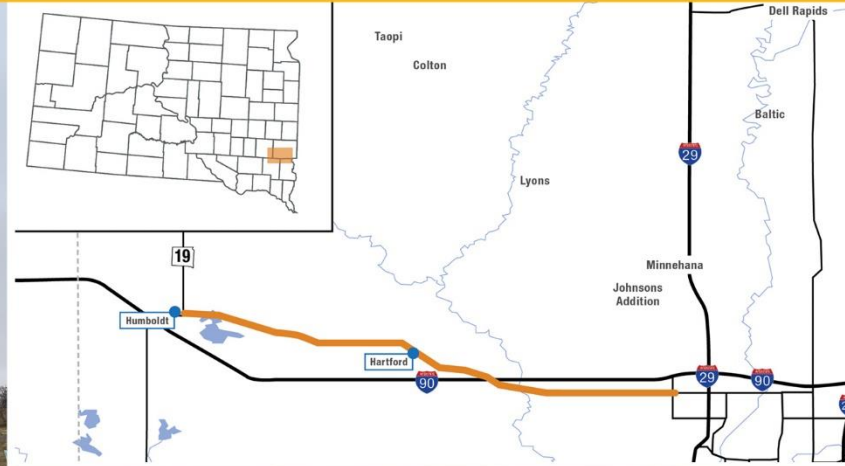


S.D. Highway 38 Corridor Study

BETWEEN HUMBOLDT AND SIOUX FALLS



March 2025



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Acronyms

AADT: Annual Average Daily Traffic

ESR: Environmental Scan Report

FFC: Federal Function Classification

FHWA: Federal Highway Administration

HCM: Highway Capacity Manual

HCS: Highway Capacity Software

IMJR: Interchange Modification Justification Report

LOS: Level of Service

L RTP: Long Range Transportation Plan

MPO: Metropolitan Planning Organization

SAT: Study Advisory Team

STIP: Statewide Transportation Program

SDDANR: South Dakota Department of Agriculture and
Natural Resources

SDGFP: South Dakota Department of Game, Fish, and Parks

SDDOT: South Dakota Department of Transportation

TDM: Travel Demand Model

TIM: Traffic Incident Management.

USACE: United States Army Corps of Engineers

Executive Summary

Background

In 2022, the South Dakota Department of Transportation (SDDOT) initiated a corridor study for a section of State Highway 38 (SD38) from South Dakota Highway 19 (SD19) in Humboldt to the intersection with Marion Road in Sioux Falls. To develop this corridor study, the SDDOT collaborated with the Federal Highway Administration (FHWA), City of Hartford, Town of Humboldt, City of Sioux Falls, Sioux Falls Metropolitan Planning Organization (MPO), Minnehaha County, and other stakeholders who use SD38.

Running parallel to I-90, SD38 plays a vital role in Sioux Falls' regional Traffic Incident Management (TIM). It also serves as a connecting route for Humboldt, Mitchell, and Sioux Falls and benefits the local agricultural economy. The SDDOT's pavement condition assessment has determined that portions of SD38 from the east junction with SD19 in Humboldt to the route's terminal point at Marion Road in Sioux Falls should undergo major rehabilitation or reconstruction in the 2030 to 2035 timeframe. Similarly, the 2020 Sioux Falls MPO Long Range Transportation Plan (LRTP) identified several projects within the study area.

As the portion of the corridor urbanizes, there is projected growth in traffic volume. Therefore, it is essential to ensure the correct typical section(s) are provided to accommodate the anticipated traffic demand for the duration of the rehabilitated or reconstructed pavement's service life.

The primary objective of the SD38 Corridor Study is to evaluate current and future conditions of the highway corridor between Humboldt and Sioux Falls to determine the range of potential improvements in support of the corridor's mobility needs. This study offers recommendations that will enhance corridor safety, mitigate traffic congestion, and foster multimodal connectivity.

Additional outcomes from the SD38 corridor study include:

- An evaluation of intersections throughout the corridor for potential operational or safety improvements.
- Identification of needs for additional through, turning, and / or passing lanes on SD38, including an evaluation of access management needs along the entire corridor.
- An environmental scan document to support future project development needs, including creation of National Environmental Policy Act (NEPA) documents.
- Guidance for all members of the Study Advisory Team (SAT) for implementation of recommended improvements and related actions

Existing Conditions

The SD38 corridor study team identified current conditions through public engagement and analysis of existing data, including traffic counts. Additionally, public engagement provided valuable information through meetings, online surveys, and comment maps created specifically for the corridor study. Similarly, multiple workshops with the SAT, and site visits offered a clear understanding of the challenges facing the SD38 corridor from Humboldt to Sioux Falls. To better examine the corridor's present conditions and provide recommendations, the corridor was divided into three parts: Humboldt to Hartford (SD19 to Western Ave/463rd Ave), Within Hartford (Western Ave/463rd Ave to Eastbound I-90), and Hartford to Sioux Falls.

Below is a summary of existing conditions in the SD38 corridor:

Traffic: Traffic volumes in the corridor generally increase from west to east, with the influence of Sioux Falls becoming apparent when reviewing daily travel patterns. There is a large directional aspect of traffic in the corridor. Heavier eastbound volumes occur in the morning as motorists travel to Sioux Falls, and then westbound volumes become predominant in the afternoon and evening.

Average Daily Traffic (ADT) ranges from just over 2,000 in the western portions of the corridor to nearly 5,000 at the eastern limit of the corridor in Sioux Falls. It should be noted that all the intersections and the corridor segments are currently performing at an acceptable level and did not show congestion either for the Peak AM or PM travel periods.

Safety: During the five-year period of 2018 through 2022, 171 crashes were reported on the 14.1-mile corridor, including four fatal crashes. segment of the corridor. The majority of crashes (62.5%) were property damage only, involved wildlife collisions, and occurred during the nighttime. This is the primary contributing factor to 72% of the total corridor crashes occurring in roadway segments versus at intersections.

Multimodal: While the corridor is largely rural in nature, residential growth in Hartford and development on the east end of the corridor highlights current and anticipated future deficiencies in the multimodal network of sidewalks, bike lanes, and pedestrian facilities such as crosswalks.

Road Geometry: The presence of hills and tight corners along the corridor creates safety concerns. Also, several intersections are at skewed angles, significantly decreasing site distance for motorists turning on or off SD38.

Multiple Road Accesses: Being largely a rural, undivided two-lane roadway, SD38 has many access points leading to farms and businesses along the corridor. Closely spaced access points can lead to crashes.

I-90 Exit 390 Interchange: The interchange plays a major role in mobility between Hartford and Sioux Falls. There are sight distance, safety, and mobility concerns at the stop-controlled interchange ramps.



From 2018 through 2022, **171 CRASHES** were reported with four fatalities on the 14.1 mile segment of the corridor.

Public Engagement

Throughout the corridor study, the project team engaged with the public to assess existing conditions and gather feedback. The first public meeting was held in June 2023, where the public was presented with current conditions and encouraged to share their thoughts on issues related to the study corridor.

The project team used feedback from the first round of public engagement to validate findings from the data review, determine important evaluation criteria, refine traffic models, and develop alternative solutions.

During the second round of public engagement, the public had the opportunity to review the proposed alternatives and provide feedback. These alternatives included expanding roadway capacity (adding lanes), incorporating traffic signals at intersections, modification of accesses, and exploring various options for the I-90 interchange. The goal of the alternatives developed is to enhance safety, efficiency, and multimodal accessibility along the SD38 corridor.

A primary concern expressed by the public at this stage was around the potential modification or reduction of access to driveways and businesses due to proposed raised medians (at locations between Hartford and Sioux Falls).

Public Meetings like this one held at Hartford's West Central High School in June 2023, were used to present project information and alternatives design concept for public feedback



Recommendations

Following concept development, assessment, and feedback from SAT and two rounds of public engagement, the project team recommends the following guidelines be carried forward during future reconstruction of SD38 from Humboldt to Sioux Falls:

- Add Lanes and a Raised Median between Hartford and the I-90 Interchange** – turn lanes and raised medians are recommended between Railroad Street and I-90 Exit 390. The combination of turning lanes and raised medians with U-turn locations will improve traffic flow by separating turning and through traffic, improving corridor capacity, and reducing the risk of accidents, especially at high-volume intersections such as 2nd Street, which provides access to Hartford Middle and High Schools.
- Plan for Reconstruction of the Exit 390 Interchange at I-90** – In anticipation of greater demands for use of the I-90 interchange and planning for replacement of the I-90 bridge overpass, this study identified nine potential design alternatives to address traffic safety and operations concerns. Interchange concepts were shared with the public for initial feedback. The project team determined to carry four alternatives for a future interchange reconstruction into a more in-depth study. The I-90 interchange will undergo more detailed analysis as part of a formal Interchange Modification Justification Report (IMJR). The IMJR study is conducted in coordination with the Federal Highway Administration (FHWA) to identify a recommended solution for future changes to the interchange.
- Access Closures and Realignment** – Findings of this study indicate the need for a comprehensive access management plan to better control turning movements onto the highway from adjoining properties. A reduction in the total number of access points can be achieved via a combination of strategies including consolidation (e.g., elimination of redundant access points) and relocation (e.g., moving access from the highway to a section-line road when possible). These types of improvements can be especially valuable for long segments of the corridor such as between Humboldt and Hartford, where no changes to the existing two-lane configuration is recommended.
- Install Traffic Signals and Improve Intersections in Hartford** – The project team recommends continuing to maintain a three-lane section (one lane in each direction with a center left turn lane) in Hartford. However, to improve current intersection operation and safety, traffic signals are recommended at the intersections of SD38 & 2nd Street and SD38 & Mickelson Road. Additionally, turning lanes are needed at select intersections to improve mainline operations.

Future reconstruction of the I-90 Exit 390 Interchange would provide an opportunity to address safety concerns at the ramp intersections on SD38.



- **I-90 Exit 390 to Marion Road (Sioux Falls): Add Lanes and Median** – East of the I-90 interchange, SD38 is recommended for expansion from the current two-lane roadway to a four lane roadway with a raised median separating the directions of travel. Anticipated growth in the corridor necessitates this improvement. The addition of a median will shift corridor access to key locations where motorists are aware of potential left-turning movements. Similarly, limited visibility due to hills poses a challenge in some areas. Therefore, improving sight distance and road geometry will be beneficial for safe merging and passing on this corridor.

- **Safety Analysis Study** – In response to wide-ranging public concerns about speed in the corridor, the project team recommends conducting a speed study on the corridor. The study will help to assess if there is a need for speed limit modifications as development occurs through the corridor.

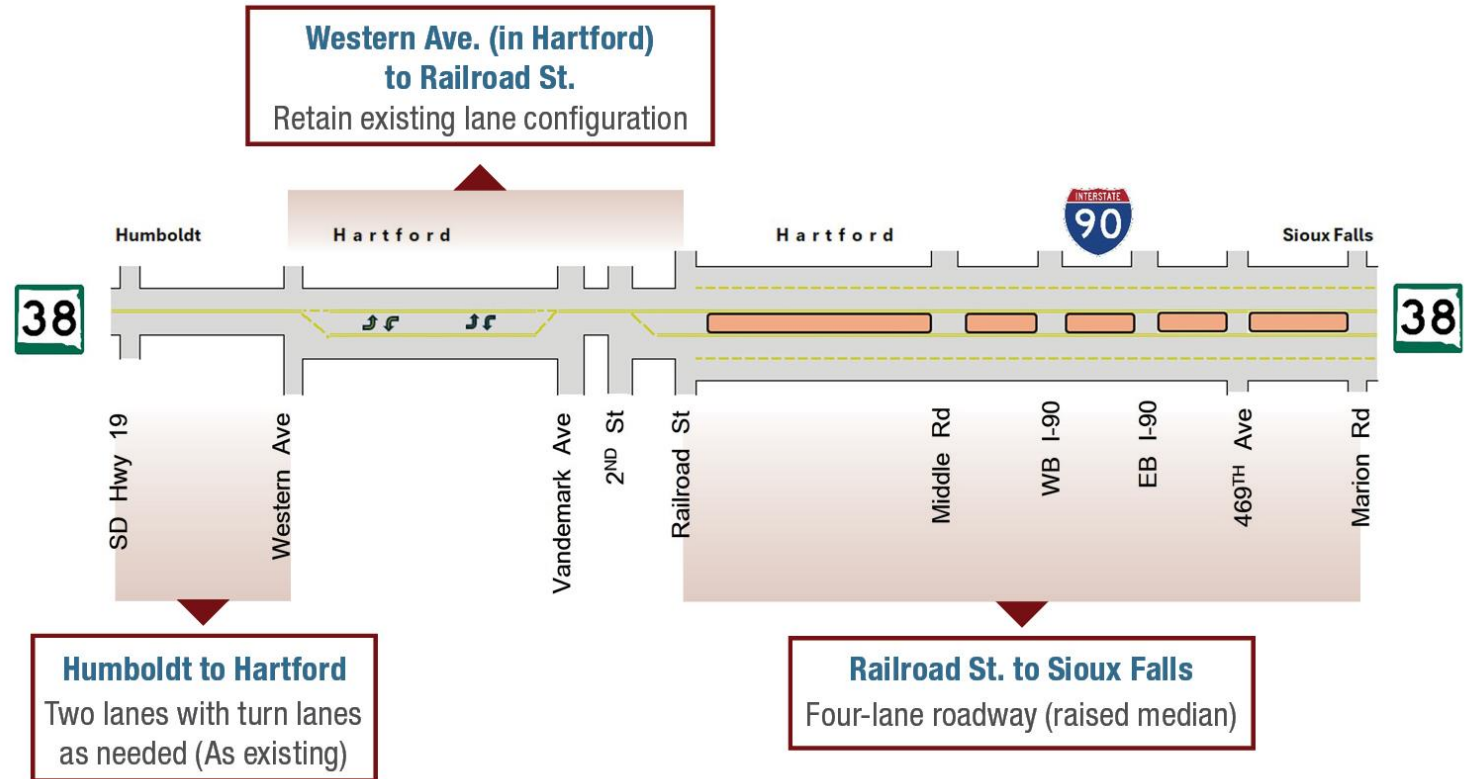


Figure 1:
Overview of the
Study
Recommended
Alternative

Introduction

Project Background

The South Dakota Department of Transportation (SDDOT), City of Hartford, Town of Humboldt, City of Sioux Falls, Sioux Falls Metropolitan Planning Organization (Sioux Falls MPO), Minnehaha County, and Federal Highway Administration (FHWA) commissioned the corridor planning study for a portion of the South Dakota Highway 38 (SD38) corridor in Minnehaha County, South Dakota. The corridor is a 14.2-mile stretch of SD38 extending east from its junction with South Dakota Highway 19 (SD19) in Humboldt to the intersection with Marion Road in Sioux Falls.

The SD38 Corridor Study includes a series of analyses evaluating traffic operations, safety concerns, access points, roadway geometrics, and mobility characteristics within the study area. It also examines physical and environmental constraints, proposed land developments, and current and future traffic demands while incorporating input from the public and local stakeholders. The findings provide a prioritized roadmap for future project development and investment in the corridor.

Goals and Guiding Principles for Corridor Investment and Improvement

The SDDOT conducted the SD38 corridor study in response to two key factors:

- SDDOT pavement assessment identified that segments of SD38, from the east junction with SD19 in Humboldt to the route's terminal point at Marion Road in Sioux Falls, should undergo major rehabilitation or reconstruction in the 2030 to 2035 timeframe.
- The corridor is experiencing significant growth, with traffic volumes expected to rise alongside increasing urbanization. To ensure the rehabilitated road segments meet future demands, the study aims to identify the optimal long-term lane configuration (typical sections) for the entire corridor.

Additional considerations that led to this study include potential configuration changes to corridor intersections, determining the need for additional through, turning, and/or passing lanes along the SD38 mainline, and redesigning the Exit 390 Interstate 90 (I-90) interchange.

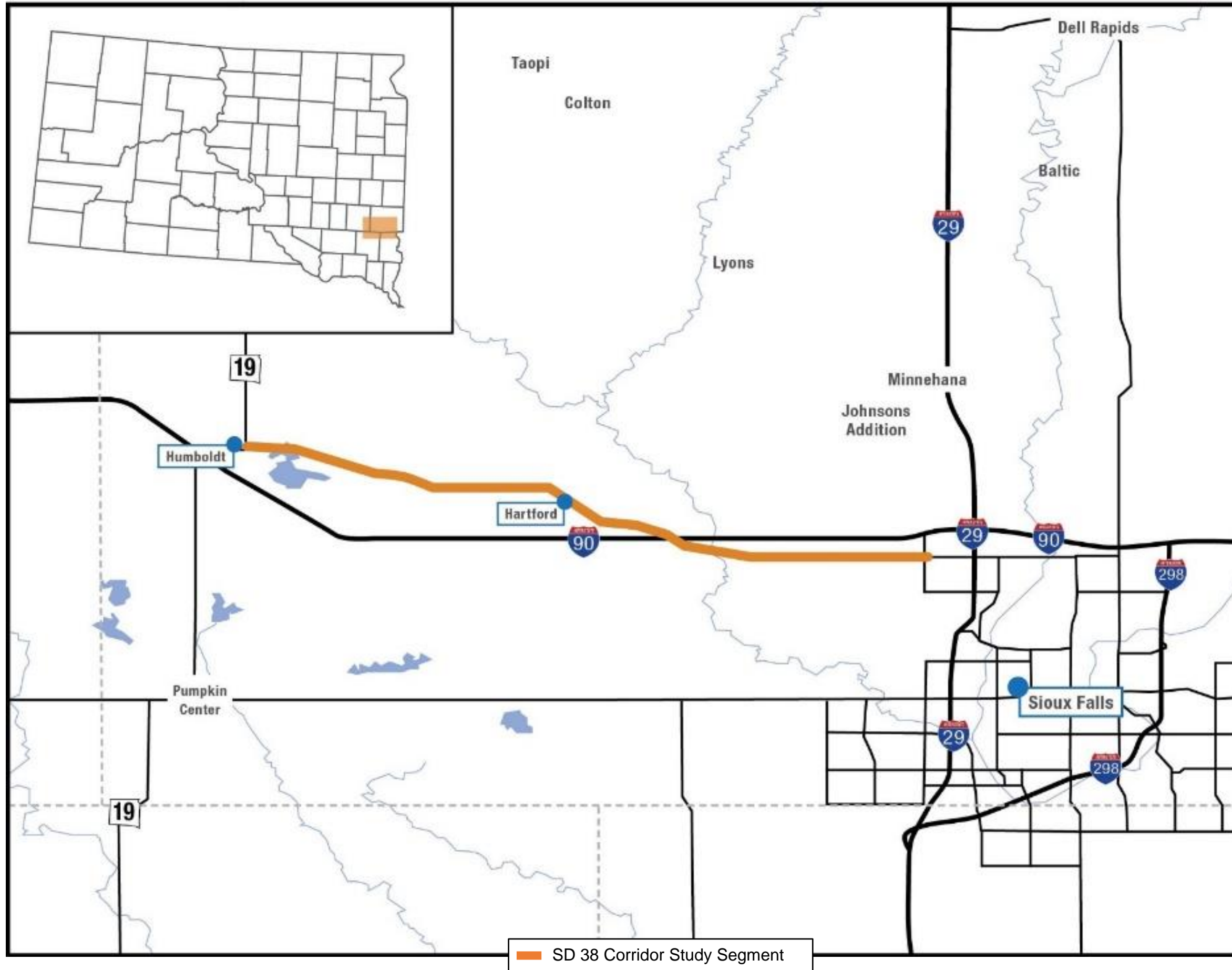
Study Team

A Study Advisory Team (SAT) was formed to assess the SD38 corridor study and identify optimal alternatives. The SAT includes representatives from SDDOT, FHWA, Hartford, Sioux Falls, Sioux Falls MPO, and Humboldt.

Table 1: SD 38 Study Advisory Team

Name of Member	Organization
Shannon Ausen	City of Sioux Falls-Public Works
Danaca Schettler	City of Sioux Falls – Public Works
Chad Babcock	SDDOT - Environmental
Jeff Brosz	SDDOT – Trans.Inv. Management
Cary Cleland	SDDOT – Road Design
Travis Dressen	SDDOT – Mitchel Region
Kristie Ellis	Town of Humboldt
Mike Hauptman-Magee	SDDOT – Project Development
Sean Hegyi	Sioux Falls MPO
Sarah Gilkerson	SDDOT – Project Development
Steve Gramm	SDDOT – Project Development
Steve Groen	Minnehaha County – Highway
Katrina Burckhard	SDDOT – Project Development
Harry Johnson	SDDOT – Sioux Falls Area
Chriss Orr	SDDOT – Road Design
Joe Sestak	SDDOT – Mitchell Region
Teresa Sidel	City of Hartford
Kelly VanDeWiele	FHWA
Dustin Witt	SDDOT – Project Development

Figure 2: Project Location Map



Overview of the Study Area

SD38 spans approximately 64 miles across southeastern South Dakota, connecting the cities of Mitchell and Sioux Falls. This study focuses on the segment between the cities of Humboldt and Sioux Falls (which includes the city of Hartford).

Primarily a rural, two-lane highway, SD38 expands to multiple lanes with streetlights, and curbs/gutters as it approaches Hartford and Sioux Falls. The route includes an interchange with I-90, just east of Hartford, providing access to the broader regional transportation network.

The study corridor includes 18 intersections: one signalized and 17 stop-controlled, with the highest concentration in Hartford. Some intersections along the corridor provide direct access to key destinations such as West Central High School and the I90 Speedway. Speed limits within the corridor range from 35 to 65 miles per hour (mph).

Pedestrian accommodations in Hartford include marked crosswalks at four intersections: SD38 & Mundt Ave, SD38 & Vandemark Avenue, SD38 & 2nd Street, and SD38 & West Central High School Entrance. Additionally, the SD38 & Marion Road intersect features pedestrian signal heads and pushbuttons.

The rural areas surrounding the study area are predominantly agricultural with low-density housing. Natural resources include a waterfowl protection area and scattered wetlands. Commercial and industrial businesses are located along unincorporated sections, including a racetrack, gas station, museum, and various services.

A stop-controlled intersection (SD38 & Colton Rd) with multi-use trail crossing in Hartford.



SD38 provides direct access to homes, schools, and businesses within Hartford. The surrounding area features a mix of residential and commercial development, including strip malls, stores, and restaurants. Hartford has recently approved significant residential developments, such as the 178-unit Maple Pass Apartment project and the 175-lot Turtle Creek Highlands Addition.

The study area also reaches the northwestern edge of Sioux Falls, an area surrounded by retail stores, professional offices, and government agencies. Sioux Falls serves as South Dakota's economic and cultural hub, offering diverse professional and manufacturing jobs. Its proximity to the state's busiest airport, along with being home to the state's only Level 1 Trauma Center and several universities, makes it a major destination.

Therefore, SD38 has become a popular alternative parallel route to Interstate 90 (I-90) for motorists accessing these resources. This growing demand has created pressure to increase road capacity, improve access management along the corridor, and explore multi-modal travel options, especially with ongoing development near the eastern end of the study area.

Additionally, half of the study area from Hartford to Sioux Falls resides within the Sioux Falls Metropolitan Planning Organization (MPO). Federal law mandates that all urbanized areas in the U.S. with populations over 50,000 establish an MPO to oversee regional transportation planning and programming. The Sioux Falls MPO includes the communities of Sioux Falls, Hartford, Crooks, Brandon, Harrisburg, and Tea.

While the study includes the entirety of the SD38 roadway facility, the project team paid close attention to 18 notable intersections across the corridor. These locations are major intersections or represent areas of known or anticipated traffic operations or safety issues. Table 2 below lists the intersections studied as part of the project.

Table 2: SD38 Study Area Intersections

Main Line	Cross Street(s)
SD Highway 38	SD Highway 19 / 457th Avenue
SD Highway 38	459th Avenue
SD Highway 38	I-90 Speedway Entrance
SD Highway 38	Western Avenue / 463rd Avenue
SD Highway 38	Main Avenue
SD Highway 38	Vandemark Avenue
SD Highway 38	2nd Street
SD Highway 38	West Central High School Entrance
SD Highway 38	Railroad Street / 464th Avenue
SD Highway 38	Mickelson Road/260th Street
SD Highway 38	466th Avenue (North)
SD Highway 38	WB I-90 Exit 390
SD Highway 38	EB I-90 Exit 390
SD Highway 38	466th Avenue (South)
SD Highway 38	County Highway 141 / 468th Avenue
SD Highway 38	County Highway 139 / 469th Avenue
SD Highway 38	La Mesa Drive / 470th Avenue
SD Highway 38	Marion Road

Importance of the Corridor to the South Dakota Transportation System

SD38 is a critical east-west corridor for southeastern South Dakota. Much of the SD38 corridor runs parallel to I-90, directly connecting two of South Dakota's largest cities, Mitchell and Sioux Falls. The segment between Humboldt and the I-90 interchange near Hartford is classified as a "collector" by the Federal Functional Classification (FFC) system, while the portion extending to Sioux Falls is designated a "minor arterial."

According to SDDOT's 2022 Annual Average Daily Traffic (AADT) data, daily traffic on SD38 ranges from 2,085 to 4,900 vehicles, with the highest volumes near Sioux Falls. By 2050, AADT projections indicate a significant increase, with a shift in peak traffic volumes to the segment of SD38 between Hartford and the I-90 interchange. Traffic in this segment is expected to reach nearly 20,000 vehicles per day, while east of the interchange, volumes are projected to exceed 13,000 vehicles. These trends highlight SD38's growing role as a key complementary corridor to I-90.

Previous Studies and Corridor Plans

The SD38 corridor is part of the South Dakota Department of Transportation's Long Range Transportation Plan (LRTP) and Statewide Transportation Improvement Program (STIP), as well as the Sioux Falls Metropolitan Planning Organization's (Sioux Falls MPO) LRTP. All three plans emphasize the need to enhance mobility, safety, and multimodal options along the corridor.

The recommendations in this SD38 Corridor Study align with existing plans from SDDOT and Sioux Falls MPO. According to SDDOT's STIP, proposed improvements including passing, climbing, and turning lanes, intersection upgrades, and wider shoulders aim to enhance safety and efficiency while minimizing the need for right of way acquisition.

Furthermore, the Sioux Falls LRTP 2045 outlines projects for roads connected to SD38, such as Mickelson Road and 258th Street, which will incorporate bicycle and pedestrian facilities.

Study Process

The SD38 Corridor Study consisted of five key steps namely: Traffic Data Analysis, Public Information Meeting 1, Development of the Existing Conditions and Alternatives, Public Information Meeting 2, and finally, Recommendations.

Table 3: Study Process Summary

1 Data Gathering - Existing and Future Conditions	<ul style="list-style-type: none"> ▪ Traffic counts and forecasting ▪ Crash Analysis ▪ Environmental Resources ▪ Community Plans ▪ Infrastructure Condition
2 Public Engagement Round 1	<ul style="list-style-type: none"> ▪ Website (sd38corridorstudy.com) ▪ Public meetings ▪ Surveys ▪ Key issue identification
3 Alternatives Development	<ul style="list-style-type: none"> ▪ Develop a range of alternatives ▪ Compare impacts cost, and benefits
4 Public Engagement Round 2	<ul style="list-style-type: none"> ▪ Present alternatives ▪ Public meetings ▪ Feedback on options for screening
5 Finish the Study and Publish Report	<ul style="list-style-type: none"> ▪ Work with the SAT to determine recommendations ▪ Update project web site ▪ Create action items and next steps ▪ Complete Corridor Study reports

Existing and Future Conditions

This SD38 Corridor Study provides a summary report on the corridor's current and future conditions, including crash history, traffic, and road conditions. Where necessary, an Appendix is referenced when additional supporting documentation is available.

Traffic Data

Traffic Volume Data Collection

Traffic volume data were collected at the 17 study intersections on November 2, 2022, for a 12-hour period (7:00AM to 7:00PM). The count data included turning movements by approach in 15-minute intervals with composition of passenger vehicles and trucks. Due to concerns surrounding events at the I-90 Speedway located west of Hartford, event traffic data for the I-90 Speedway intersection was developed from 14-hour count data collected on May 27th, 2023 (the day of an event), at the intersection of SD38 & the I-90 Speedway Entrance.

Existing Traffic Volumes

A review of the traffic volume data showed clear morning and evening peak hours at each intersection. These peak hours were compared across intersections to find the busiest times for the entire corridor. It was determined that the morning peak occurs from 7:15 to 8:15 AM, and the evening peak from 4:45 to 5:45 PM. Figure 5 in Appendix A1 shows the turning movements during these peak hours at each intersection.

The hourly traffic patterns at intersections along the SD38 corridor were also analyzed to understand how traffic flows throughout the day. The data confirmed the same AM and PM peak hours. Details on the hourly traffic patterns at each intersection are available in Appendix A1.

Future Traffic Forecast

To evaluate the existing infrastructure under the future traffic conditions, projected 2050 Average Daily Traffic (ADT) volumes were obtained from the Sioux Falls MPO Travel Demand Model (TDM). These projections account for local traffic growth, changes in travel patterns, and planned roadway improvements. The 2018 base year ADT from the TDM was used to estimate traffic growth within the study area and to calculate the 2050 peak hour volumes. For sections of SD38 outside the TDM boundaries, future ADT was sourced from SDDOT GIS data. Additionally, development site plans were reviewed, and any planned trips not included in the TDM were factored into the future traffic volumes.

The future traffic forecast was conducted for the 18 intersections, and the highway was divided into eastbound and westbound segments for more detailed analysis. Other traffic characteristics, such as the percentage of heavy vehicles, were established from current traffic forecasts and are expected to remain stable through 2050. These values were also used in the 2050 design year analysis.

To estimate interim traffic conditions, straight-line growth rates were calculated between current ADT volumes and projected 2050 volumes. Using this method, forecasts for 2029 and 2040 were developed. Appendix A2 provides detailed information on future traffic forecasts for both the corridor's sections and intersections.

Traffic Operation Methodology

The Highway Capacity Manual (HCM) provides a basis for evaluating traffic operations through “Level of Service” (LOS) rating system. LOS is a graded framework for describing performance through factors such as peak-hour traffic volumes, lane configurations, and traffic control measures. HCM defines LOS based on the average control delay at an intersection, measured in seconds per vehicle. Analysis results are typically presented as a letter grade (A-F), which provides a qualitative measure of the intersection’s performance. Similar to a school grading system, LOS A represents optimal conditions with minimal delay, while LOS F indicates severe congestion and significant delays.

Table 4 provides an example for how an intersection’s level of service can be determined. In this case, it is based on the “control delay” at the intersection – generally considered the length of time a vehicle is waiting at the intersection to proceed through. The table outlines the control delay ranges for each LOS at both unsignalized and signalized intersections. LOS E is considered to be at capacity, which could often be marked by long queues or traffic signal failures. For unsignalized intersections, the overall LOS is based on the worst-performing approach leg of the intersection. For example, if one approach features a typical waiting time of 30 seconds, that leg of the unsignalized intersection has a LOS D. Even if the other legs of the intersection are calculated to have an LOS B, the overall intersection would be rated as LOS D.

Table 4: Level of Service for Control Delay (Intersections)

Level Of Service	Unsignalized	Traffic Signal
	Control Delay (sec/veh)	Control Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	> 50	> 80

Source: Highway Capacity Manual, 7th Edition.

According to SDDOT guidelines, LOS C is the desired minimum traffic performance standard for intersections in rural areas, while LOS D is acceptable in dense urban environments. In the study area, the goal for intersection performance is LOS C.

For highways, SDDOT sets LOS C as the target for rural environments (classified as collectors) and LOS D as the minimum acceptable level for urban environments (classified as minor arterials). The SD38 highway segments within the study area are classified as rural collectors from Humboldt to Hartford and urban minor arterials from Hartford to Sioux Falls. The desired operational goal for the two-lane highway segments in this study area is LOS C.

Existing and Future No Build Traffic Operations Analysis

The traffic operations analysis under current conditions showed that most highway segments in the study area are performing well, with the majority achieving LOS B or better during both AM and PM peak hours. The only exception was a 1,500-foot stretch of westbound SD 38, near the Mickelson Road/260th Street intersection, which experienced LOS C during the PM peak hour.

For future traffic operations, the following scenarios were analyzed:

- Opening year 2029 No-Build
- Interim year 2040 No-Build
- Design year 2050 No-Build

In a corridor study, a "no build" analysis looks at what a transportation area will be like in the future if no changes are made, other than regular maintenance. This creates a starting point for comparing things like traffic, safety, and environmental impact to see how they might change if everything stays the same.

An "interim year" scenario is a look at what the area might be like in a middle year, between now and the design year. The design year is a target year, usually 20 to 30 years ahead, when improvements are planned to make sure the area can handle more traffic and future growth.

By using both the no build and interim year scenarios, planners get an idea of the short- and long-term effects, helping them make step-by-step changes that keep the area working well over time.

The operational analysis was conducted for both AM and PM peak hours.

The traffic operations for the SD Highway 38 corridor were evaluated using the Highway Capacity Manual (HCM) 7th Edition and Highway Capacity Software (HCS) 2022. The analysis considered the existing highway geometry, planned improvements, future traffic volumes, and posted travel speeds. Recent improvements include the addition of eastbound and westbound left-turn lanes on SD38 at the 459th Avenue intersection, as well as the widening of the SD38 corridor between Railroad Street/464th Avenue and 465th Street to a three-lane configuration with a center two-way left-turn lane.

Opening Year 2029 No-Build

The traffic operations analysis for the Opening Year 2029 (the year any improvements are assumed to be constructed) showed that most intersections in the study area performed well in the "No Build" scenario where improvements are not made, achieving LOS C or better during both AM and PM peak hours. However, the SD38 & Mickelson Road/260th Street intersection experienced LOS F during the PM peak hour due to increased traffic from new developments.

All highway segments within the study area maintained acceptable performance, with LOS C or higher during both peak periods.

Traffic operations in 2029 are generally expected to meet the desired performance levels, with one notable exception: **the Mickelson Road/260th Street intersection will experience traffic problems if not improvements are made** due to anticipated new development in the area.

Interim year 2040 No-Build

The Interim Year 2040 traffic operations analysis was conducted using projected future traffic volumes and posted travel speeds. At the SD38 & Mickelson Road/260th Street intersection, traffic signal control was considered during the analysis.

Overall, under the Interim Year 2040 conditions, the analysis indicated that most intersections within the study area operated at acceptable levels, with the majority achieving Level of Service (LOS) C or better during both the AM and PM peak hours.

However, six Highway 38 intersections failed to meet the LOS goals set by the SDDOT, each recording a LOS D during at least one peak hour. These intersections include:

- 2nd Street
- Railroad Street/464th Avenue
- 466th Avenue (North)
- Westbound I-90 interchange ramp terminal
- County Highway 139/469th Avenue
- La Mesa Drive/470th Avenue

In contrast, the analysis of highway segments under the same Interim Year 2040 conditions showed acceptable operations across all segments in the study area, with all segments achieving LOS C or higher during both peak periods.

In summary, **the Interim Year 2040 traffic operations analysis demonstrated that the majority of intersections and highway segments within the study area are expected to perform at acceptable levels, with most achieving the desired LOS during both the AM and PM peak hours.** However, traffic operations challenges will continue to emerge in the eastern half of the study corridor with six intersections projected to operate at LOS D, which does not meet the established SDDOT goals.

Design year 2050 No-Build

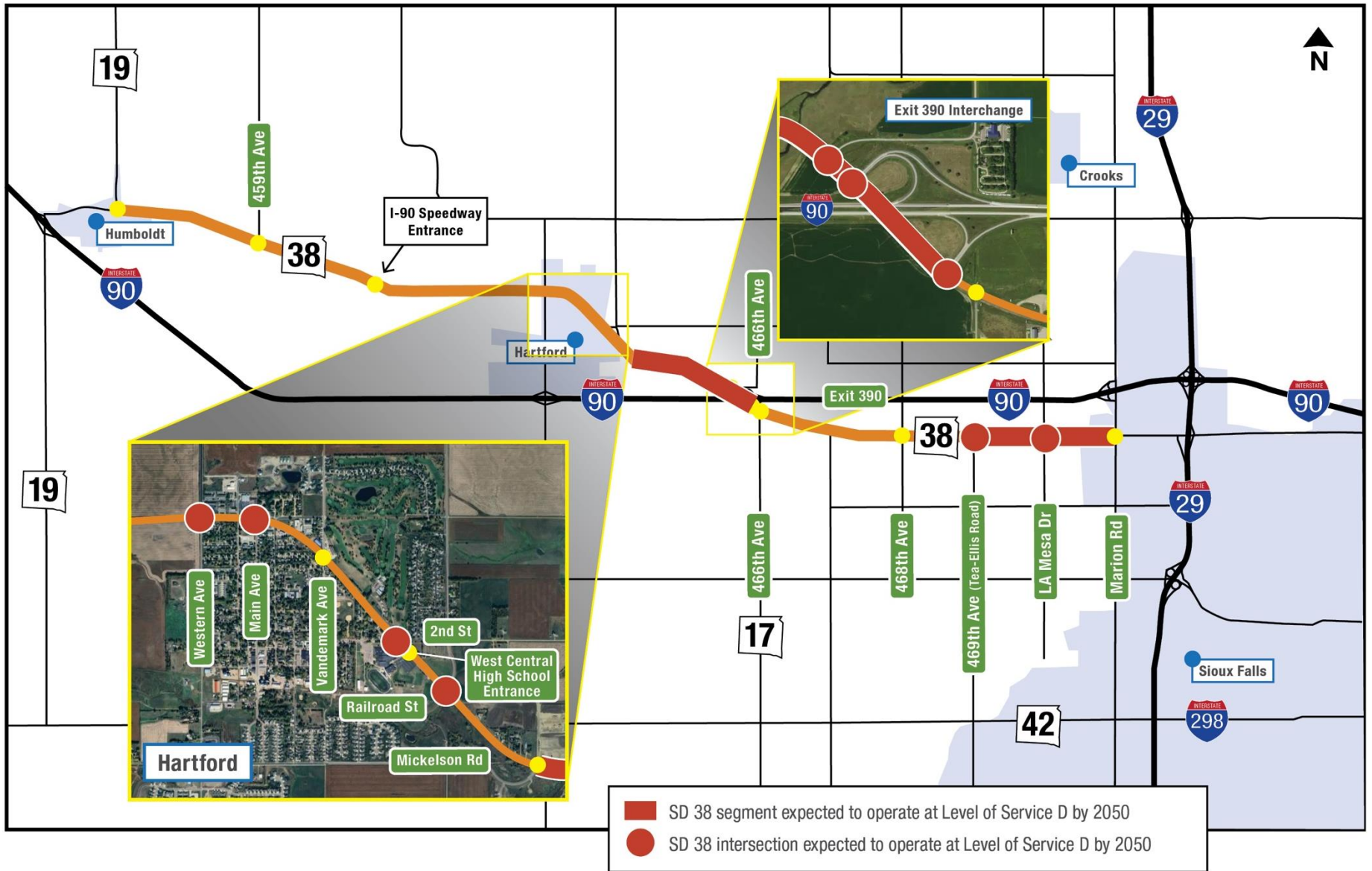
Under the Design Year 2050 conditions, the traffic operations analysis revealed potential capacity constraints and inefficiencies at several intersections within the study area. Out of the 18 total intersections, nine of them produced a Level of Service (LOS) D or worse during at least one peak hour. In addition to the six intersections already noted as failing to meet SDDOT goals in 2040, the following SD38 intersections would also fail to meet the goal in 2050:

- Western Avenue/463rd Avenue
- Main Avenue
- Eastbound I-90 interchange ramp terminal

As further evidence of the impacts of growth in traffic volumes, several segments of the SD38 corridor are also anticipated to experience operations at LOS D during at least one peak hour. Figure 6 presents all locations (intersections and segments) in the SD38 corridor that are expected to operate at LOS D by 2050. These locations offer insights into where capacity improvements may be needed in the SD38 corridor.

Analysis of traffic operations analyses out to 2050 helped provide insight into where operational challenges are expected and when they may become apparent to motorists. Based on this review of forecast traffic operations, the project team expects continued issues for traffic operations on the eastern half of the corridor. For instance, the area around Western Avenue and SD38 on the north end of Hartford is expected to begin experiencing issues in the 2040 to 2050 timeline.

Figure 3: Anticipated Traffic Operations Deficiencies by 2050



Access Points

The SD38 corridor features many direct “driveway” access points leading to homes, farms, and businesses. This issue is especially problematic in the two-lane sections that lack turning lanes, increasing the risk of rear-end or angle crashes as vehicles attempt to enter driveways from the highway. While problematic, these access points are essential for residents to reach their homes and farms. To improve safety, the corridor study explored ways to reduce left-turn movements and consolidate existing access points along the SD38 corridor.

Crash History

This study analyzed the most recent available five-year crash data (2018-2022) from SDDOT, covering both highway sections and intersections. A total of 171 crashes were recorded during this period, with the majority (123, or 72%) occurring along the corridor segments, while 48 crashes (28%) took place at the 18 intersections in the study area.

The corridor was divided into three sections to better understand crash patterns:

- Humboldt to Hartford: 50 crashes
- Within Hartford: 16 crashes
- Hartford to Sioux Falls: 57 crashes

Among intersections, SD Highway 38 & Marion Road had the highest number of crashes, with 14 incidents (29% of total intersection crashes).

During the study period, there were four fatal crashes: two angle crashes, one head-on, and one rear-end collision. Contributing factors included failure to yield, ignoring traffic signs/signals, wrong-way driving, and improper lane use. Additionally, there were eight serious injury crashes, 12 minor injury crashes, and 130 property damage incidents. Animal-related crashes were the most common (47% of all crashes), often occurring in dark, unlit conditions.

Based on the number of crashes at any one location, an intersection or highway segment crash rate can be calculated. Given the large database of crash information the SDDOT has, it can calculate a predicted crash rate for various intersection or highway segment types. Comparing the actual rate at one location versus the expected rate helps to identify which segments or intersections need more attention to reduce accidents.

For the SD38 Corridor Study, the intersection crash rate per Million Entering Vehicles (MEV) was calculated using 2022 traffic data. SDDOT provided predicted crash rates for the intersections and crash rates for the road segments. Tables 5 and 6 provide the intersections and roadway segments that showed crash frequencies that exceeded predicted crash rates.

Table 5: SD38 Intersections with High Crash Severity

SD38-Intersection	Average Crash Frequency	Predicted Crash Frequency
SD Highway 19 / 457th Avenue	0.60	0.54
Marion Road	2.80	1.56

Table 6: SD38 Intersection Crash Severity

SD38-Segments	Average Crash Frequency	Predicted Crash Frequency
Humboldt-Hartford	1.86	1.73
Within Hartford	0.33-1.88	1.73
Hartford-Sioux Falls	0.21-1.97	1.73

NOTE: RED indicates a fatality or crash rate above expectations. A range of crash frequencies is shown for larger segments that have several smaller segments within them. For both instances, some but not all sub-segments exhibit crash frequencies above expected rates.

For more information on crashes in the SD38 corridor, see Appendix A1.

I-90 Exit 390 Interchange

The SD38 and I-90 Exit 390 interchange is a folded diamond interchange with stop-controlled ramp terminal intersections. The interchange connects SD38 with interstate I-90 making it a major destination. The loop ramps (westbound on-ramp and eastbound off-ramp) have advisory speed limits of 25 mph. The eastbound on-ramp and westbound off-ramp are standard parallel interchange ramps.

The I-90 Exit 390 Interchange has been preliminarily studied in the recent Decennial Interstate Corridor Studies (2020, 2010, 2000), with geometric deficiencies noted in the eastbound I-90 exit and westbound I-90 entrance ramps (these are the “folded” lane movements that are most impacted by interchange ramp design.)

The interchange experiences traffic operations and safety issues especially during the morning and afternoon peak periods when people are driving to or from Sioux Falls and other connected destinations. There are sight distance, safety, and mobility concerns at the stop-controlled interchange ramp intersections.

I-90 Exit 390 Interchange East Side On-Off

Multimodal Conditions (Bikes, Pedestrians, Trails)

Due to the predominantly rural nature of the study corridor, paved and gravel shoulders currently provide the main travel

opportunities for multimodal users. Some sections of SD38 are classified as bike-friendly, meaning they have paved shoulders of at least 3 feet, with a minimum of 3 feet clear of rumble strips. This classification extends from SD19 at Humboldt to Vandermark Avenue in Hartford. Additionally, the City of Hartford has a separated bike lane running from E 2nd Street to Crestview Drive.

Between Hartford and Sioux Falls, SD38 generally exhibits shoulder widths of approximately 6 feet. This on-street bike route is capable of accommodating both bicyclists and pedestrians. The Sioux Falls MPO Bicycle Plan (SFBP) identifies SD38 as a key connection between Hartford and Sioux Falls. Bike trails that parallel or intersect SD38 are considered long-term, future trails in the plan. Due to the limited shoulder width on this high-speed roadway, these trails are classified as high-connectivity but low-comfort routes (SFBP 2015).

Several planning documents have highlighted the importance of bicycle and pedestrian infrastructure in the area:

- **Hartford Comprehensive Plan Parks and Open Space Map:** This plan discusses future primary and secondary paths, recommending the expansion of the existing bike path with a focus on connecting to the Sioux Falls system (City of Hartford 2017).
- **Humboldt Comprehensive Plan, Major Street Plan Map:** This plan outlines future bike trails in the southeast designated growth area of Humboldt, where a bike trail system is proposed along Interstate-90 to act as a buffer between the interstate and residential development (City of Humboldt 2003).

- **Sioux Falls Metropolitan Planning Organization Bicycle Plan:** A future path within the Project Study Area is proposed, exploring a bicycle trail connection from Hartford to the western edge of Sioux Falls, either along the Skunk Creek corridor or another similar route (SFBP 2015).

The Sioux Falls MPO has also recommended roadway projects along SD38 to enhance bicycle and pedestrian accessibility between Sioux Falls and Hartford. Potential project locations include Western Avenue from Mickelson Road to SD38, Western Avenue from SD38 to 258th Street, and a section line corridor next to the Sam Assam Development, routing $\frac{3}{4}$ mile south of SD38 (MPO 2020).

A multi-use path runs parallel to SD38 in portions of Hartford



Demographics

Two of the three municipalities in the study area (Hartford and Sioux Falls) are experiencing significant population growth, while Humboldt's population remains stable at an estimated 579 residents. Sioux Falls, the Midwest's fastest-growing metropolitan area according to recent U.S. Census data, reached an estimated 214,000 residents in 2023, marking a 25.1% increase since 2010.

Hartford has also experienced rapid growth, with its population rising by 32.4% to 3,354 over the same period. Its proximity to Sioux Falls makes Hartford an attractive residential area for those working in the city. This daily commute from Hartford to Sioux Falls contributes to traffic congestion, especially at the I-90 Exit 390 Interchange.

Land Use

The study area primarily consists of agricultural land along the SD Highway 38 corridor, with a mix of residential, commercial, and industrial land uses within the Town of Humboldt, the City of Hartford, and the City of Sioux Falls.

In the Town of Humboldt, land use adjacent to the SD38 corridor, near its intersection with SD19, includes commercial development in the southwest quadrant and single-family residential elsewhere. Agricultural land use dominates along SD38 to the east.

In the City of Hartford, land uses along the SD38 corridor are more varied, including residential, commercial, natural resource conservation, and heavy industrial areas.

A concentration of commercial and industrial businesses can be found near the I-90 Exit 390 interchange, while conservation land and rural residential areas are designated along SD38 east of the interchange.

The City of Sioux Falls municipal limits extend to the intersection of SD38 and Marion Road. Land uses near this intersection include office and public service, commercial, industrial, and agricultural areas.

Environmental Conditions

To fully understand the potential impacts of improvement to the SD38 corridor, an Environmental Scan Report (ESR) was conducted as part of the corridor study. This analysis assessed current conditions and projected the potential effects of proposed alternatives for the Study Area.

The analysis incorporated guidelines and resources from key agencies, including the South Dakota Department of Agriculture and Natural Resources (SDDANR), the United States Army Corps of Engineers (USACE), the South Dakota Department of Game, Fish, and Parks (SDGFP), the South Dakota Department of Transportation (SDDOT), and others.

Key environmental resource categories evaluated in the scan included:

- Water and stormwater management
- Wild and scenic rivers, threatened and endangered species, migratory birds, eagles, and unique wildlife habitats
- Cultural resources
- Section 4(f) and Section 6(f) resources
- Paleontological resources
- Land use and economic resources
- Community and social resources
- Title VI/Environmental Justice considerations
- Climate change and equity
- Bicycle and pedestrian facilities
- Visual resources and aesthetics
- Prime and unique farmlands
- Air quality
- Hazardous materials
- Noise impacts
- Utilities
- Railroad crossings

The SD38 Environmental Scan Report identified several existing issues, as well as those likely to emerge due to increased development in the area. These issues include:

- Increased stormwater runoff
- Impaired water quality in Skunk Creek due to E. coli bacteria
- Twelve reported spill events within the Project Study Area (SDDANR 2024), all of which have been resolved or assigned a "no further action" status
- Conversion of farmland and wildlife habitat
- Noise analysis may be required for recommended highway improvement design alternatives

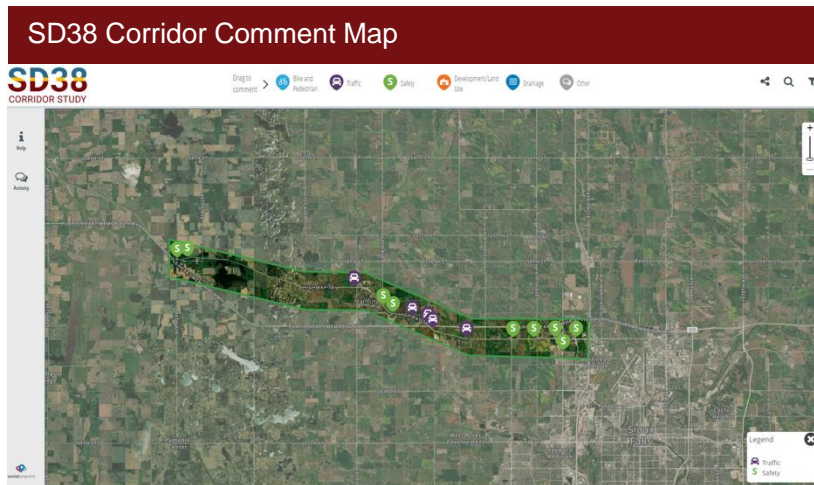
Looking ahead, the Environmental Scan Report outlined several next steps and mitigation strategies to consider during development of future corridor projects, including:

- Conducting wetland field delineations
- Coordinating with US Fish and Wildlife Service (USFWS) and SDGFP to assess the impact on threatened and endangered species
- Considering the need for recreational bicycle and pedestrian trail systems during final design
- Ensuring access to residences and businesses during the final design phase
- Reviewing the SDDANR Tanks, Spills, and Environmental Map database for updates

For the complete Environmental Scan Report, please refer to Appendix B.

Public Engagement

Two Public Information Meetings (PIMs) were held at West Central High School in Hartford as part of the SD38 Corridor Study. A project website (www.sd38corridorstudy.com) was also created, featuring an interactive comment map and an online survey feature. The website included presentation recordings and display materials from both meetings.



To encourage participation, SDDOT promoted the PIMs in local newspapers, including the Argus Leader and Minnehaha Messenger. Invitation letters were also sent to landowners and other stakeholders prior to the meetings.

Public Meeting



Stakeholder Meetings

Property owners who were potentially impacted by the corridor study recommendations, along with other stakeholders from the corridor, were invited to provide input during separate meetings held separately from the public meeting.

Stakeholders were informed about potential impacts to their properties, such as access closures, right-of-way acquisitions, and other concerns. The meeting minutes from these stakeholder sessions are included in the public meeting summary report.

Public Meeting 1 – Existing Conditions Presentations and Information Gathering from the Public.

Date: June 8th, 2023

Location: West Central High School, Hartford, SD

During the first Public Information Meeting (PIM1), the attendees were shown the current conditions of SD38, including crash data and traffic analysis. They had multiple ways to provide feedback, including written comments on cards or strip maps, as well as electronic submissions via email, the website contact form, an online survey, or the interactive comment map.

Forty-eight people attended PIM1 in person, 14 provided input on the comment map, and 19 responded to the online survey. Additional written feedback from comment cards is included in Appendix C.

The majority of respondents in both the comment map and the survey emphasized concerns about speed, traffic volume, and safety.

Below is the summary of key points from the survey and the comment map:

- Residents are worried about the increase in new development along the SD38 corridor, which is likely to increase traffic.
- The fear of turning onto or off SD38 due to high speeds (often exceeding 65 mph).
- Lack of turning lanes that can lead to rear-end accidents.
- On-/off-ramps at I-90 and Hwy 38 are also a source of anxiety to the corridor users.

Below are public comments regarding suggested improvements to SD38:

- Adjust road geometry especially the hill on SD38 and La Mesa Dr that makes it hard to see oncoming traffic.
- Install traffic calming measures such as an all-way stop or roundabout on the intersection of SD38 and 456th Ave. (east side of Humboldt)
- Add traffic signals
- Widen (add travel lanes at) portions of SD38 to reduce traffic congestion, especially near Hartford Heights development in Hartford.
- Add right and left turn lanes and passing lanes to enhance safety for vehicles turning.

Public Meeting 2 – Presenting Alternatives

Date: March 24, 2024

Location: West Central High School, Hartford, SD

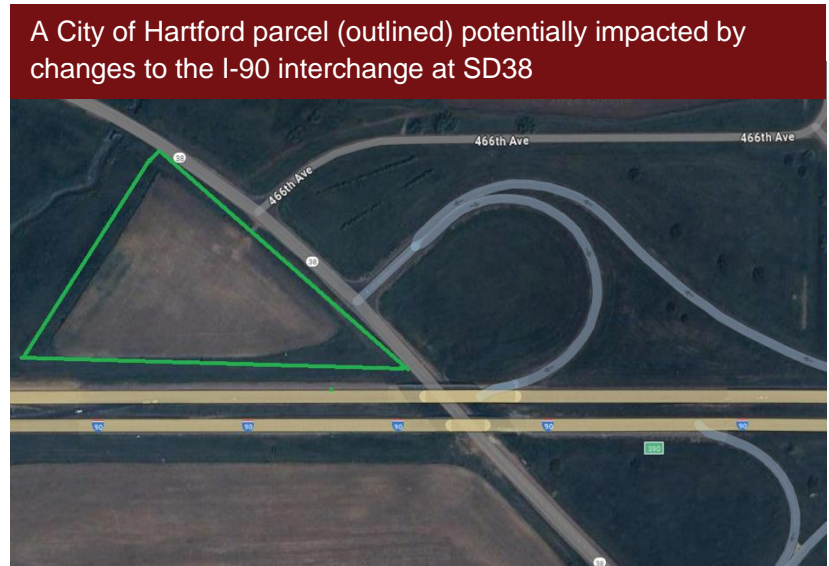
Public Information Meeting 2 (PIM2) presented different roadway and interchange improvement alternatives. The project team used feedback from PIM1, along with environmental considerations, traffic data, and crash data, to develop these alternatives. Thirty-three attendees provided feedback through comment cards or electronic submissions.

Several property owners opposed the raised medians, citing concerns about losing driveway access and potential negative impacts on their property or businesses from highway changes. Other concerns included road widening, which could encroach on land and affect infrastructure such as septic systems.

An online survey, open from February to April 2024, received seven responses. Participants favored roundabouts, particularly on Mickelson, to help reduce car speeds. They also supported adding turning lanes, including a northbound right-turn lane from Ellis to eastbound SD38.

During PIM2, the City of Hartford requested a more detailed sidewalk plan to support a Transportation Alternatives grant application. If there is a choice to be made regarding the construction of a trail on either the north or south side of SD38 in Hartford, the city wants to be involved to ensure all efforts are coordinated. The City also expressed concerns about losing land designated for the expansion of the wastewater treatment plant on the south side of I-90. Access to city-owned parcels on both sides of I-90 could be impacted by modifications to the interchange. A roundabout could help avoid losing access to the City's triangle-shaped property south of SD38 and north of I-90 (see image on this page). However, some concerns were raised about the feasibility of a roundabout, such as potential restrictions on future private access to the parcel if at some point the city sells the parcel to a private owner.

Public comments and survey responses for both PIMs can be found in Appendix C.



Alternatives

The HR Green team reviewed input from the SAT and the public, along with future traffic forecasts, to develop four design alternatives. Three alternatives focus on specific segments of the SD38 corridor, while the fourth addresses modifications to the I-90 Exit 390 Interchange.

However, further into the corridor study it was determined that the I-90 Exit 390 Interchange needed more review. Therefore, an Interchange Modification Justification Report (IMJR) will be completed to make appropriate recommendations.

Refer to Figure 12 for the summary of alternatives evaluated in this Corridor Study.

Alternatives Evaluation

Two key factors were considered when evaluating the alternatives: Level of Service (LOS) and predictive crash analysis for all segments and intersections of the SD38 Corridor Study.

Level of Service (LOS)

The proposed alternatives underwent a Level of Service (LOS) analysis to evaluate future traffic operations for the years 2029 and 2050. According to SDDOT guidelines, LOS C is the minimum desired level for intersections and highway segments in rural areas, while LOS D is acceptable for dense urban environments.

Within the study area, SD38 is classified as a rural collector between Humboldt and Hartford, and as an urban minor arterial from Hartford to Sioux Falls. For this corridor, the target LOS for intersections is C, while highway segments should also meet LOS C, with LOS D being the minimum acceptable between Hartford and Sioux Falls.

Refer to Appendix D for the Highway and intersection operations under the Build conditions.

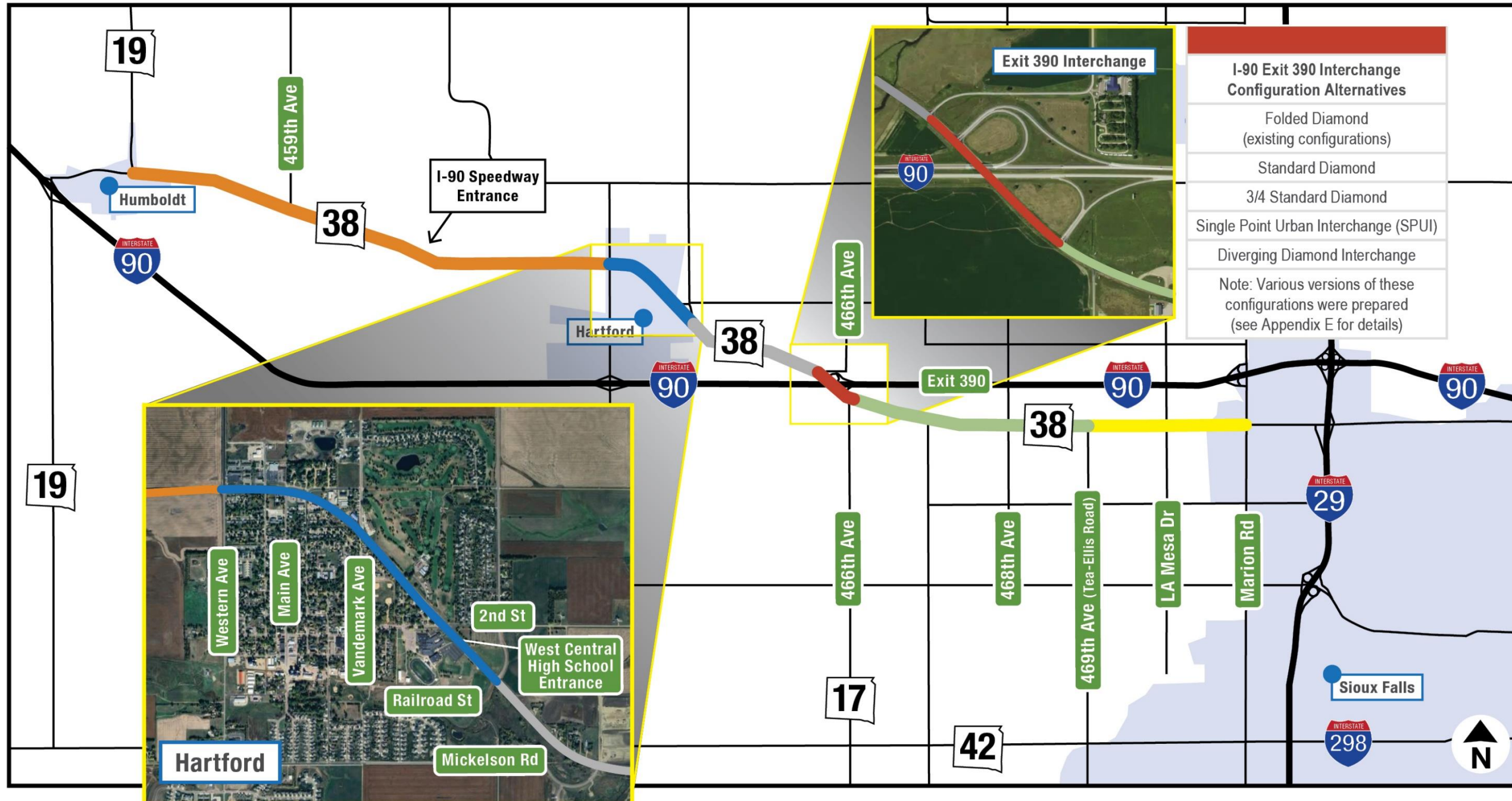
Predictive Crash Analysis

Predicted crash frequency measures safety performance based on segments or intersections of similar facility types. This analysis accounts for changes in traffic volume and roadway characteristics, making it useful for comparing crash frequency variations due to added travel lanes or other geometric modifications.

For the SD Highway 38 study, predictive crash analysis was conducted using the Interactive Highway Safety Design Model (IHSDM) Crash Prediction tool to assess the safety impacts and expected changes in crashes across different design year scenarios.

The analysis revealed a significant reduction in crashes for the build scenarios compared to the no-build (two-lane highway) scenario. Contributing factors include additional lanes, wider shoulders, medians, and decreased traffic density. A summary of the predicted crashes for both the highway segments and intersections is provided in Appendix D.

Figure 4: Summary of SD38 Corridor Study Alternatives



SUMMARY OF SD38 ALTERNATIVES BY CORRIDOR SEGMENT						
Alternative	Humboldt (SD19) to Hartford (Western Ave)	Hartford – Western Ave to Railroad St.	Hartford (Railroad St.) to I-90 Exit 390 Interchange	I-90 Exit 390 Interchange	I-90 Exit 390 Interchange to Tea-Ellis Road (469th Ave)	Tea-Ellis Road to Sioux Falls (Marion Road)
Alternative 1	2 Lanes with turn lane improvements	3 Lanes (center left turn lane)	5 Lanes (center left turn lane)	See Inset for alternative interchange configurations	2 Lanes with turn lane improvements	5 Lanes (center left turn lane)
Alternative 2	2 Lanes with turn lane improvements	3 Lanes (center left turn lane)	5 Lanes (center left turn lane)		4 Lanes (center raised median)	4 Lanes (center raised median)
Alternative 3	2 Lanes with turn lane improvements	3 Lanes (center left turn lane)	4 Lanes (center raised median)		4 Lanes (center raised median)	4 Lanes (center raised median)

Build Alternatives

Build Alternative #1

Intersection Improvements

In Build Alternative 1, traffic signals will be added at Western Avenue (463rd Avenue), 2nd Street, Railroad Street/464th Avenue, Mickelson Road/260th Street, County Highway 141/468th Avenue, and La Mesa Drive/470th Avenue. Other SD38 intersections will receive improvements such as new turn signage, turn lanes, access reconfigurations for better perpendicular entrances, or a combination of these measures. See Appendix D.

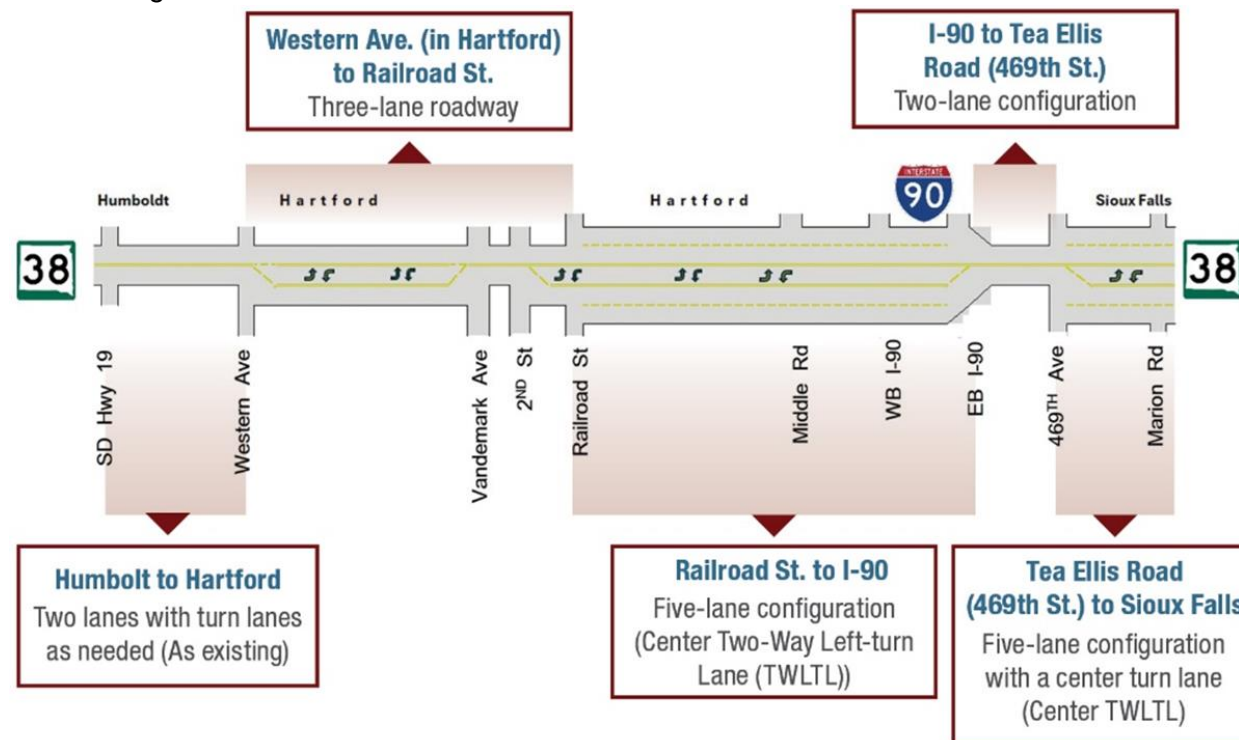
Mainline Corridor Improvements

Mainline corridor improvements in Alternative 1 are divided into five distinct segments. See Figure 13

Below is a list of each segment and the proposed improvements:

- **Humboldt to Hartford:** Two lanes with turn lanes as needed (As existing)
- **Western Avenue (in Hartford) to Railroad Street:** Combination of Two and Three-lane roadway (As existing)
- **Railroad Street to I-90:** Five-lane configuration (Center Two-Way Left-turn Lane (TWLTL))
- **I-90 to Tea/Ellis Road (469th Street):** two-lane configuration
- **Tea Ellis Road (469th Street) to Sioux Falls:** Five-lane configuration with a center turn lane (Center TWLTL)

Figure 5: Build Alternative #1



Build Alternative #2

Build Alternative #2 recommends intersection improvements on SD38 similar to those in Build Alternative #1.

For the mainline corridor sections, Build Alternative #2 divides SD38 into four segments, each with specific improvement options outlined below:

- **Humboldt to Hartford:** Two lanes with turn lanes as needed (As existing)

- **Western Avenue (Hartford) to Railroad Street:** Combination of Two and Three-lane configuration with a center turn lane (As existing)
- **Railroad Street to I-90:** Five-lane configuration (Center TWLTL)
- **I-90 to Sioux Falls:** Four-lane configuration with a raised median

Figure 6: Build Alternative #2

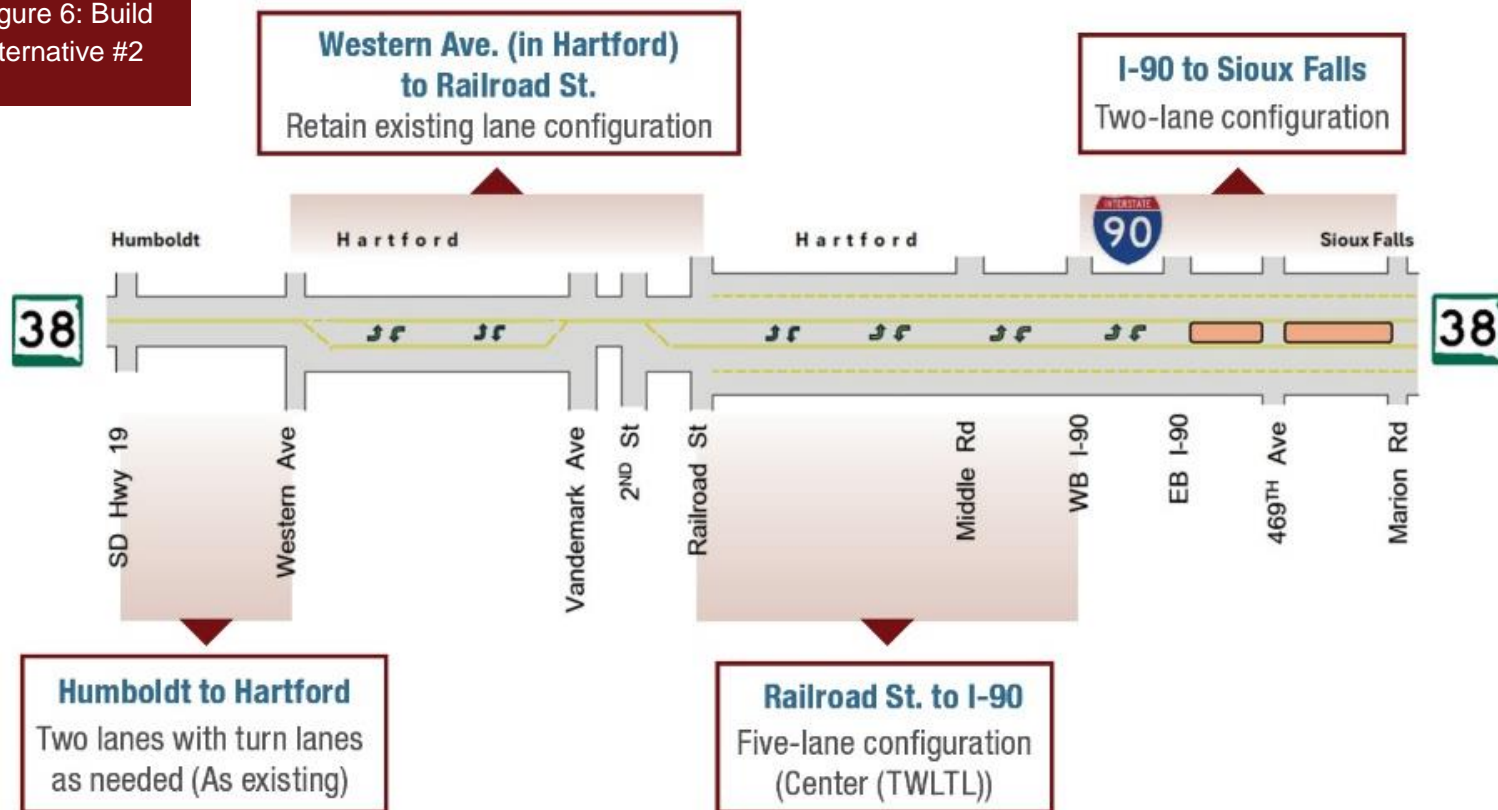
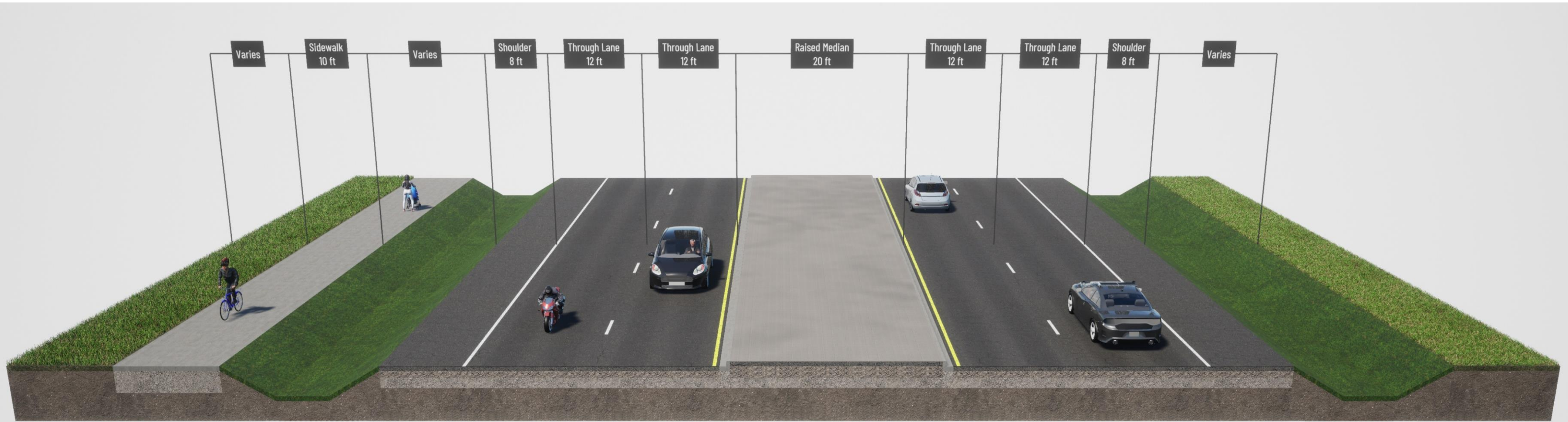


Figure 7: A Typical Section for the SD38 Four Lane Configuration with Raised Median Concept



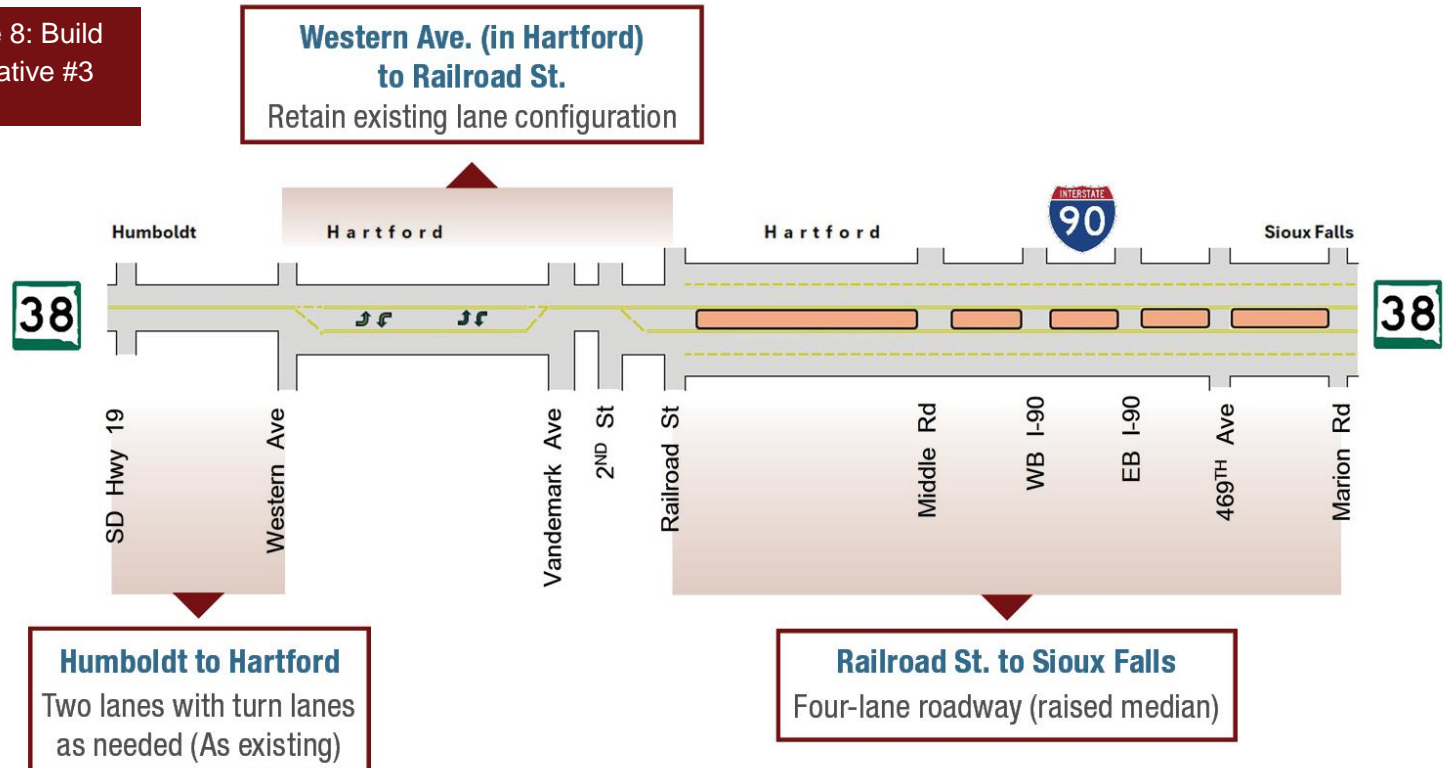
Build Alternative #3

Build Alternative #3 offers intersection improvements similar to those in Alternatives 1 and 2.

However, for the mainline corridor, Alternative #3 divides the route into three distinct segments, as described below:

- **Humboldt to Hartford:** Two lanes with turn lanes as needed (as existing).
- **Western Avenue (Hartford) to Railroad Street:** retain the existing lane configuration in this segment: a three-lane configuration with a center turn lane from Western Avenue to Vandemark Avenue, and a two-lane section from Vandemark Avenue to Railroad Street (note that a traffic signal is proposed at the 2nd Street intersection).
- **Railroad Street to Sioux Falls:** Four-lane roadway (raised median).

Figure 8: Build Alternative #3



All three alternatives also include improvement alternatives to the I-90 Speedway entrance, realignment of the access near its current location, or relocation of the entrance approximately 500 feet east. In either entrance improvement option, a more perpendicular approach and eastbound and westbound turn lanes are proposed for easier access from SD38 to the I-90 Speedway.

I-90 Exit 390 Interchange Build Alternatives

Ten alternative options have been developed for the I-90 Exit 390 Interchange. These options are designed to accommodate typical interchanges, allowing traffic to enter or exit the SD38 and I-90 corridors. An Interchange Modification Justification Report (IMJR) will be prepared for this segment to obtain approval from the FHWA for modifying the existing interchange.

Of the ten options, six had significant impacts, including the displacement of businesses, residences, and the Hartford Wastewater Treatment Facility. Four options remain, although a preferred alternative has not yet been selected. Additional interchange configurations may also be considered during the IMJR process.

The four remaining options under consideration are:

1. Folded Diamond – 75 Degree Skew (50 mph – SD38)
2. Folded Diamond Interchange with Roundabouts
3. Single Point Urban Interchange (SPUI)
4. Diverging Diamond Interchange (DDI)

Further details about the interchange alternatives are provided in Appendix E

Recommendations and Programming

Based on the analysis of existing and future conditions, public feedback, and deliberations of the Study Advisory Team, comments from the two public meetings and the SAT, the design team put together a set of recommendations for the long-term vision of the SD38 corridor from Humboldt to Sioux Falls. Given the SSDOT's plans to modify SD38, it is possible that the final alternative will incorporate elements from the provided alternatives, considering public feedback, budgetary constraints, and other factors.

Recommended Build Alternative

Build Alternative #3

The SAT recommends Build Alternative #3 as the guiding corridor vision for future improvements in the SD38 corridor. Key features of this alternative include the use of raised medians, which reduce left-turn conflicts by channeling these maneuvers to common locations, thereby improving safety especially in locations of higher traffic volumes. Overall, Alternative #3 offers the best opportunity to significantly reduce crashes while also providing traffic operations performance at or above SSDOT standards for level of service. Key aspects of the SD38 corridor in this recommendation include:

- From Humboldt to Hartford, there will be no highway expansion, the roadway will remain as two lanes, with turn lanes added in select locations.
- Retaining the existing roadway section through Hartford is recommended, which includes a three-lane section with center turn lane from Western to Vandemark

Avenue, and a two-lane section eastward to Railroad Street.

- From Railroad Street to Sioux Falls, the recommended highway section is four lanes with a raised center median.

I-90 Interchange Project Development

After reviewing several potential interchange configurations as part of this study, SSDOT has determined that a more formal "Interchange Modification Justification Report" (IMJR) process needs to be undertaken. This IMJR process enables an in-depth evaluation of alternatives and the traffic implications of them. Ultimately, this process is part of obtaining agreement from the Federal Highway Administration (FHWA) for major construction and impacts to the interstate system.

The IMJR process started in 2024 and is expected to be completed by 2026 to allow for project programming, ensuring that any interchange changes can be integrated into SSDOT improvement program.

Example of a four-lane roadway with Raised Median West of Marion Road



Other Recommendations

In addition to the Build Alternative components, there are other recommendations needed to improve the mobility and safety of SD38 as the new development comes to the corridor.

Short-term improvements

After analyzing the alternatives, it became clear that some road sections and intersections may require modification as short-term improvements. These changes will enhance traffic safety and flow along the corridor, and they are both cost-effective and easy to implement.

The short-term improvements include reduction in passing zone, vertical curve grading, and super elevation corrections. Figure 21 shows a summary of short-term improvements. For additional graphics on short-term improvements refer to Appendix F.

Passing lanes

The SD38 Corridor Study analyzed the existing passing zones, based on available profile data. Prior to implementation, either a topographic or site distance field survey should be conducted. The design team found that some zones may need to be modified, allowing safer passing and improving traffic flow.

- The primary section needing modification is between 456th Street in Humboldt and Western Ave (463rd St) entering Hartford.
- Within Hartford, the study recommends eliminating the existing passing zones.
- Between Hartford and Sioux Falls, the study suggests both modifying and/or removing some existing passing zones.

Vertical Curve Grading

Several vertical curves exist along the SD38 corridor, some of which do not provide adequate stopping site distance. Inadequate stopping sight distance creates unsafe driving conditions and should be corrected. The SD38 corridor study analyzed the vertical curves based on available survey and design data. Prior to implementation, a topographic survey of these areas should be performed. In the short term, vertical curve grading may be necessary in the following segments:

- Highway segment between Middle Dr and 466th St
- East of Skunk Creek along SD38
- Two highway sections between La Mesa Drive and Marion Road.

Example of a “sag vertical curve” located east of Skunk Creek, where limited sight distance creates safety risks.



Super Elevation Corrections

In addition to concerns with existing passing zones and vertical curves, the horizontal curves along the SD38 corridor have deficiencies, as highlighted during public meetings. The design team studied the highway segment to identify areas where superelevation may need correction. Prior to implementation, a topographic survey of the roadway should be performed.

Four sections between Humboldt and Hartford, as well as within Hartford to Exit 390 of EB I-90, may require superelevation corrections. Additionally, one section east of 467th Avenue also may need improvement.

Intersection modifications

To achieve an optimum Level of Service on the corridor segments, intersections within the study corridor should be monitored for changes in traffic volume. Future capacity improvements or traffic signal installations should be planned as needed.

According to HCM Traffic Intersection Operations, six of the eighteen intersections along the corridor will achieve a better LOS when converted from a Two-Way Stop Control (TWSC) to traffic signals. These intersections are:

- Western Avenue (463rd Avenue)
- 2nd Street
- Railroad Street/464th Avenue
- Mickelson Road/ 260th Street
- County Highway 141/468th Avenue
- La Mesa Drive/470th Avenue

Based on public concerns about safety and traffic flow, the SAT recommends traffic signals at 2nd Street and Mickelson Road/ 260th Street in the short term. These intersections particularly stand out as warranting the use of a traffic signal.

2nd Street and SD38

The intersection of 2nd Street and SD38, near West Central High School, poses traffic and safety concerns, which were highlighted during public meetings. Crossing SD38 is challenging due to high vehicle speeds, and northbound traffic on SD38 turning left into the school often creates bottlenecks.

Installing a traffic signal would help regulate vehicle flow. The signal could also coordinate with the existing HAWK pedestrian beacon to enhance safety for pedestrians and bicyclists.

Pedestrian crosswalk at E 2nd Street and SD38



Mickelson Road/260th Street

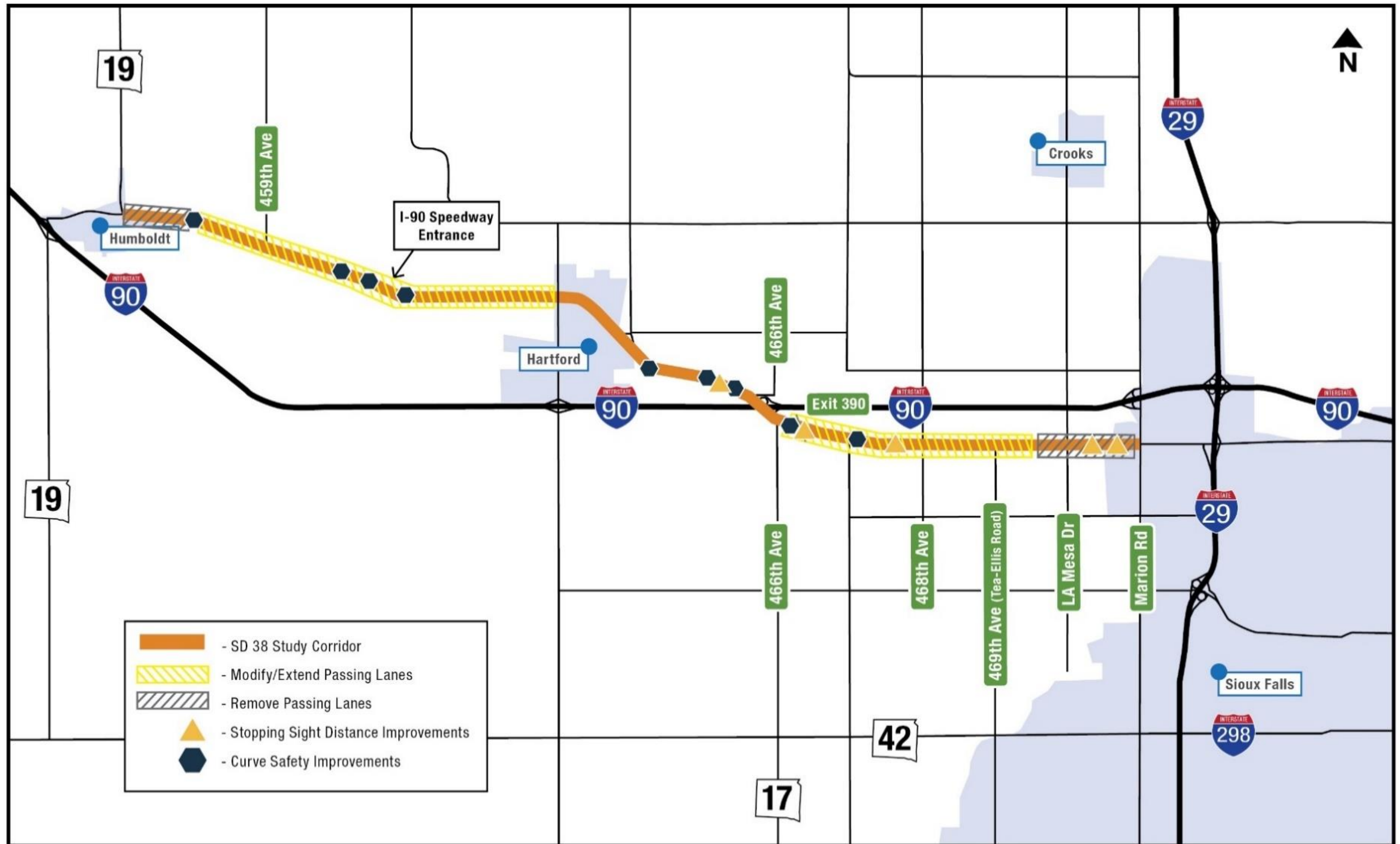
Future traffic forecasts predict an 'F' rating for the SD38 & Mickelson intersection, indicating significant delays. During public engagement, concerns were raised about northwest-bound left turns, due to high-speed oncoming traffic and the potential for increased congestion once the apartments are fully built.

As a short-term solution, a traffic signal may be necessary at the Mickelson (260th Street) intersection due to the current heavy traffic volume and the anticipated increase once the nearby developments, including Maple Pass Apartments and Townhomes, are completed.

The Mickelson Road/260th Street intersection is the focus of substantial development changes.



Figure 9: Short-term Improvements on SD38



Access Closures

There are multiple access points along the mainline SD38. Findings from this study indicate the need for a comprehensive access management plan to better control turning movements onto the highway from adjoining lands. A reduction in the total number of access points can be achieved through strategies such as consolidation (e.g., eliminating redundancies) and relocation (e.g., moving to a section-line road where possible). Improving access control will also enhance through-traffic flow and reduce potential crashes along mainline SD38. Access modification and removal recommendations are shown in the attached exhibits.

Safety Analysis

Several sections of the SD38 corridor have shown high accident rates, and the public has raised concerns about speeding. In response, the project team recommends conducting a speed study to assess the need for potential speed limit modifications as development continues along the corridor.

Additionally, the numerous access points and driveways increase the risk of crashes for nearby residents. To address these safety concerns, SDDOT should also consider implementing speed-calming measures, such as roundabouts, to support speed reduction efforts.

Implementation Considerations

When funding becomes available, SDDOT should prioritize safety improvements along the SD38 corridor. This could include installing traffic signals, marked pedestrian crossings, and other traffic-calming measures.

These recommendations should align with the multimodal improvements proposed for the SD38 corridor in the Sioux Falls MPO and Long-Range Transportation Plan (LRTP) for 2045 and the 2024-2027 SDDOT Statewide Transportation Improvement Program, respectively. We recommend that the improvements also include enhancements such as lighting and landscaping to improve both safety and the overall aesthetic appeal of the corridor.

Appendices

Appendix A1: Traffic Operations and Crash History

Appendix A2: Future No-Build Traffic Operations and Safety Analysis

Appendix B: Environmental Screening Report

Appendix C: Public Engagement

Appendix D: Build Conditions

Appendix E: I-90 Exit 390 Interchange Build Alternatives a

Appendix F: Short-term Improvements

Appendix G: Cost Estimates for Project Segments