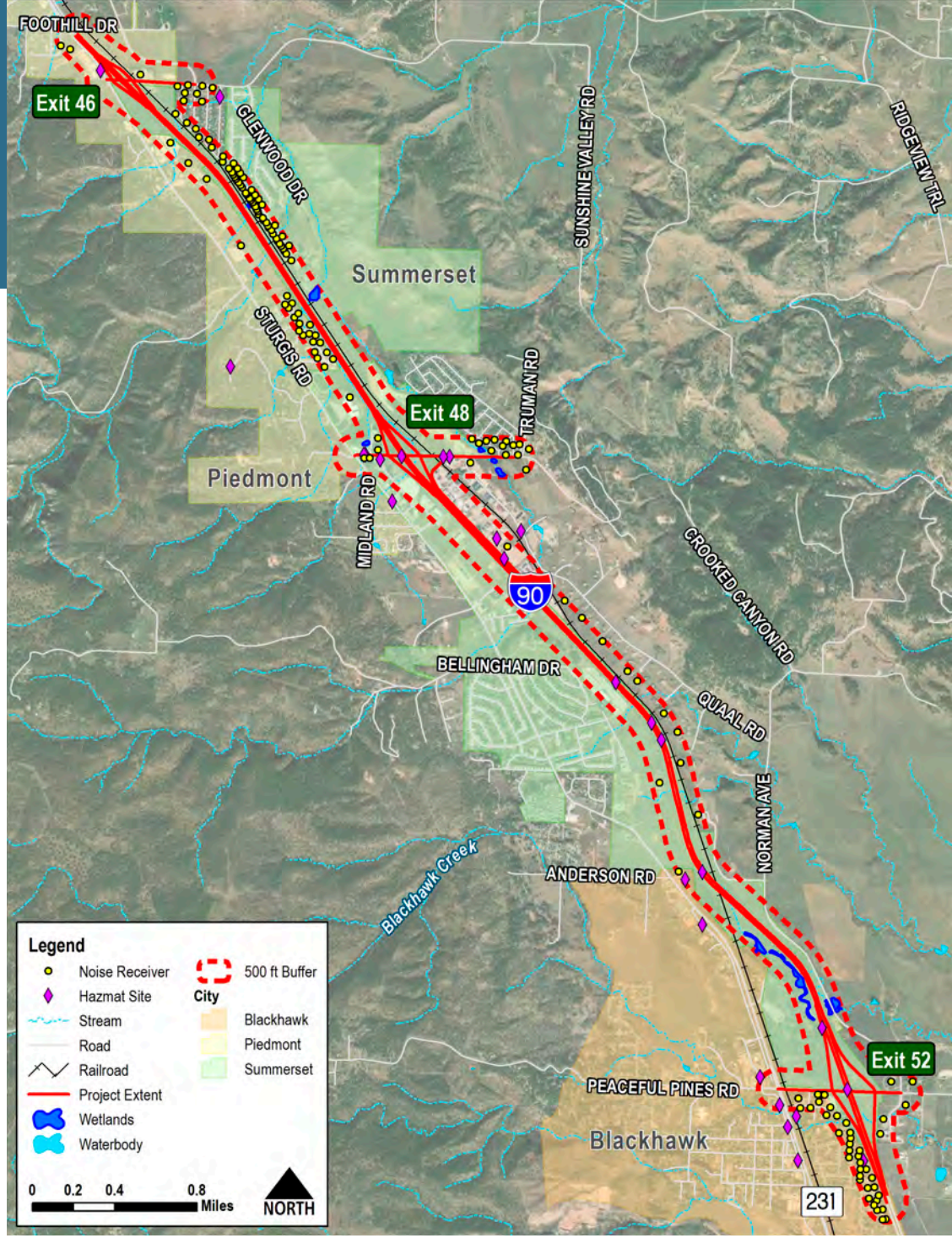
The objective of the Environmental Screening Study is to prepare for the upcoming NEPA process.



Environmental, Social, & Economic Concerns

Existing Conditions are being evaluated within the environmental study area, including:

- Biological resources
- Wetlands and other water resources
- Hazardous materials
- Noise and air quality
- Cultural and historic resources
- Community and social resources
- Visual and aesthetics



Where are We Headed?

Next Steps

Complete Environmental Screening Report Interstate Modification Justification Report (IMJR) and initiate NEPA Study

Identify funding

Perform detailed design

Obtain preliminary SDDOT and FHWA approvals

Construction anticipated for 2030 or later!

For More Information Visit:

https://fhu.mysocialpinpoint.com/i-90-exit-48-interchange-study

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