COMMISSIONER MEETINGS
All meetings take place in the Commissioners Conference Room (308)
located in the Ostlund Building @ 2825 3rd Ave N (3rd Floor)
and are open to the public unless otherwise noted

THURSDAY - JUNE 11, 2026

8:45 Calendar

9:00 COMMISSIONERS DISCUSSION

PLEDGE

DEPARTMENTS

1. **Elections -** May/June Election Office Update
2. **Planning Department -** 21st St. Underpass Study Recommendation to the Policy Coordinating Committe
3. **Treasurer's Office -** Service Complaints/Motor Vehicle 2.5% Charge
4. **County Attorney -** Ivy Correctional Medicine- first amendment to PSA
5. **Mana Seward -** Art at MontanaFair
6. **Big Sky Economic Development -** Lockwood TEDD Phase Infrastructure Approach
7. **Melanie Schwarz & Karen Sylvester -** Community Prevention Quarterly Update

COMMISSIONERS

1. Commissioner Board Reports

PUBLIC COMMENTS ON COUNTY BUSINESS

**Public comment is an opportunity for individuals to address the Board, however, the Board cannot engage in discussion or take action on items not properly noticed on the agenda. Public comment is limited to 3 minutes per individual.*

CLOSED: Claims- Cooper, Frickle Litigation update- Dauenhauer

CLOSED: Vlahos v. BOCC

B.O.C.C Thursday Discussion 1.

Meeting Date: 06/11/2026

Title: May/June Election Office Update

Submitted By: Dayna Causby, Election Administrator

TOPIC:

Elections - May/June Election Office Update

BACKGROUND:

Monthly Update for May. Projected information for the month of June for the Election office.

RECOMMENDED ACTION:

Discussion

B.O.C.C Thursday Discussion 2.

Meeting Date: 06/11/2026

Title: 21st St. Underpass Study Recommendation to the Policy Coordinating Committee

Submitted By: Lora Mattox

TOPIC:

Planning Department - 21st St. Underpass Study Recommendation to the Policy Coordinating Committe

BACKGROUND:

The 21st St. Underpass is one of two grade-separated railroad crossings that link downtown Billings to the industrial and residential area south of the railroad. The 21st Street crossing is unique because it is the only grade-separated crossing that serves the central downtown area, making it one of the critical railroad crossings in Billings. However, there are significant limitations to the current use of the 21st Street underpass, including:

- Lack of vertical clearance for large vehicles (current clearance is 8 ft.)
- Narrow lanes without shoulders.
- Lack of bicycle lanes or other options for bicycles.
- Narrow, dark, debris-prone sidewalks for pedestrians.
- Periodic roadway drainage problems.
- Steep roadway grades on both approaches to the underpass.

After the Montana Department of Transportation (MDT) concluded that it would not construct a grade-separated crossing at the 27th St. railroad crossing due to community preference, the City considered improving the 21st St. underpass to allow additional types of vehicles to utilize the underpass. The City placed a project to improve the 21st St. underpass in its Capital Improvement Plan (CIP). As a result, the Billings Metropolitan Planning Organization (MPO) offered to assist in the process with a planning-level study of the underpass to provide options for improvements. The City has since identified the 21st Street underpass as part of its long-range CIP projects list.

Through the Request for Proposals (RFP) process, Kittelson & Associates, Inc. was selected as the consultant for the project with HDR as their sub-consultant. The two firms worked together to conduct an existing conditions analysis and two rounds of public outreach. They also communicated with BNSF Railway, which owns the structure. Based on the planning-level technical analysis completed by experts in traffic and structural engineering, and with input from the public and the project advisory committee, the consultants developed six alternatives for the underpass, which were reduced to four alternatives in consultation with the project advisory committee. The purpose of this study was to provide options to the City of Billings for potential improvements, not to select a particular alternative.

The four alternatives include:

Alternative 1: No Build Alternative

1: Alternative 1 maintains the infrastructure currently in place. This alternative means no actions are taken and no additional cost is incurred. This also means that heavy vehicles, including fire and emergency medical service (EMS) vehicles would still not be able to use the underpass. Additionally, bridge involved crashes may still occur due to limited vertical clearance, drainage issues will persist without an upgraded stormwater system, and sidewalks would continue to experience debris accumulation due to unstable slopes.

2. Cost Estimate: $0.

Alternative 2: Minor Improvements with Overheight Vehicle Warning System

1. Alternative 2 adds low-cost improvements with the goals of reducing the overheight vehicle crashes into the overpass bridge and improving the pedestrian environment under the bridge. The alternative

includes installing an overheight vehicle warning system, modifying the 21st Street underpass to improve the existing drainage system, and stabilizing the bridge abutment embankment slopes to reduce debris on the sidewalks.

2. Cost Estimate: $600,000-$800,000.

Alternative 3: Increase Clearance to 11.5 Feet with Minor Pedestrian Improvements

1. Alternative 3 includes moderate modifications of the bridge structure to increase the vertical clearance by approximately 3.5 feet to achieve a vertical clearance of approximately 11.5 feet (11'-6"), as well as adding pedestrian improvements and an overheight warning system like Alternative 2. This alternative would accommodate ambulances but continue to not accommodate fire apparatus, large EMS vehicles, and most commercial trucks.

2. Cost Estimate: $8-10 Million

Alternative 4: Increase Clearance to 13.5 Feet with Bridge Replacement

1. Alternative 4 increases the vertical clearance of the underpass to 13.5 feet. This alternative would allow heavy vehicles, including fire and emergency medical services (EMS), to utilize the underpass. In this alternative, achieving the increase in vertical clearance would require replacing the bridge structure, as the increase in roadway depth would expose existing bridge piles to a depth not meeting structural standards.

2. Cost Estimate: $26-30 Million

More than 400 people responded to the second survey, which presented the four alternatives. From highest to lowest, the public preferred:

1. Alternative 2 (Minor Improvements with Overheight Vehicle Warning System)
2. Alternative 3 (Increase Clearance to 11.5 Feet with Minor Pedestrian Improvements)
3. Alternative 1 (No Build)
4. Alternative 4 (Increase Clearance to 13.5 Feet with Bridge Replacement)

BNSF indicated that it would prefer an option that does not impact railroad operations. Of the two construction options, BNSF would prefer Alternative 3.

Another item that must be considered is the underpass's proximity to the Billings PCE federal Superfund site. Construction would likely require mitigation measures to be taken.

21st Street is not currently designated as an urban route within the Billings MPO and, therefore, is not eligible for federal funding through the MPO. To become eligible for federal funding, a request would need to be submitted to MDT to add the roadway to the urban system.

This study is now going through the MPO's review process, in which the governing bodies forward a recommendation of adoption or denial to the Policy Coordinating Committee (PCC), which makes the final decision on the study for the MPO. The expected review schedule is:

- Technical Advisory Committee - May 28, 2026
- Planning Board - June 9, 2026
- Board of County Commissioners Discussion - June 11, 2026
- Board of County Commissioners Regular - June 23, 2026
- City Council Work Session - June 15, 2026
- City Council Regular - June 22, 2026
- Policy Coordinating Committee - July 21, 2026

RECOMMENDED ACTION:

No action is requested at the June 11 BOCC Discussion meeting. MPO staff will be in attendance at the June 23 meeting and be available to answer questions if needed. The 21st Study will be placed on the Consent Agenda.

Attachments

21st Street Study

BILLINGS 21ST STREET RAILROAD UNDERPASS

BILLINGS, MONTANA

May 6, 2026

BILLINGS - YELLOWSTONE COUNTY MPO METROPOLITAN PLANNING ORGANIZATION

KITTELSON & ASSOCIATES

HDR

Inside front cover

Page Intentionally blank

BILLINGS 21ST STREET RAILROAD UNDERPASS

BILLINGS, MONTANA

Acknowledgements

The Billings – Yellowstone County MPO would like to acknowledge the following committees and individuals for their contributions in the development of this study. Their time and effort devoted to the process was instrumental in the development of this study.

PROJECT MANAGEMENT TEAM (PMT)

- Elyse Monat (Billings – Yellowstone County MPO)
- Lora Mattox (Billings – Yellowstone County MPO)

PROJECT ADVISORY COMMITTEE (PAC)

- Roy Neese (City Council Ward 2)
- Jay Anderson (Yellowstone County Public Works)
- Dakota Martonen (City Engineer's Office)
- Stephanie Donovan (Bicycle and Pedestrian Advisory Committee)
- Rusty Logan (MET Transit)
- Kurtis Schnieber (Montana Department of Transportation)
- Samantha Wood (Montana Department of Transportation)
- Janet Hardy (Phillips 66)
- Michelle Williams (Billings Depot)
- Mehmet Casey (Downtown Billings Alliance)
- Heather Doty (Billings Industrial Revitalization District (BIRD))

CONSULTANT TEAM

Kittelson & Associates, Inc.

- Justin Delgado
- John Ringert, PE
- Andy Daleiden, PE
- Ly Nguyen
- Mikayla Montoya

HDR

- Lisa Fisher, PE
- Brittany Cremer, MSPR
- Spencer Dodge, MA

Page Intentionally blank

TABLE OF CONTENTS

Introduction 1

Area Overview 1

Project Background 1

Previous Studies 2

Project Intent 3

Project Process and Breakdown 3

Project Assumptions 4

Public Outreach 6

Project Advisory Committee 6

Public Involvement Comments 7

Existing Conditions 9

Transportation System Inventory 9

Transportation Volumes and Operations 11

Crash History 16

21st Street Underpass Structure and Drainage Evaluation 18

21st Street Underpass Vertical Design Evaluation 19

Future Traffic Conditions 22

Alternatives Evaluation 26

Initial Alternatives Screening 26

Review of Final Alternatives 27

BNSF Review Comments 42

Alternatives Evaluation Criteria 42

Alternatives Evaluation 44

Funding Sources & Regulatory Compliance 46

Funding and Grant Opportunities 46

Regulatory Compliance 47

LIST OF FIGURES

Figure 1 Project Study Area 1
Figure 2 Project Process 3
Figure 3 Existing Year 2025 AM & PM Peak Hour Traffic Volumes 13
Figure 4 Existing Conditions Overview 20
Figure 5 Future Year 2045 AM & PM Peak Hour Traffic Volumes 23
Figure 6. Alternative 1: No Build 28
Figure 7. Alternative 1: Existing Street Sections 29
Figure 8. Alternative 1: Existing Bridge Structure 29
Figure 9. Example of a Vertical Clearance Warning System 30
Figure 10. Alternative 2: Maintain Existing 8 Feet of Vertical Clearance with Warning System 31
Figure 11. Alternative 2: Existing Street Sections and Example Devices 32
Figure 12. Alternative 2: Bridge Structure 32
Figure 13. Alternative 3 Concept: Increase Vertical Clearance to 11.5' with Pedestrian Improvements 35
Figure 14. Alternative 3 Street Sections 36
Figure 15. Alternative 3 Bridge Structure 36
Figure 16. Alternative 4 Concept: Increase Vertical Clearance to 13.5' 40
Figure 17. Alternative 4 Cross-Sections 41
Figure 18. Alternative 4 Bridge Structure 41

LIST OF TABLES

Table 1: Major Transportation Facilities 9
Table 2: Study Area Rail Crossings 10
Table 3 Existing 24-hour Bidirectional Vehicular Volumes 11
Table 4: Heavy Vehicle Activity Summary – Percentage of Total Traffic 12
Table 5 Existing Year 2025 Weekday AM and PM Traffic Operations 12
Table 6: Rail Activity Summary 14
Table 7. Existing 24-hour Bidirectional Pedestrian and Bicycle Volumes 15
Table 8. Crashes by Collision Type – 2019 to 2023 16
Table 9. Crashes by Severity – 2019 to 2023 17
Table 10 Future Year 2045 Weekday AM and PM Traffic Operations 22
Table 11 Initial alternatives 26
Table 12 Alternative 2 Cost Estimate 33
Table 13 Alternative 3 Cost Estimate 37
Table 14 Alternative 4 Cost Estimate 39
Table 15 Evaluation Criteria 43
Table 16 Alternative Evaluation 44

LIST OF APPENDICES

Appendix A – Public Involvement Plan
Appendix B – PAC Presentations and Meeting Minutes
Appendix C – Public Involvement Summaries and Raw Survey Responses
Appendix D – Existing Conditions Memorandum
Appendix E – Alternatives Evaluation Memorandum

Billings Metropolitan Planning Organization (MPO) Statement

The Billings Metropolitan Planning Organization (MPO) provides continuing, cooperative, and comprehensive (3C) transportation planning services for the Billings Metropolitan Planning Area in accordance with requirements established by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). These planning efforts ensure that the regional transportation system supports current and future needs through a balanced, multimodal approach that considers all modes of travel, including roadway, transit, bicycle, and pedestrian facilities.

MPO activities include identifying transportation needs, evaluating potential projects, and developing planning-level concepts to inform decision-making. This may involve assessing existing infrastructure, identifying opportunities for public improvements, and preparing conceptual designs and cost estimates.

The Billings MPO does not advocate for, prioritize, or approve specific infrastructure projects or construction activities. Instead, the MPO's role is to maintain a coordinated, data-driven, and inclusive framework for evaluating transportation options and facilitating collaboration among jurisdictions, agencies, and the public to achieve a safe, efficient, and accessible regional transportation network.

Page intentionally blank.

Section 1
INTRODUCTION

INTRODUCTION

Area Overview

Freight rail is a cornerstone of the City of Billing's history; the city was named for the Northern Pacific Railway president. Montana Rail Link (MRL) operated a railroad with a mainline that runs through downtown Billings until January 1, 2024, when the Burlington Northern Santa Fe Corporation (BNSF) took over control of the line. Rail activity in the City of Billings helps support three regional oil refineries (in Billings, Laurel, and Lockwood), coal extraction in southeastern Montana, other mining and mineral extraction, agricultural products, and a conglomeration of other smaller industries.

FIGURE 1 PROJECT STUDY AREA

While the railroad serves the critical movement of goods through Billings, it also presents a physical barrier to people needing to travel north and south in the city. Several at-grade rail crossings exist in the city including 27th Street (Highway 3), Broadway Avenue, 29th Street, 21st Street, and 13th Street. When a train is present, at-grade rail crossings may result in delays for pedestrians, bicycles, and vehicles, queues accumulating, and diverted EMS vehicles. The 21st Street underpass provides one of the only grade-separated crossings of the railroad downtown and is the subject of this study.

Project Background

Ideally, grade-separated crossings provide unobstructed passages for road users and can serve as alternative routes for users that do not wish to risk being delayed by a train passing through an at-grade crossing. However, the design of 21st Street crossing impacts the use of 21st Street as an alternative and the location of the 13th Street crossing may dissuade or not provide a viable alternative for many users wanting to access downtown.

The 21st Street underpass has low vertical clearance (8 feet) that makes it unusable for most large vehicles and presents a potential safety hazard to the rail infrastructure in the event a vehicle strikes the bridge requiring significant repair or bridge failure. In addition to height restrictions, there are significant concerns shared by the public, City, and local community members regarding the sidewalks, drainage, lighting, and lack of bicycle facilities, which present further barriers to using the corridor.

This study evaluates feasible alternatives to improve the 21st Street grade-separated rail crossing. Alternatives focus on opportunities to improve vehicular access, drainage, and enhancement of the pedestrian and bicycle experience.

Previous Studies

Many completed studies evaluated changes to the transportation system in downtown Billings. These include the following:

YEAR	RELEVANT TRANSPORTATION STUDIES
2023	A 2023 27th Street Railroad Crossing Final Report looked at short- and long-term alternatives for the 27th Street crossing, including grade separation options and costs, and ITS concepts.
2021	The 2021 Fifth Avenue Corridor Feasibility Study evaluated redeveloping the 5th Avenue North Corridor as a non-traditional and non-motorized corridor through downtown Billings.
	The 2021 Billings Downtown Traffic Study evaluated alternatives for improving transportation in the downtown area, including conversion of streets from one-way to two-way. This study included a study of reducing the number of lanes on Montana Avenue from three lanes to two lanes between Division Street and 21st Avenue.
2018	The Final 2018 Billings Urban Area Long Range Transportation Plan collected feedback from a steering committee and the public at large on many transportation issues facing the City of Billings. Delays and roadway closures near at-grade crossing were identified as one of the public's primary concerns in the downtown area. Potential solutions noted by steering committee and public included constructing new grade-separated crossings, relocating rail out of downtown, installing warning signs with real-time information systems, and improving existing grade-separated crossings.
2016	The 2016 Montana Rail Grade Separation Study generated a list of at-grade and grade-separated railroad crossings where potential feasible improvements may be considered. The study detailed improvement options for the 13th Street and 21st Street underpasses, such as modification to the horizontal and vertical clearances to facilitate legal height truck usage.
2004	A 2004 Railroad Crossing Feasibility Study, commissioned by the City of Billings, identified an underpass at 27th Street, which included shifting and raising the railroad, as the most beneficial long-term alternative. Additionally, this study identified several short-term improvements which could improve traffic operations in downtown Billings. These included the installation of advance railroad warning signs downtown (which was subsequently implemented), a downtown quite zone (implemented in 2008) and adding a southbound left-turn phase at the 27th Street/Montana Avenue intersection (which has been implemented), but did not provide a detailed analysis.
2003	A 2003 Montana Rail Grade Separation Study looked at the feasibility of railroad grade separation at 20 sites across Montana. These sites included 27th, 28th, and 29th Street at grade crossings
2000	A 2000 study looked at the reconstruction of the MRL bridge over 21st Street which found that clearance for ambulance vehicles would require at minimum 9 feet 6 inches of vertical clearance, but that the city would not achieve this clearance if it meant that a gravity storm system could not be maintained at the site.
1997 - 1958	Additional studies focusing on or including the 27th Street at-grade crossing have been documented in 1958, 1960, 1962, 1964, 1980, and 1997.

Project Intent

The intent of this study is to expand on previous studies, provide a more detailed analysis of the underpass as it exists and functions today, identify and evaluate opportunities for improvement, and collect public feedback on the costs and benefits associated with improvements.

Project Process and Breakdown

The development of this study included repeated engagement of stakeholders included on the Project Advisory Committee (PAC) and members of the public. This served to inform each stage of the study from its analysis of existing conditions to its development of final alternatives. Figure 2 provides a high-level project process outline.

FIGURE 2 PROJECT PROCESS

INITIAL ALTERNATIVES SCREENING

This project initially evaluated six alternatives for 21st Street and its surrounding corridors. These alternatives were evaluated for fatal flaws and presented to the PAC. The PAC recommended four alternatives be carried forward and analyzed as final alternatives.

FINAL ALTERNATIVES

Four alternatives were carried forward after initial screening. These alternatives underwent another round of assessment to refine project details, design considerations, cost estimates, and additional vetting by the public and PAC. A screening analysis was completed for all alternatives whose results are presented in this report. This study presents the evaluation of alternatives that include strategies to enhance the safety, multi-modal accessibility and roadway conditions of 21st Street.

Project Assumptions

While Billings is currently undertaking significant changes to its downtown roadway network, none of the construction projects active during this study's completion impacted the analysis described in this study. This study did not assume any changes to the roadway network impacting the study area. This project also did not account for any planned or desired redevelopment in downtown Billings. The City is actively undergoing an update to its comprehensive plan and is creating a transportation corridor plan, both of which may provide additional vision and context for the city and study area.

Section 2
PUBLIC OUTREACH

PUBLIC OUTREACH

A comprehensive public involvement plan (PIP) was developed and implemented for engaging the community. The (PIP) included the following activities:

- Hosting a project website;
- Conducting two rounds of virtual feedback collection (surveys) in June 2025 and December 2025 / January 2026;
- Engaging with the PAC through four meetings, and;
- Interviewing community members

Feedback from the community was used to aid in the development and assessment of alternatives. The goal was to provide transparency throughout the process and for the public outreach to objectively assist in the effort to identify opportunities and challenges with the existing underpass, and subsequent alternatives. The complete PIP is found in *Appendix A*.

Project Advisory Committee

The PAC served as a guidance and oversight body for the study. They were engaged on four separate occasions. These took the form of hybrid (in-person or virtual) meetings where findings at various study stages were presented to the committee for their review and discussion. Presentations given to the PAC and meeting minutes are included in *Appendix B*. The PAC included the following representatives (excluding MPO and consultant staff):

- Jay Anderson (Yellowstone County Public Works)
- Dakota Martonen (City Engineer's Office)
- Roy Neese (City Council Ward 2)
- Stephanie Donovan (Bicycle and Pedestrian Advisory Committee)
- Rusty Logan (MET Transit)
- Kurtis Schnieber (Montana Department of Transportation)
- Samantha Wood (Montana Department of Transportation)
- Janet Hardy (Phillips 66)
- Michelle Williams (Billings Depot)
- Mehmet Casey (Downtown Billings Alliance)
- Heather Doty (Billings Industrial Revitalization District (BIRD))

Public Involvement Comments

Two public online open houses with surveys were completed as part of the public and stakeholder outreach. Comprehensive public involvement summaries and raw survey responses are included in *Appendix C*.

The first round of public involvement took place from June 9th, 2025 to June 30th, 2025 and gathered input on the current use and suggested improvements to the 21st Street underpass. The survey received 446 individual responses. Key input from the first round of public comments included the following:

The survey received **446** individual responses

Nearly **50%** of the respondents indicated they **didn't use the underpass** on a weekly basis.

The areas for improvements, listed in level of importance, included:

- Increasing clearance levels
- Improving drainage
- Improving lighting
- Updating and improving sidewalks, bike paths, and mobility

Approximately **25%** of the respondents felt the City **should save money** by not updating the overpass and reallocating the money elsewhere.

Public involvement round two took place from December 16th, 2025 through January 21st, 2026, and collected feedback on the four final alternatives. In total, 429 individual responses were received with 80% of respondents indicating they currently use the underpass, and 86% of respondents indicating they were residents of the city. Key takeaways are called out below:

The survey received **429** individual responses

Alternatives preference from highest to lowest:

1. **Alternative 2**
   Minor Improvement with Overheight Warning System
2. **Alternative 3**
   Increase Vertical Clearance to 11.5' with Roadway Modifications
3. **Alternative 1**
   No Build
4. **Alternative 4**
   Increase Vertical Clearance to 13.5' with Roadway Modifications

Approximately **55%** of open-ended feedback indicated that:

- Cost was a considerable concern
- Upgrading alternate routes are a higher priority
- 27th Street is better connected

When asked whether funding came from federal sources would change the order of preference, **80% responded, no.**

Section 3
EXISTING CONDITIONS

EXISTING CONDITIONS

The evaluation of the existing conditions provides a baseline for the identification of applicable strategies and the evaluation of alternatives. *Appendix D* contains a comprehensive analysis of existing conditions.

Transportation System Inventory

STUDY AREA AND ROADWAY FACILITIES

The study area includes the 21st Street corridor, 27th Street, Montana Avenue, Minnesota Avenue, and 13th Street. Streets in this area are typically two to four travel lanes with some on-street parking and sidewalks. The downtown area contains a mix of one-way and two-way streets. The 27th Street and 13th Street crossings were included to analyze any potential impacts to their operations resulting from changes to the 21st Street underpass. Table 1 summarizes the characteristics of major roadways within the study area.

TABLE 1: MAJOR TRANSPORTATION FACILITIES

ROADWAY	BILLINGS MPO FUNCTIONAL CLASSIFICATION[1]	FEDERAL FUNCTIONAL CLASSIFICATION[2]	NUMBER OF LANES	POSTED SPEED (MPH)	SIDEWALKS	BICYCLE LANES	ON-STREET PARKING
Montana Avenue	Principal Arterial	Other Principal Arterial	3 Lanes	25	Yes	No	Yes
Minnesota Avenue	Local	Local	2 Lanes	25	Partial	No	Yes
27th Street	Principal Arterial	Other Principal Arterial	4-6 Lanes	25	Yes	No	No
N & S 21st Street	Collector	Local	2 Lanes	Not Posted[3]	Yes	No	No
N & S 13th Street	Principal Arterial / Collector	Minor Arterial	2-4 Lanes	25	Partial	No	No

1. *Per 2023 Billings Urban Area Long Range Transportation Plan.*
2. *Per MDT Urban Maps – Functional Classifications Maps.*
3. *Per the City of Billings Municipal Code Chapter 24 Article 24-300 25 miles per hour in the business district or any residential district should not be exceeded where no speed is posted. 25 MPH was assumed for the segment.*

INTERSECTIONS

Within the study area, four study intersections were identified and evaluated to understand how they operate and determine possible impacts with any changes to 21st Street. Study intersections along 27th Street and Montana Avenue are under MDTs' jurisdiction. All other intersections in the study area are under the City of Billings' jurisdiction.

- 27th Street and Montana Avenue
- 21st Street and Montana Avenue
- 27th Street and Minnesota Avenue
- 21st Street and Minnesota Avenue

PEDESTRIAN AND BICYCLE FACILITIES

As shown in Table 1, most study area roadways provide continuous sidewalks on one or both sides of the road. The notable exceptions are listed below.

- Minnesota Avenue only provides a sidewalk on the south side of the roadway between S 27th Street and 24th Street. It does not provide sidewalks in the vicinity of 21st Street.
- 13th Street only provides a sidewalk on its west side which ends as 13th Street turns into Minnesota Avenue south of the railroad tracks.

Pedestrian facilities exist on both sides of the street at the 21st Street underpass, however the sidewalks are known to flood, collect debris from the adjacent embankments, and be inadequately lit.

No dedicated bicycle facilities are present in the study area.

RAIL FACILITIES

In 2024, BNSF took over operations of the Montana Rail Link (MRL). MRL is now a subdivision of the Montana Division of BNSF. The MRL subdivision operates between Huntley, Montana and Spokane, Washington, passing through Missoula, Livingston, Bozeman, Billings, and Helena. The main rail yard is in Laurel, Montana, approximately 15 miles west of Billings. A smaller rail yard is in Billings. This yard runs parallel to and between Montana Avenue and 1st Avenue S, extending from S 29th Street to Underpass Avenue (6th Street W).

Nine rail crossings are present on the mainline in Billings. These include grade-separated crossings at Mullowney Lane, Laurel Road, Underpass Avenue (6th Street W), 21st Street, 13th Street, and at-grade crossings at Moore Lane, 29th Street, 28th Street/Broadway, and 27th Street. This project's study area focuses on the 21st Street underpass but includes the 27th Street and 13th Street crossings due to their proximity on either side of 21st Street. Table 2 includes a summary of the study area rail-crossings. Table 2 also provides information about warning devices used at at-grade crossings and restricted clearance at grade-separated crossings.

TABLE 2: STUDY AREA RAIL CROSSINGS

CROSSING LOCATION	GRADE-SEPARATED?	WARNING DEVICES	INTERCONNECTED SIGNALS	RESTRICTED CLEARANCE
13th Street	Yes	Clearance Warning on Structure and in Advance	Not Applicable	13'-8"
21st Street	Yes	Clearance Warning on Structure and in Advance as well as warning to Vehicles with Campers and Box Trucks	Not Applicable	8'
27th Street	No	Crossbucks, Pavement Markings, Constant Warning Time System, Gate Arms, Flashing Lights, and Bells	Interconnect with N 27th/Montana Avenue Intersection	-

TRANSIT AND EMS OPERATIONS

Due to height restrictions of 21st Street at the railroad underpass, Billings MET, the transit provider within the study area, does not utilize 21st Street between Montana Avenue and Minnesota Avenue. MET operates along a portion of the 27th Street corridor in the study area. It is unknown whether MET would utilize 21st Street if vertical clearance increased, as many factors influence transit routing.

The project team met with members of the Billings Fire Department, Billings Police Department and American Medical Response (AMR) (a division of Global Medical Response) to discuss their use and constraints utilizing the 21st Street railroad underpass. Findings from those interviews included:

- Billings Fire and AMR do not allow their vehicles to utilize the 21st Street corridor due to the height restrictions of the underpass.
- Billings Fire needs 13.5 feet of vertical clearance before they will allow their vehicles on 21st Street.
    - Not all fire vehicles require 13.5' clearance, but because Billings Fire alternates drivers on vehicles, they avoid the underpass completely in order to prevent confusion.
- Billings Fire has a station/crew south of the tracks, will pull resources from both north and south of the tracks during a structure fire.
    - If the 27th Street crossing is blocked by a train, they route vehicles to the 13th Street underpass.
- AMR exclusively route their vehicles to the 13th street underpass to avoid the probability of delays at the 27th street crossing.
    - AMR needs 10 feet of clearance before allowing their vehicles to utilize the 21st Street corridor.
- Billings Police does not have vehicle constraints currently but do respond to crashes on 21st Street associated with a vehicle versus bridge incident.

Transportation Volumes and Operations

AUTOMOBILE & TRUCK

Daily automobile traffic volumes were collected along 27th Street and 21st Street. Table 3 summarizes 24-hour traffic volumes along the 27th and 21st Street corridors.

TABLE 3 EXISTING 24-HOUR BIDIRECTIONAL VEHICULAR VOLUMES

CROSSING	VEHICULAR VOLUMES (TWO-WAY)		
	AM	PM	TOTAL
Rail Crossing at 27th Street	5,256	7,528	12,784
Rail Crossing at N 21st Street	321	638	959

Most vehicles classified as "heavy" are not able to utilize the 21st Street underpass due to height restrictions. These vehicles typically include buses, single unit box-type trucks, and large trucks with trailers. Table 4 shows the heavy vehicle activity at study intersections during the weekday AM and PM peak hours.

TABLE 4: HEAVY VEHICLE ACTIVITY SUMMARY – PERCENTAGE OF TOTAL TRAFFIC

INTERSECTION	WEEKDAY AM PEAK HOUR				WEEKDAY PM PEAK HOUR			
	NORTH-BOUND	SOUTH-BOUND	EAST-BOUND	WEST-BOUND*	NORTH-BOUND	SOUTH-BOUND	EAST-BOUND	WEST-BOUND
27th Street / Montana Ave	9%	6%	5%	0%	3%	3%	1%	0%
21st Street / Montana Ave	0%	0%	7%	0%	0%	0%	2%	0%
27th Street / Minnesota Ave	7%	7%	0%	0%	3%	3%	25%	0%
21st Street / Minnesota Ave	0%	0%	33%	0%	0%	0%	0%	0%

**Montana Avenue is a one-way street with eastbound traffic only.*

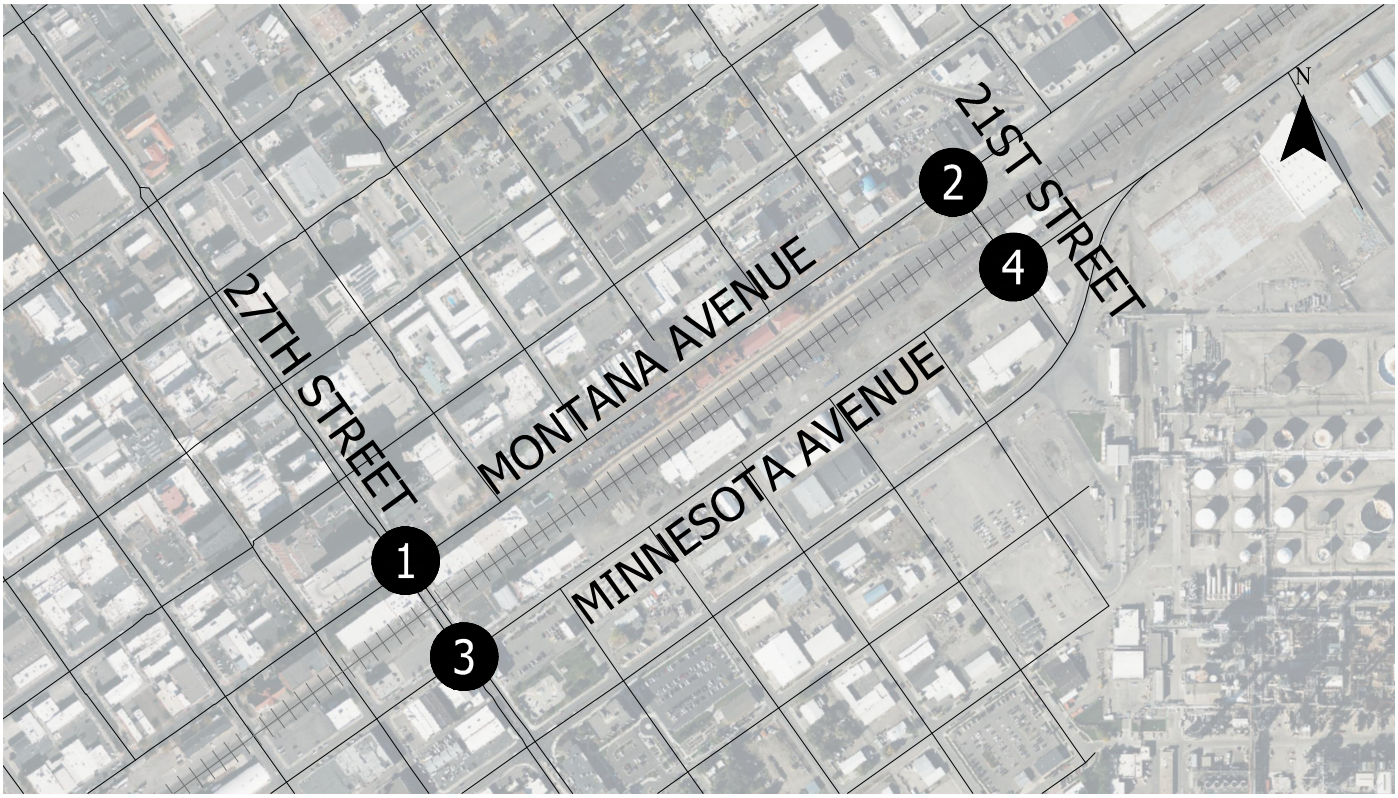
Daily, 21st Street at the underpass was found to have a heavy vehicle percentage of approximately 2.8% (FHWA classification of 4+ axles) with a total of approximately 27 heavy vehicles. Daily, 27th Street was found to have a heavy vehicle percentage of approximately 5.4%, with a total of approximately 695 heavy vehicles. Therefore, 27th Street is utilized by approximately 96% of the heavy vehicles that utilize either 21st Street or 27th Street and 21st Street only serves approximately 4% of the heavy vehicles.

Table 5 summarizes the existing traffic operations at each of the study intersections during existing year 2025 weekday AM and PM peak hours. All four study intersections operate acceptably during the existing year 2025 AM and PM peak periods. Existing traffic volumes at study intersections are shown in Figure 3. Count volumes are located in *Appendix D*.

TABLE 5 EXISTING YEAR 2025 WEEKDAY AM AND PM TRAFFIC OPERATIONS

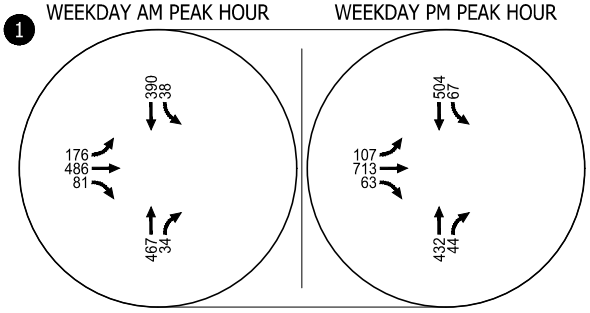
ID	Intersection	Intersection Control	Existing AM Peak Hour			Existing PM Peak Hour		
			V/C	LOS	Delay	V/C	LOS	Delay
1	27th Street / Montana Avenue	Signal	0.51	B	16.3	0.51	B	15.4
2	21st Street / Montana Avenue	OWSC[1]	0.07	B	10.2	0.12	B	12.6
3	27th Street / Minnesota Avenue	TWSC	0.04	C	15.5	0.10	C	22.4
4	21st Street / Minnesota Avenue	TWSC	0.01	A	9.6	0.05	A	9.5

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.
[1]Only the northbound approach is stop controlled.



27TH STREET / MONTANA AVENUE

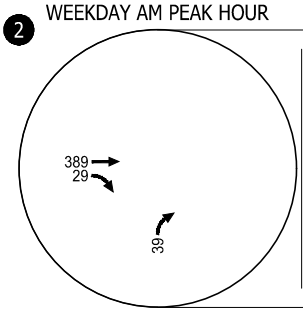
1 WEEKDAY AM PEAK HOUR



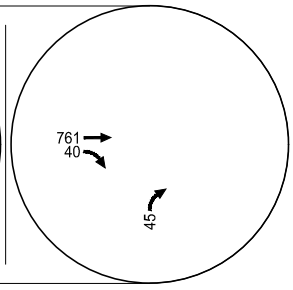
WEEKDAY PM PEAK HOUR

21ST STREET / MONTANA AVENUE

2 WEEKDAY AM PEAK HOUR

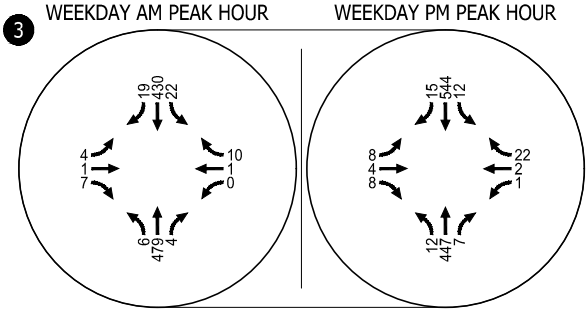


WEEKDAY PM PEAK HOUR



27TH STREET / MINNESOTA AVENUE

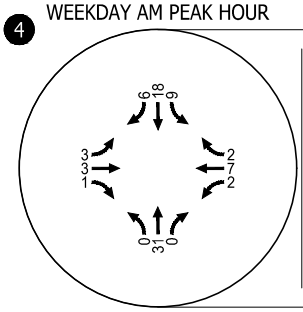
3 WEEKDAY AM PEAK HOUR



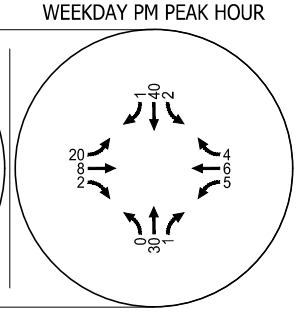
WEEKDAY PM PEAK HOUR

21ST STREET / MINNESOTA AVENUE

4 WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR



- Study Intersection

Year 2025 Existing Traffic Volumes
Weekday AM & PM Peak Hours
Billings, Montana

Figure
3

KITTELSON & ASSOCIATES

Traffic Diversion During Railroad Crossing

The traffic data on 21st Street and 27th Street were analyzed to determine whether real-time traffic diversion takes place between 27th Street and 21st Street when a train crossing interrupts the 27th Street crossing. A review of video footage captured during the count collection process identified five trains that passed through the 27th Street at-grade crossing in the AM (2) and PM (3) peak hours:

- 8:11:03 AM – 8:14:57 AM
  - 00:03:54 wait time
- 8:28:00 AM – 8:29:37 AM
  - 00:01:37 wait time
- 5:13:35 PM – 5:16:55 PM
  - 00:03:20 wait time
- 5:35:18 PM – 5:36:17 PM
  - 00:00:59 wait time
- 5:45:55 PM – 5:46:35 PM
  - 00:00:40 wait time

Based on a review of the traffic counts, there was not a corresponding increase in traffic volumes on 21st Street intersections when train crossings occurred at 27th Street. This indicates that during train crossings on 27th Street, traffic waits for the train or utilizes alternative routes other than 21st Street to cross the railroad. While active diversion to 21st Street from 27th Street during a train crossing was not observed based on a shift in traffic volumes, it is likely that some drivers choose to use 21st Street at certain times of the day that they anticipate 27th Street may be impacted by a train crossing.

RAILROAD ACTIVITY

Railroad activity in the study area was obtained from the Federal Railroad Administration (FRA) online highway-rail crossing inventory. Table 6 summarizes activity at at-grade crossings in the study area. Grade separated crossings like 21st Street and 13th Street do not have this information available, however, given their proximity to the 27th Street at-grade rail crossing, the characteristics are likely similar.

TABLE 6: RAIL ACTIVITY SUMMARY

CROSSING	DAILY THROUGH TRAINS (DAY/NIGHT)	DAILY SWITCHING TRAINS	MAX SPEED (MPH)	MIN SPEED (MPH)	NUMBER OF TRACKS (TYPE)
27th Street	18/18	6	25	5	2 (Main)[1]

Source: FRA

[1]The 21st Street rail bridge holds four tracks on top of it.

BICYCLE AND PEDESTRIAN VOLUMES AND LEVEL OF TRAFFIC STRESS

Pedestrian and Bicycle Activity

Pedestrian and bicycle activity along the 21st Street corridor is generally low. Table 7 summarizes the existing bidirectional peak hour pedestrian and bicycle volumes at rail crossings along 27th Street and 21st Street.

TABLE 7. EXISTING 24-HOUR BIDIRECTIONAL PEDESTRIAN AND BICYCLE VOLUMES

CROSSING	PEDESTRIAN VOLUMES			BICYCLE VOLUME		
	AM	PM	TOTAL	AM	PM	TOTAL
Rail Crossing at 27th Street	169	256	425	350	345	695
Rail Crossing at N 21st Street	1	16	17	8	19	27

Existing Pedestrian & Bicycle Level of Traffic Stress

Level of Traffic Stress (LTS) refers to the concept that users of a transportation facility have different tolerance levels for traffic stress. Traffic stress refers to a combination of factors including vehicle speeds, volumes, noise, fumes, etc. that can impact how different user groups (e.g., experienced bicyclist vs. new rider, adult vs. child, etc.) feel on a transportation facility. LTS scores range from 1 to 4 with 1 corresponding to high comfort/low stress for all users, and 4 indicating low comfort/high stress.

Pedestrian Level of Traffic Stress

Based on the presence of sidewalks on both sides of 21st Street, the two-lanes of traffic, and a speed of 25 mph, the study section was found to have a pedestrian LTS score of 2. This corresponds to a "high comfort for adults" definition according to the *Livable Streets Performance Measures* report. This procedure does not account for the lack of lighting and condition under the railroad structure.

Bicycle Level of Traffic Stress

Based on the speeds, lack of center line on 21st Street, and traffic volume level, the bicycle LTS was determined to also be a 2 in the study area segment of 21st Street. This corresponds to the following definition:

> *"Presenting little traffic stress and therefore suitable to most adult cyclists but demanding more attention than might be expected from children. On links, cyclists are…. on a shared road where they interact with only occasional motor vehicles (as opposed to a stream of traffic) with a low speed differential…Crossings are not difficult for most adults."*

Crash History

MDT provided crash data (2019 to 2023) for the study intersections and segments. A total of 74 crashes occurred at the four study intersections on 21st Street and 27th Street and on the study segment of 21st Street. Approximately 69% of those crashes occurred at the study intersections on 27th Street, which included one incapacitating injury crash at the 27th Street / Montana Avenue intersection.

Of the 23 crashes reported on 21st Street, approximately 13% occurred at the two study intersections. Approximately 87% of the crashes on 21st Street occurred along the 21st Street segment (i.e. not at an intersection), including approximately 12 crashes identified by MDT as involving the bridge/rail structure. Table 8 displays a summary of all crashes by collision type and displays a summary of all crashes by severity.

TABLE 8. CRASHES BY COLLISION TYPE – 2019 TO 2023

LOCATION	CRASH TYPE									TOTAL	ESTIMATED CRASH RATE[1]
	REAR END	ANGLE	TURNING	SIDESWIPE	FIXED OBJECT	HEAD ON	PEDESTRIAN	BICYCLISTS	OTHER		
27th St / Montana Ave	8	17	2	3	3	1		1	3	38	1.08
Montana Ave / 21st St			1							1	0.06
27th St / Minnesota Ave	5	5		2			1			13	0.66
21st St / Minnesota Ave		1							1	2	0.92
21st Street Segment[2]				3	17					20	11.42
Total	13	23	3	8	20	1	1	1	4	74	

[1] *Crashes per million entering vehicles*
[2] *Crashes between Intersections with Montana Avenue to the north and Minnesota Avenue to the South.*

TABLE 9. CRASHES BY SEVERITY – 2019 TO 2023

LOCATION	CRASH TYPE						
	FATALITY	INCAPACITATING INJURY	NON-INCAPACITATING EVIDENT INJURY	POSSIBLE INJURY	PROPERTY DAMAGE ONLY	UNKNOWN	TOTAL
27th St / Montana Ave		1	7	9	19	2	38
Montana Ave / 21st St					1		1
27th St / Minnesota Ave			1	4	8		13
21st St / Minnesota Ave				1	1		2
21st Street Segment Crashes[1]			1	2	17		20
Total	0	1	9	16	46	2	74

[1] *Crashes between Intersections with Montana Avenue to the north and Minnesota Avenue to the South.*

Based on the data presented above, the following trends were noted.

- The 21st Street segment between its intersections with Montana Ave to the north and Minnesota Ave to the south saw a significant number of crashes, given the relatively low traffic volumes.
    - The majority (approximately 60%) of the crashes along the segment involved the bridge structure.

The 2023 Billings LRTP project identified high crash corridors and intersections throughout the City of Billings. One of the project study intersections (27th Street and Montana Avenue) was the fifth highest Equivalent Property Damage Only (EPDO) value intersections in the LRTP.

In addition to MDT crash data, Billings Fire provided high-level response records for crashes occurring at the 21st Street Bridge (classified as bridge-involved). That data was from January 2019 through April 2025 and identified 26 bridge-involved crashes, three of which had an identified injury. One of the bridge hits involved an ambulance which corresponded with a change in use of the corridor described in the Transit and EMS provider section of this report. Figure 4 highlights some of the key findings from the existing conditions analysis.

21st Street Underpass Structure and Drainage Evaluation

Based on information from as-built plans and other design information for 21st Street and the railroad bridge structure provided by the City, an evaluation was conducted to provide insight into the ability to increase vertical clearance and make improvements for pedestrians and bicycles.

The as-built bridge plans and geotechnical information indicate that the existing bridge pier piles are supported in a relatively soft shale bedrock formation approximately 18 feet below the roadway with a pile tip (elevation of approximately 3088±). This information suggests that the piles develop a significant amount of their vertical strength from end bearing in the shale and that soil could be excavated adjacent to the pile at existing ground line with negligible impacts to the vertical strength. As-built plans also indicate that the minimum embedment required for lateral stability is approximately 15 feet. which would require a minimum groundline Elev. 3103±.

Surface drainage for the existing 21st Street roadway below the underpass is provided by two combination curb inlets located just south of the underpass at a sag curve low point. Based on as-built drawings from the *Replace Bridge 224 Over 21st Street Near Billings, MT project (as-builts)* and the City of Billings *Map Library Stormwater Drawings Viewer*, the combination curb inlet connects to a manhole located along the street that gravity drains via a 12" PVC storm drainpipe to the south and connects to a storm drain system running from west to east along Minnesota Avenue.

The existing 21st Street underpass is in an area of Billings known to have high groundwater. Using publicly available groundwater well logs obtained from the Montan Bureau of Mines and Geology Ground Water Information Center, wells surrounding the 21st Street underpass were reviewed to draw preliminary conclusions regarding groundwater in the area. Information from the six closest existing wells ranging in distance from approximately 500 to 800 feet from the 21st Street underpass were reviewed and identified static water levels ranging from 7 to 16 feet below ground. Using the approximate locations and elevations from the Montana Lidar Viewer produced estimated groundwater elevations ranging from approximately 3,105 to 3,109 feet.

As-built drawings indicate that the 12-inch PVC storm drainpipe has minimal upstream cover at the manhole near the underpass and a total elevation drop of 0.54 feet over a length of 168 feet, equating to a slope of 0.321%. From this information, maintaining a gravity storm drain system is not anticipated to be feasible if the storm drain inlets along 21st Street below the underpass are lowered. Additionally, due to the elevation of the sag point where the storm drain inlets are located, this would put the groundwater close to existing grade. Although this information is estimated preliminary information, it indicates a high likelihood of groundwater being located at a very shallow depth below the 21st Street roadway surface at the underpass. If the roadway profile is lowered, a pump system will likely be necessary to accommodate the storm drain system. Groundwater elevations will need to be considered as part of the design of improvements.

Based on the existing structural and drainage conditions, it is anticipated that lowering the 21st Street roadway below the underpass no more than three to four feet is feasible with minor modifications to the piers based on bridge as-builts. Widening the sidewalks under the existing structure are likely limited to a

small amount due to difficulty with installing retaining walls within the area of the existing bridge foundations.

Any stormwater improvements would be designed to maintain surface water collection in the storm drain system separate from groundwater to avoid soil contamination concerns from the nearby Billings PCE federal Superfund site. Construction of a storm drain and/or structural improvements would likely warrant dewatering and may require contaminated soil removal, both which would require proper mitigation measures.

Further investigation is required to understand impacts related to groundwater, utilities, storm drain, and sidewalk requirements associated with lowering the roadway profile.

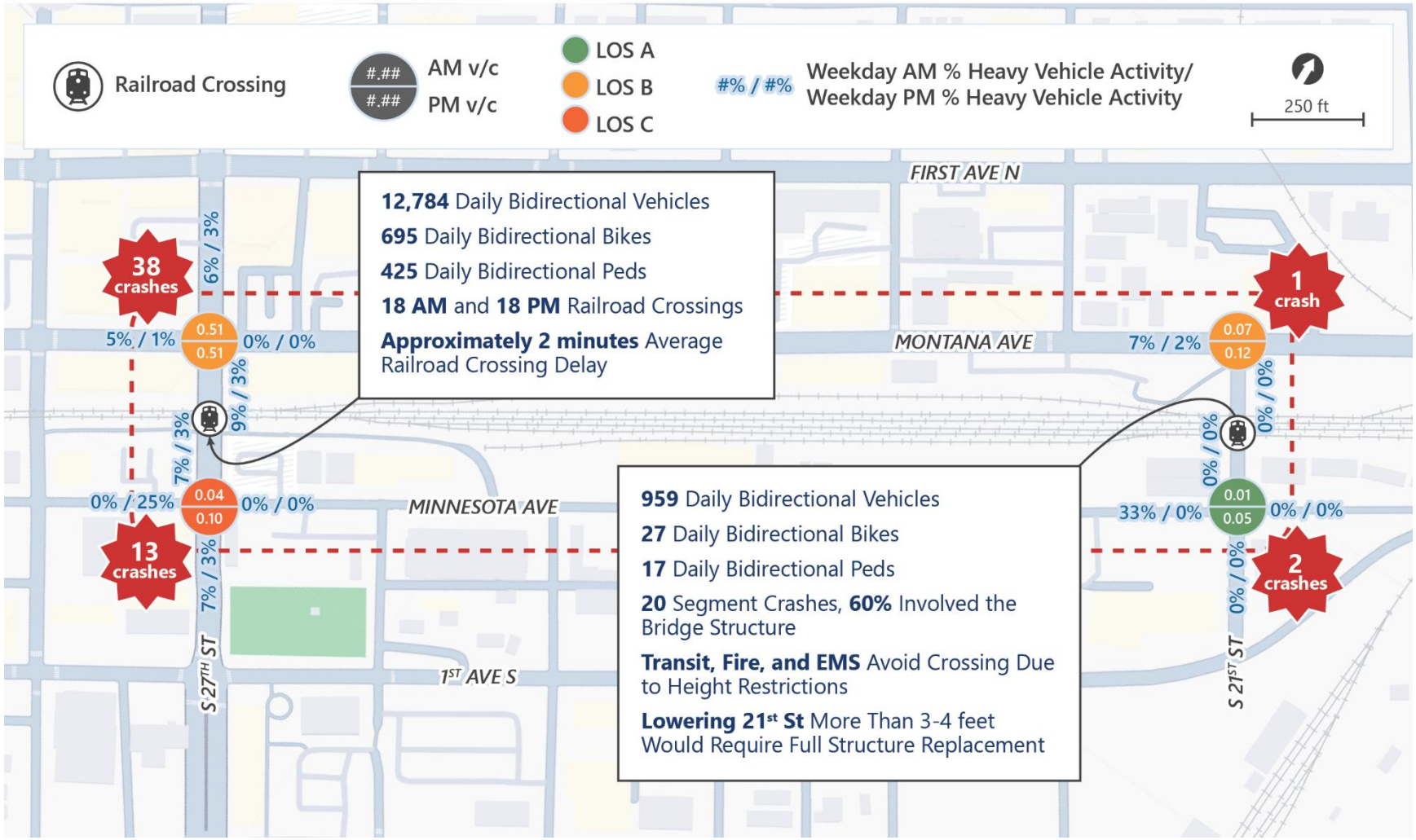
21st Street Underpass Vertical Design Evaluation

Based on review of the as-built drawings for 21st Street between Minnesota Avenue and Montana Avenue, the vertical curvature does not meet current AASHTO design policies with respect to the vertical curve lengths used to lower the roadway under the overpass. Vertical design elements that do not meet current policies include:

- **Grades at Pedestrian Crossings -** The vertical grade on 21st Street at the locations of the existing pedestrian ramps that serve the south pedestrian crossing across 21st Street at Montana Avenue and the north pedestrian crossing at Minnesota Street are approximately 4% and 5-6%, respectively. This is greater than the recommended 2% maximum cross-slope for crosswalk areas.
- **Vertical Curvature -** The lengths of the vertical curves on 21st Street between Montana Avenue and Minnesota Avenue are less than recommended for a speed of 25 mph, creating a lack of stopping sight distance during night driving as vehicles enter the sag curves under the railroad bridge.

Due to the limited distance between the railroad tracks and intersections of Montana Avenue and Minnesota Avenue, improving the existing curvature to meet stopping sight distance criteria in nighttime conditions is not possible without significant changes to Montana Avenue and Minnesota Avenue. The most effective option would be lowering the Montana Avenue and Minnesota Avenue intersections with 21st Street to reduce the vertical curvature on 21st Street. But that would require significant investment and would be in addition to lowering the intersections to provide additional clearance. Other low-cost options to improve stopping sight distance safety, while maintaining a similar vertical curvature, include installing street lighting to improve stopping sight distance at night and reducing the speed limit on 21st Street.

FIGURE 4 EXISTING CONDITIONS OVERVIEW



Section 4
FUTURE TRAFFIC CONDITIONS

Future Traffic Conditions

To analyze future year traffic conditions (2045), growth was forecast by reviewing travel demand model volumes and applying a growth rate to individual links. No projects were identified that would change the lane configurations at any of the study intersections before the year 2045. The complete analysis of future conditions analyzed is found in *Appendix D*.

FUTURE YEAR 2045 TRAFFIC OPERATIONS

A LOS analysis was conducted at the study intersections to assess how well they can accommodate forecast future traffic demands. The analysis methodology was the same as used in the existing conditions analysis. Table 10 shows the forecast traffic operations at each of the study intersections during future year 2045 weekday AM and PM peak hours. Figure 5 shows future year intersection volumes. Raw volumes used in this analysis can be found in *Appendix D*.

TABLE 10 FUTURE YEAR 2045 WEEKDAY AM AND PM TRAFFIC OPERATIONS

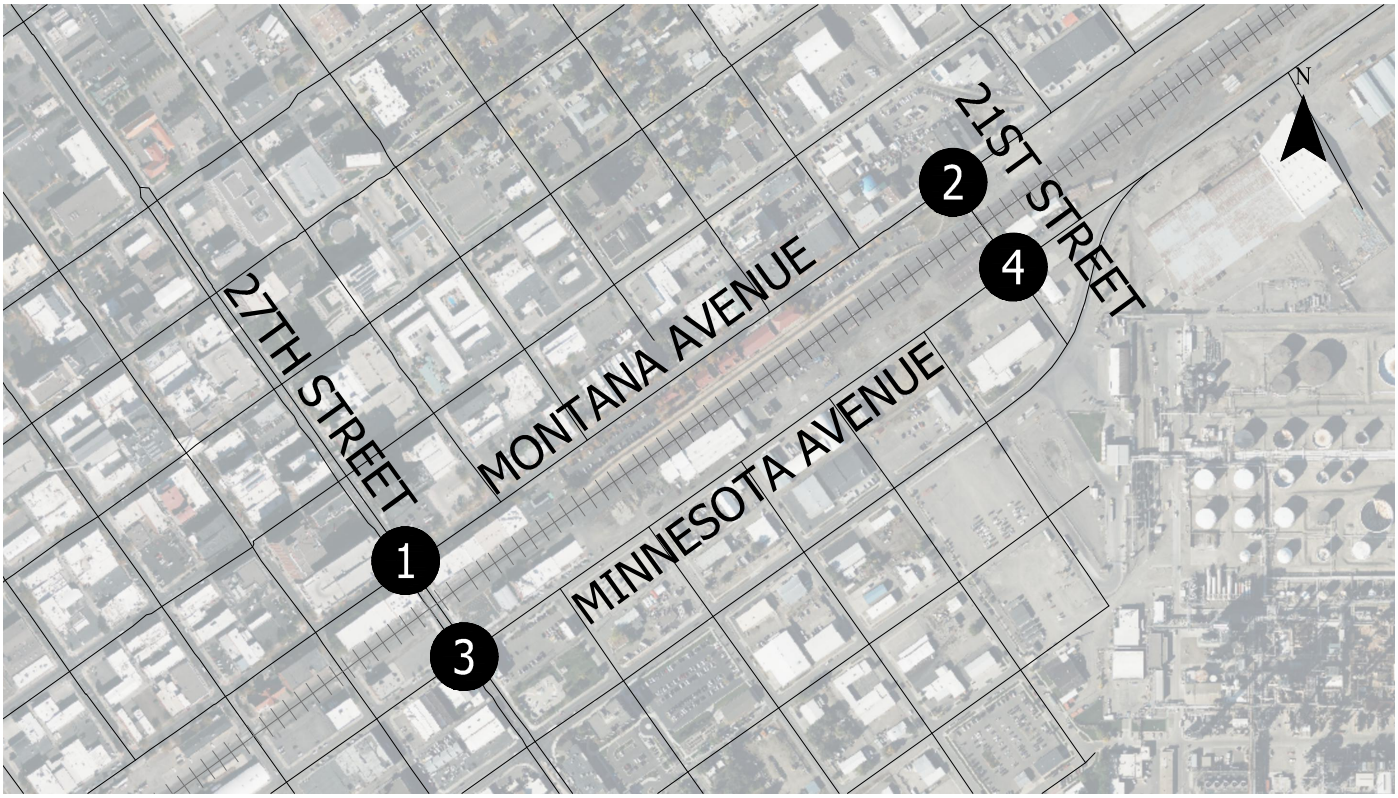
ID	Intersection	Intersection Control	Future AM Peak Hour			Future PM Peak Hour		
			V/C	LOS	Delay	V/C	LOS	Delay
1	27th Street / Montana Avenue	Signal	0.65	B	19.6	0.74	B	18.0
2	21st Street / Montana Avenue	OWSC[1]	0.22	B	12.5	0.29	C	16.5
3	27th Street / Minnesota Avenue	TWSC	0.05	C	19.0	0.13	***D***	***29.6***
4	21st Street / Minnesota Avenue	TWSC	0.02	B	10.4	0.08	B	10.7

V/C ratio is defined as vehicle-to-capacity ratio, which calculates the number of vehicles divided by the capacity of the roadway/intersection during the peak 15 minutes of the peak hour. LOS stands for Level of Service. Delay is reported in seconds per vehicle. Cells in the table above that are **bolded**, *italicized*, and highlighted indicate an intersection and/or lane group operating below the jurisdictional standards.
[1]Only the northbound approach is stop controlled.

All four intersections were found to operate acceptably in the year 2045 AM except for one intersection, which exceeds operations standards during the forecast year 2045 PM peak period:

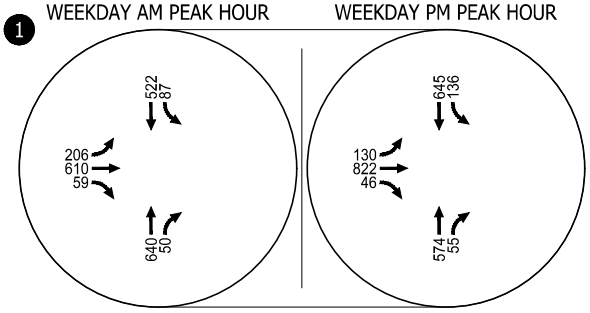
- The 27th Street and Minnesota Avenue Intersection is expected to operate at LOS D during the weekday PM peak hour. All movements operate at LOS B or better except the eastbound left turn movement. This movement has a v/c of 0.13 indicating it is significantly under capacity, so despite delay, drivers can find gaps to make their turn.

A planning-level signal warrant analysis was completed and found volume based warrant criteria were not met. Therefore, no operational improvements are recommended for the intersection as the delayed movement operates significantly undercapacity, and a signalized intersection is present one block south that drivers may use if they find recurring delays when repeatedly trying to make the eastbound left turn.



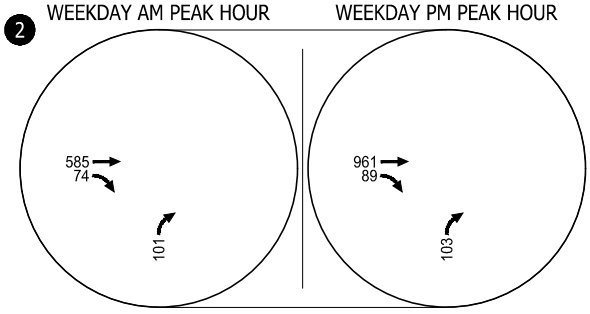
27TH STREET / MONTANA AVENUE

1 WEEKDAY AM PEAK HOUR WEEKDAY PM PEAK HOUR



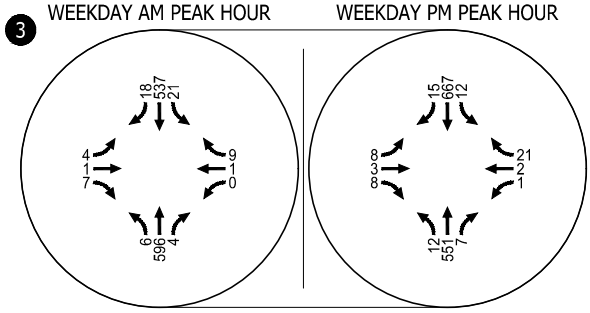
21ST STREET / MONTANA AVENUE

2 WEEKDAY AM PEAK HOUR WEEKDAY PM PEAK HOUR



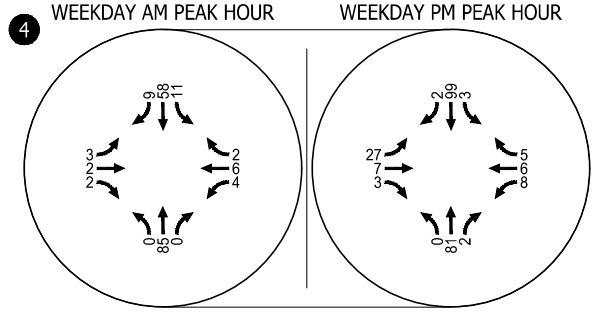
27TH STREET / MINNESOTA AVENUE

3 WEEKDAY AM PEAK HOUR WEEKDAY PM PEAK HOUR



21ST STREET / MINNESOTA AVENUE

4 WEEKDAY AM PEAK HOUR WEEKDAY PM PEAK HOUR



- Study Intersection

Year 2045 Future Traffic Volumes
Weekday AM & PM Peak Hours
Billings, Montana

Figure
5

KITTELSON & ASSOCIATES

INCREASE IN FUTURE YEAR 2045 TRAFFIC VOLUMES IF CLEARANCE WAS INCREASED TO ACCOMMODATE HEAVY TRUCKS

While the Travel Demand Model does not assume improvements to the 21st Street underpass or evaluate changes to heavy vehicle volumes based on vertical design elements, the approximate increase in heavy vehicle use was estimated assuming the underpass is improved to approximately 13.5 feet of clearance that would accommodate most types of trucks.

It is reasonable to assume that a change to the vertical clearance or addition of other multi-modal improvements would not significantly impact the use of 21st Street by passenger vehicles that are accommodated by the 8-foot clearance. But increasing the clearance would increase the use of the 21st Street by large trucks that exceed the current clearance. Assuming percent of trucks between 27th Street and 21st Street is similar, at approximately 5.4%, the truck percentage on 21st Street would increase from approximately from approximately 2.8% to 5.4% based on existing conditions. This difference equates to and increase of approximately 57 daily truck trips in 2045.

Section 5
ALTERNATIVES EVALUATION

ALTERNATIVES EVALUATION

Post completion of the existing conditions analysis, public involvement round one, and an initial meeting with the PAC, the project team developed a short list of six alternatives. Those six alternatives were screened down to four alternatives for detailed evaluation. *Appendix E* includes the complete alternatives evaluation.

Initial Alternatives Screening

The six initial alternatives evaluated as part of the initial screening process are described in Table 11.

TABLE 11 INITIAL ALTERNATIVES

ALTERNATIVE		DESCRIPTION
Alternative 1	**No-Build**	This alternative is the base alternative. It does not include any changes to the railroad underpass or 21st Street.
Alternative 2	**Minor Improvements with Overheight Vehicle Warning System**	This alternative adds an automated overheight vehicle warning system to reduce crashes involving overheight vehicles and the undercrossing structure. It also includes lighting, drainage, and other minor modifications to improve the pedestrian and vehicle environment.
Alternative 3A	**Increase Clearance to 11.5 feet with Minor Pedestrian Improvements**	This alternative includes the improvements in Alternative 2, lowers the grade of 21st Street by approximately 3.5 feet to increase the vertical clearance of the uncrossing to approximately 11.5 feet, changes stormwater management to a pump system, and widens sidewalk (minor) where feasible. The increased vertical clearance accommodates most small emergency vehicles such as ambulances. This alternative does not modify the length of the bridge structure.
Alternative 3B	**Increase Clearance to 11.5 feet with 10′ Sidewalks on 21st Street**	This alternative includes the improvements in Alternative 3A and adds wider sidewalks on 21st Street. This alternative requires lengthening the bridge spans due to the wider sidewalks.
Alternative 4	**Increase Clearance to 13.5 feet with 10′ Sidewalks on 21st Street**	This alternative is similar to Alternative 3B but lowers 21st Street by two additional feet to obtain a standard minimum vertical clearance of 13.5 feet. This alternative would accommodate most trucks and emergency vehicles such as large fire trucks.
Alternative 5	**Increase Clearance to 16.0 feet with 10′ Sidewalks on 21st Street**	This alternative is similar to Alternative 4 but lowers 21st Street by approximately 2.5 additional feet (8 feet total) to obtain a vertical clearance of 16.0 feet. This alternative should accommodate all trucks and emergency vehicles. This vertical clearance is recommended for new federal projects.

The initial alternatives were presented to the PAC for feedback. Based on the PAC review, Alternatives 1, 2, 3A, and 4 were chosen to be forwarded as alternatives for further concept development.

Alternative 3B was not included due to having the same vertical clearance as Alternative 3A but requiring much more substantial work on the railroad bridge. This alternative would likely require temporary track be constructed to re-route the trains while the structure is reconstructed.

Alternative 5 was not included for the following reasons:

- A clearance of 16 feet is not required to accommodate all the emergency service vehicles and most trucks.
- The railroad bridge would require a full replacement. It would require a detour structure and shoofly to accommodate trains throughout construction.
- Due to the impacts of railroad traffic, approval from BNSF (railroad/bridge owner and operator) may be difficult to obtain.
- The section of 21st Street under the structure would be substantially below the groundwater level. This would require a substantial pumping system and modifications to the stormwater infrastructure in the surrounding area that serves 21st Street.
- The easternmost lane on Montana Avenue would need to be lowered approximately 8-9 feet. This would impact access and parking for an additional block to the east and west affecting the 22nd Street and 20th Street intersections.
- The estimated cost is very high due to the level of improvements, replacement of the structure, and building significant temporary track and structure facilities to maintain railroad operations.

Review of Final Alternatives

The four initial alternatives chosen to be carried forward for additional analysis were evaluated as the "Final Alternatives".

ALTERNATIVE 1:

No-Build

Alternative 1 maintains the existing infrastructure currently in place. Figure 6 shows the no-build condition alternative. Figure 7 shows the existing no-build street cross-sections. Figure 8 shows a rendering of the existing railroad bridge structure. The areas proposed for improvements are summarized below.

Improvement Areas:

- Bridge Structure, 21st Street, Surrounding Roadways: No change

Advantages:

Maintaining the current roadway configuration minimizes costs and allows the City and MPO to prioritize funding in other areas where a greater need for investment has been identified. No construction in the area avoids impacting BNSF railroad operations and Montana Department of Transportation (MDT) facilities in the project area.

FIGURE 6. ALTERNATIVE 1: NO BUILD

FIGURE 7. ALTERNATIVE 1: EXISTING STREET SECTIONS

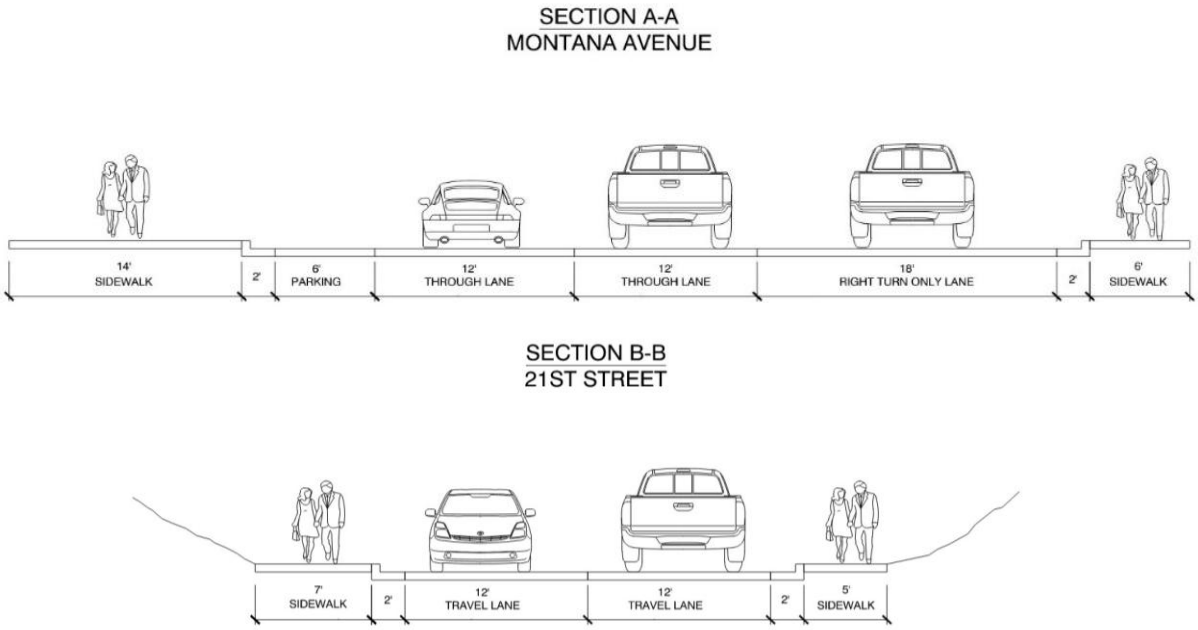
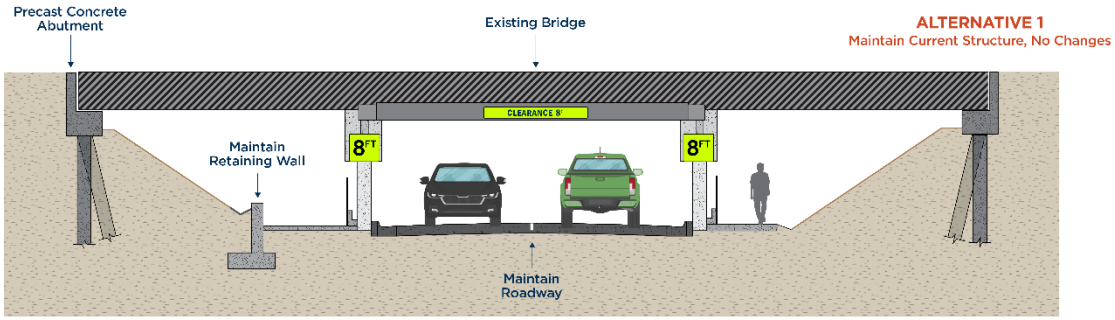


FIGURE 8. ALTERNATIVE 1: EXISTING BRIDGE STRUCTURE



Disadvantages:

The primary disadvantages is that no safety or multi-modal access improvements to the underpass will improve the existing deficiencies. The current configuration experiences frequent crashes involving the bridge structure and maintains the height restrictions that do not allow for buses, emergency vehicles, and heavy vehicle traffic to utilize the corridor. The earthen bridge abutment slopes will continue to result in increased debris on the sidewalks. The lack of sufficient drainage during storm events will continue to be an issue for short periods.

ALTERNATIVE 2:

Minor Improvements with Overheight Vehicle Warning System

This alternative adds low-cost improvements with the goals of reducing the overheight vehicle crashes into the overpass bridge and improving the pedestrian environment under the bridge.

FIGURE 9. EXAMPLE OF A VERTICAL CLEARANCE WARNING SYSTEM

The alternative includes installing an overheight vehicle warning system, modifying the 21st Street underpass to improve the existing drainage system, and stabilizing the bridge abutment embankment slopes to reduce debris on the sidewalks. Figure 9 shows an example of a warning system which utilizes signing and flashers to warn overheight vehicles prior to reaching the structure. These systems typically include sensors or mechanical devices to determine if a vehicle is overheight and signing to warn the driver and potentially provide information to the driver on how to avoid the low-height structure.

Figure 10 shows a concept for the proposed warning system. Figure 11 shows cross-sections of Montana Avenue and 21st Street. Figure 12 shows a rendering of the existing bridge structure with the proposed warning system.

This alternative includes the following modifications to 21st Street, the bridge structure, and the surrounding area:

Improvement Areas:

- Bridge Structure:
  - No change
- 21st Street:
  - Installing signage and flashers as part of an overheight vehicle warning system.
  - Stripe centerline.
  - Paving of the bridge abutment slopes to reduce debris on the sidewalks.
  - Adding pedestrian and vehicle lighting on 21st Street to increase light under the bridge and provide improved nighttime sight distance for drivers.
  - Adding drainage inlets to reduce stormwater flow to existing inlets.
- The Surrounding Roadways:
  - Installing signage and flashers for the overheight vehicle warning system.

FIGURE 10. ALTERNATIVE 2: MAINTAIN EXISTING 8 FEET OF VERTICAL CLEARANCE WITH WARNING SYSTEM

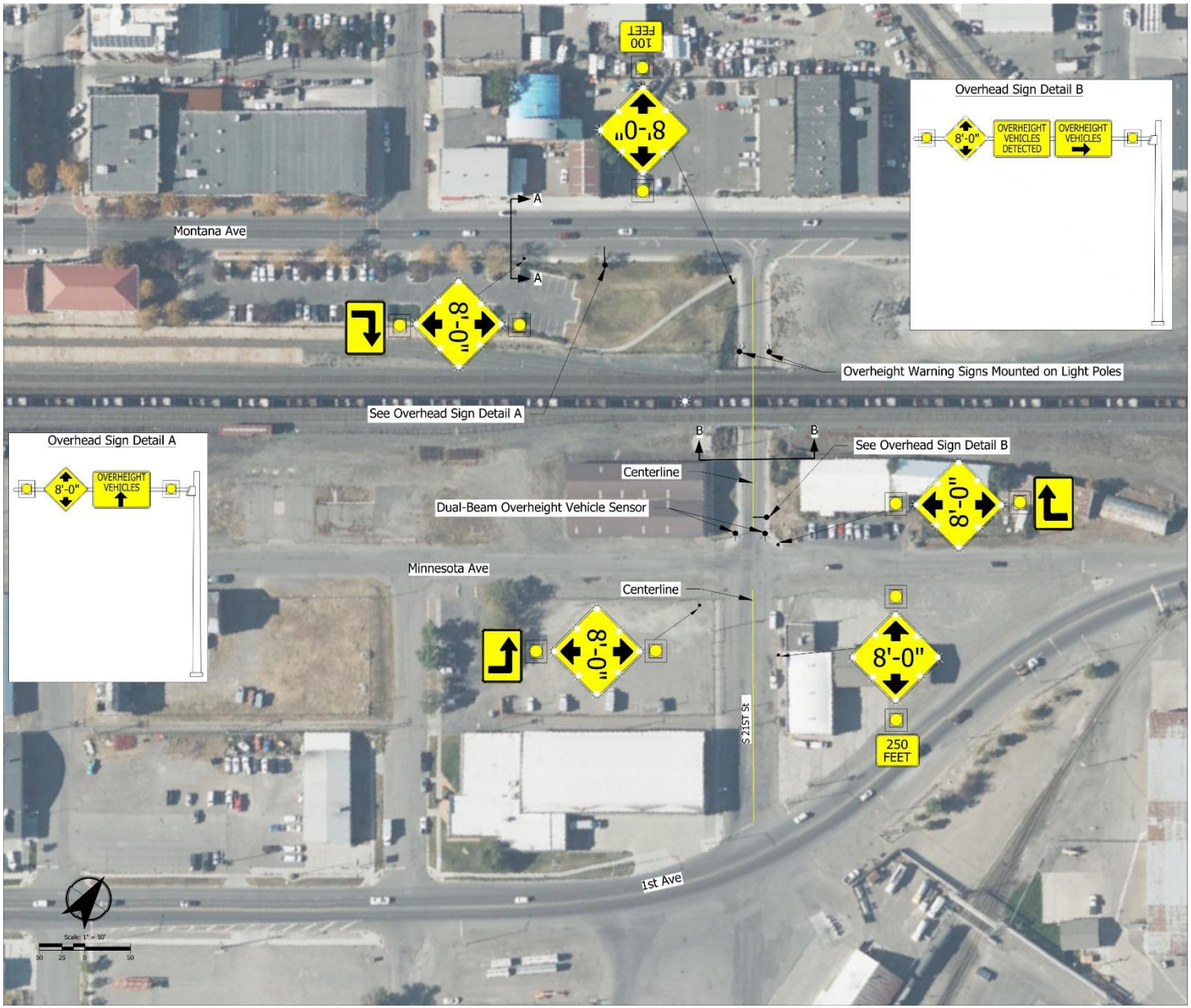


FIGURE 11. ALTERNATIVE 2: EXISTING STREET SECTIONS AND EXAMPLE DEVICES

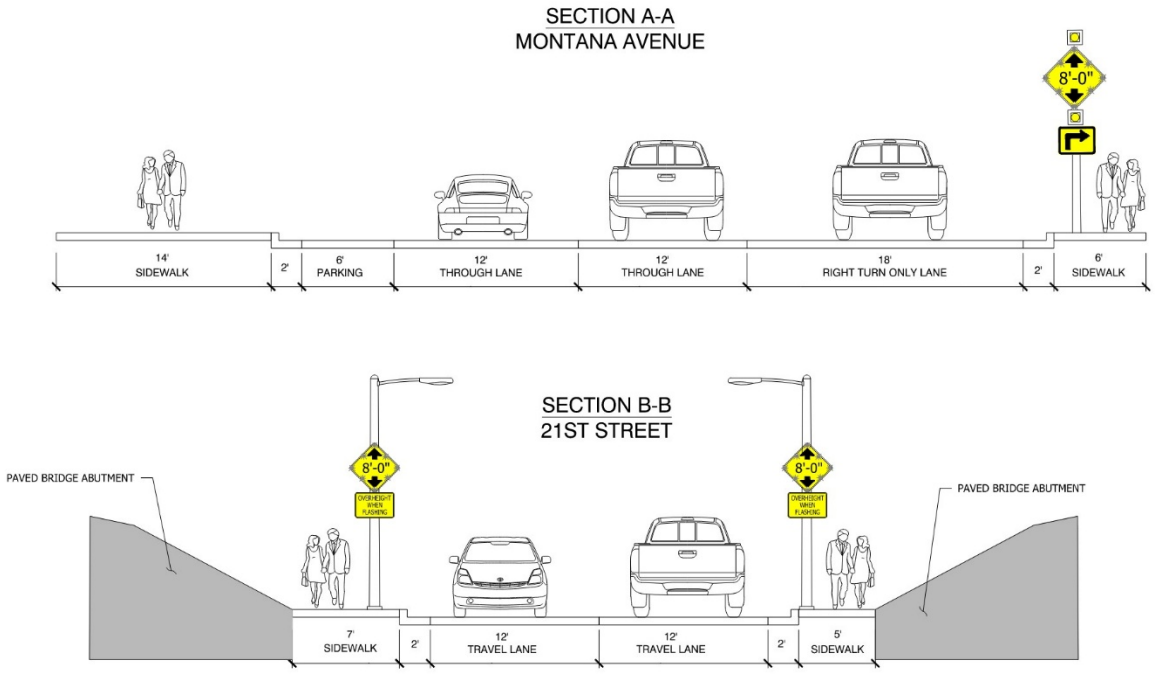
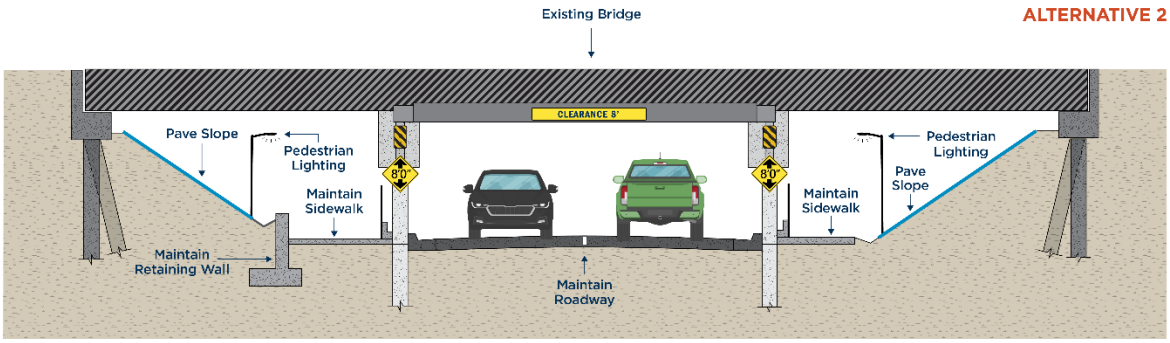


FIGURE 12. ALTERNATIVE 2: BRIDGE STRUCTURE



Additionally, due to the vertical curvature of the roadway impacting stopping sight distance, installing warning signage, such as "Hill Blocks View" (W7-6) with a speed advisory sign (W13-1P) could be considered based on an engineering evaluation. Warning and advisory signage is not included due to the concept level design conducted for this study, recommendation for lighting, the default speed being 25 mph, the roadway and underpass age and history, and speed not being identified in most crashes as a primary factor.

⊕ Advantages

The overheight vehicle warning system is expected to reduce vehicle/bridge crashes through advanced warning/flashing signage. As described in existing conditions section, in the five years from 2019 to 2023, approximately 20 crashes were reported on 21st Street between Minnesota Avenue and Montana Avenue with approximately 60% of the crashes involving the bridge structure.

Paving the abutment slopes under the underpass would reduce sediment from running off the slope and collecting on the sidewalk and clogging the drainage inlets. Additional inlets on both underpass approaches may reduce the occurrence of flooding by providing more points for water to enter the system.

Adding pedestrian and vehicle lighting on 21st Street will enhance the pedestrian experience and safety under the bridge and improve the nighttime sight distance for drivers on 21st Street.

Disadvantages:

At this time, it is unknown if there are drainage constraints downstream, so additional inlets may not be very effective in preventing flooding. No improvements to vertical clearance continue to provide the opportunity for vehicle/bridge crashes, and restricts emergency, transit, and heavy vehicles from being able to utilize 21st Street.

Cost:

Table 12 shows the estimated cost for this alternative. It is estimated this alternative would cost between $600,000 and $800,000, depending on the scale of the improvements. If this alternative is carried forward the cost estimate will be refined.

TABLE 12 ALTERNATIVE 2 COST ESTIMATE

ITEM	ESTIMATED COST
1. Roadway & Lighting Improvements	$570,000-$750,000
2. Drainage & Stormwater Improvements	$30,000-$50,000
3. Railroad Bridge Improvements	Not Applicable
4. Railroad Temporary Traffic Control	Not Applicable
Total	$600,000 - $800,000

ALTERNATIVE 3:

Increase Clearance to 11.5 Feet with Minor Pedestrian Improvements

Alternative 3 (3A in initial screening) includes moderate modifications of the bridge structure to increase the vertical clearance by approximately 3.5 feet to achieve a vertical clearance of approximately 11.5 feet (11’-6”) as well as adding pedestrian improvements and an overheight warning system like Alternative 2. This alternative would accommodate ambulances but continue to not accommodate fire, large EMS vehicles, and most commercial trucks. With this alternative vertical curvature and grades would remain similar to the existing condition and therefore would continue to not meet current design standards.

This alternative is shown in Figure 13. Figure 14 shows cross-sections of Montana Avenue and 21st Street. Figure 15 depicts a rendering of the bridge structure with the proposed warning system.

This alternative includes the following modifications to 21st Street, the bridge structure, and the surrounding area:

Improvement Areas:

- Bridge Structure:
  - Pier encasement or retaining wall to support lowered roadway
  - Controlled density backfill behind pier encasement/retaining wall to maintain a shared use path along 21st Street
  - New cross bracing on piers for added support
  - New concrete slope paving below bridge
- 21st Street:
  - Lowering the existing roadway approximately 3.5 feet to obtain a vertical clearance under the bridge structure of 11.5 feet.
  - Lowering the intersections at Montana Avenue and Minnesota Avenue by approximately 3 feet.
  - Stripe centerline.
  - Installing new drainage pumping system due to the high groundwater level.
  - Adding pedestrian and vehicle lighting on 21st Street.
  - Eliminating on-street parking on 21st Street south of Minnesota Avenue to accommodate a retaining wall and avoid elevation conflicts.
- The Surrounding Area:
  - Minnesota Avenue will be cut-off to the east and west of 21st Street and a cul-de-sac installed at each end to provide room for vehicles to turn around.
  - Requires the east lane on Montana Avenue to be lowered by ~3-4 feet
  - Access restrictions and removal of parking on Montana Avenue between 22nd Street and 20th Street.
  - Sidewalk and travel lanes will have to be reconfigured to maintain through lanes and on-street parking.
  - Work with private property owners to remove some parking in the lot south of Montana Avenue.

FIGURE 13. ALTERNATIVE 3 CONCEPT: INCREASE VERTICAL CLEARANCE TO 11.5' WITH PEDESTRIAN IMPROVEMENTS

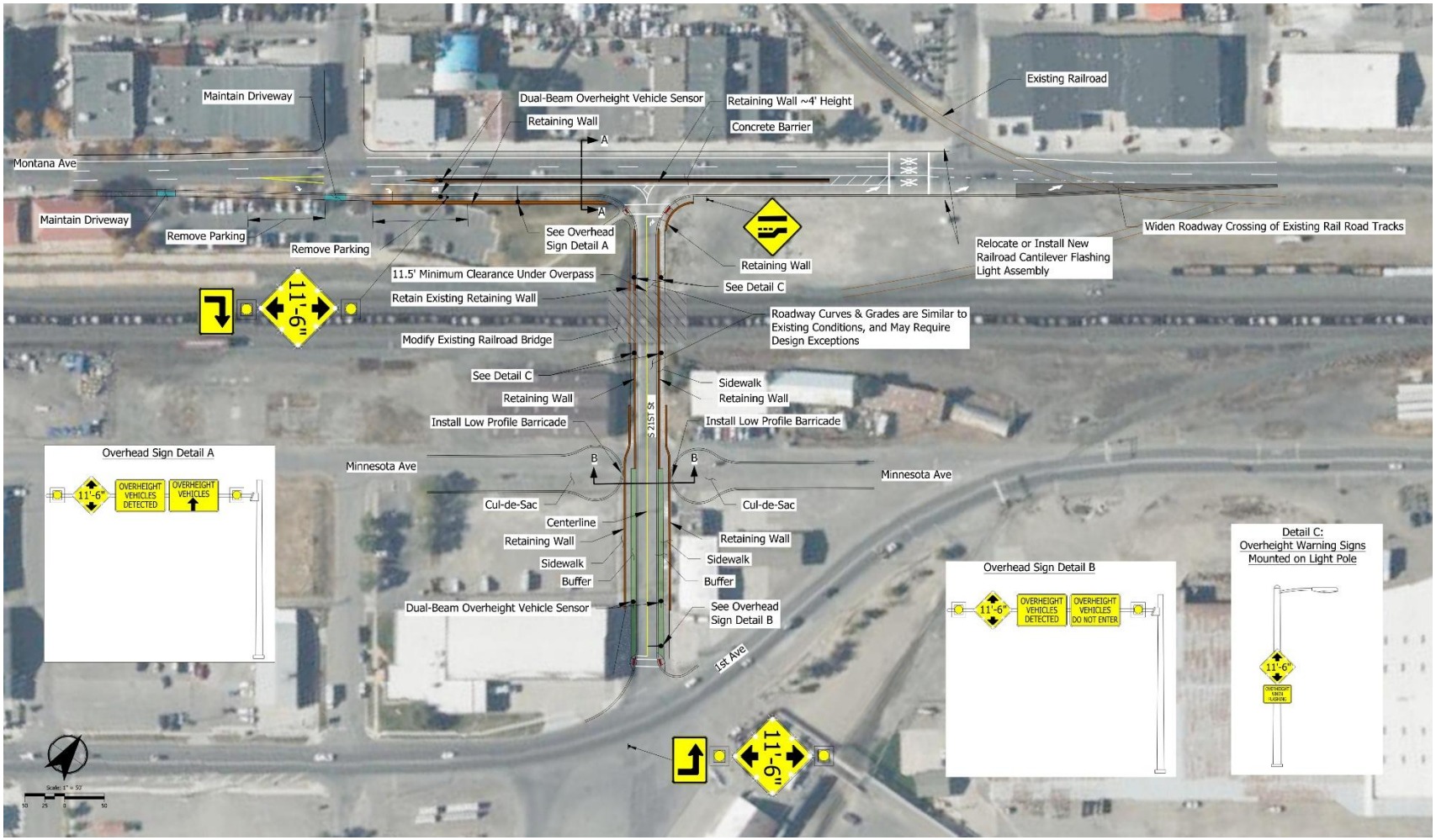


FIGURE 14. ALTERNATIVE 3 STREET SECTIONS

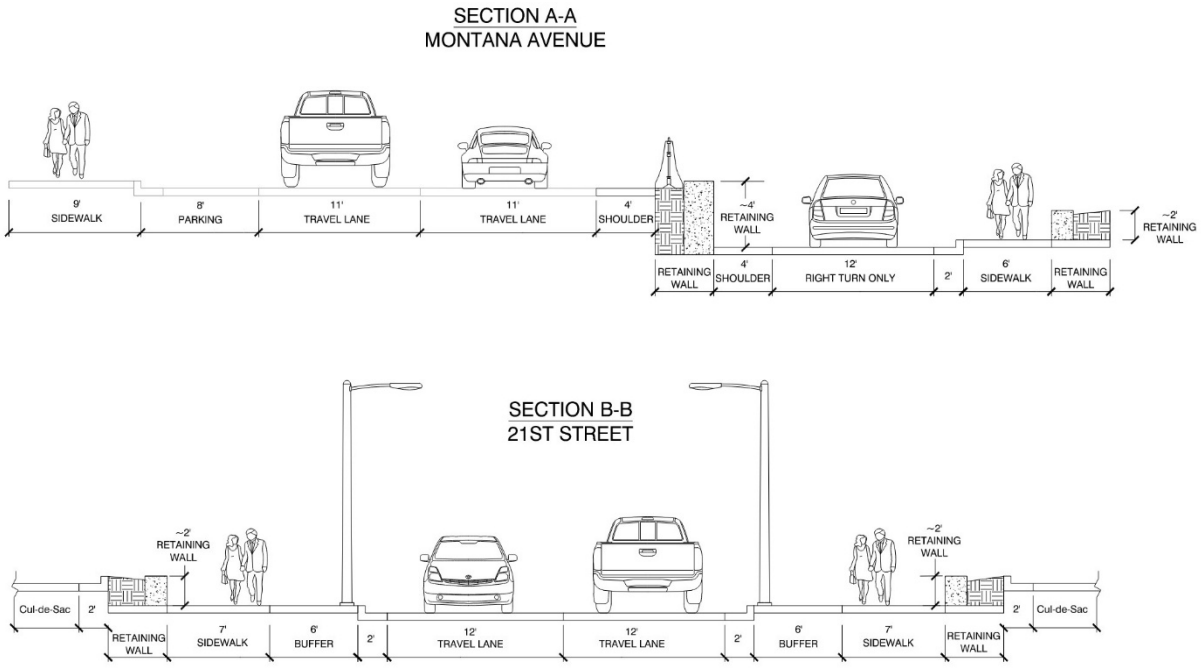
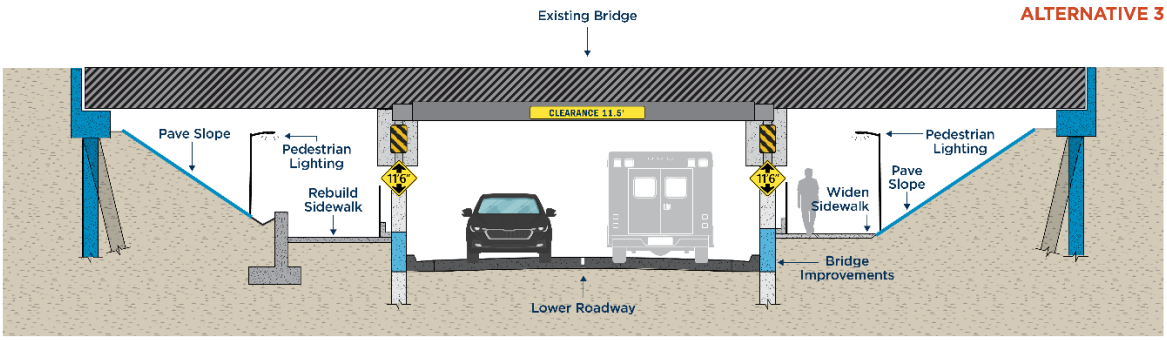


FIGURE 15. ALTERNATIVE 3 BRIDGE STRUCTURE



As shown in Figure 14, a key element of Alternative 3 is constructing a retaining wall on Montana Avenue to separate out the right-turn traffic movements turning to and from 21st Street. The retaining wall is necessary to maintain approximately the same grade and vertical alignment of 21st Street as under existing conditions which already exceed recommended urban street design policies. While the vertical alignment of 21st Street will continue to not meet current AASHTO policy for the vertical curve lengths, installing the roadway and pedestrian lighting will provide improved stopping sight distance in nighttime hours. Input from the City of Billings and stakeholders did not identify concerns regarding the existing grades and curvature of 21st Street. If it is determined that improving the vertical curvature of 21st Street to meet AASHTO policy is desired, improving the cross-slopes across the crosswalks, or generally improving the existing alignment, further lowering of Montana Avenue and Minnesota Avenue would be required which would lengthen the retaining wall on Montana Avenue and extend the access and parking impacts further to the east and west along Montana Avenue and result in higher and longer retaining walls.

Advantages:

Increasing vertical clearance by 3.5 feet to 11.5 feet would allow for ambulances, smaller transit vehicles, and some moderately sized trucks to utilize the corridor. An increase in vertical clearance reduces the likelihood of structure involved crashes which were a majority of the 20 crashes reported between 2019 and 2013 on 21st Street between Minnesota Avenue and Montana Avenue. There is the potential for the type of vehicles involved in a collision with the structure to change as increased vertical clearance may result in drivers of taller vehicles thinking they can now utilize the underpass. For this reason, this alternative would include the overheight vehicle warning system to further reduce crashes involving overheight vehicles.

A full reconstruction of the drainage system including the addition of a pumping system would significantly improve drainage assuming downstream drainage infrastructure can accommodate the additional demand.

Similar to Alternative 3, paving hillslopes under the underpass would reduce sediment from running off the slope and collecting on the sidewalk. Adding pedestrian lighting on 21st Street will enhance the pedestrian experience and feelings of safety and provide light under the bridge.

Disadvantages:

Achieving this increase in vertical clearance (3.5 feet) would include the lowering of 21st Street at its intersections with Montana Avenue and Minnesota Avenue intersections by at least 3 feet, which will impact on-street parking and nearby business access. A drainage system with pumps to overcome the high groundwater level would be expensive to install/maintain and may require upgrades to off-site facilities downstream. This option would have some impact on BNSF railroad operations for brief periods as temporary shoring of the bridge will be necessary during excavation and reinforcing the piles that hold up the bridge structure.

Cost:

Table 13 shows the estimated cost for this alternative. It is estimated this alternative would cost between $8-10 million, depending on the scale of the improvements. If this alternative is carried forward the cost estimate will be refined.

TABLE 13 ALTERNATIVE 3 COST ESTIMATE

ITEM	ESTIMATED COST
1. Roadway and Pedestrian Improvements	$6.2 – 7.3 Million
2. Drainage & Stormwater Improvements	$700,000 - 1 Million
3. Railroad Bridge Improvements	$1 - $1.5 Million
4. Railroad Temporary Traffic Control	$100,000 - $200,0000
Total	$8 - 10 Million

ALTERNATIVE 4:

Increase Clearance to 13.5 Feet with Bridge Replacement

Alternative 4 increases the vertical clearance of the underpass to 13.5 feet. This alternative would allow heavy vehicles, including fire and emergency medical services (EMS), to utilize the underpass. In this alternative, achieving the increase in vertical clearance would require replacing the bridge structure, as the increase in roadway depth would expose existing bridge piles to a depth not meeting structural standards. This alternative is shown in Figure 16. Figure 17 shows cross-sections of Montana Avenue and 21st Street. Figure 18 depicts a rendering of the new bridge structure with the proposed warning system.

This alternative includes the following modifications to 21st Street, the bridge structure, and the surrounding area:

Improvement Areas:

- Bridge Structure:
  - New 4 track 112′-2″ bridge featuring 3 - 30″ deep box beam spans
  - 10′ multi-use paths on both sides of 21st Street under bridge
  - Maintain 11′ travel lanes along 21st Street
  - New concrete slope paving below bridge
- 21st Street:
  - Lower 21st Street to increase vertical clearance to 13.5 feet.
  - Widen sidewalks to 10 feet multi-use paths to accommodate pedestrians and bicycles.
  - Stripe centerline.
  - Modify drainage system by transitioning to a pump system.
  - Eliminate on-street parking south of Minnesota Avenue to accommodate a retaining wall and avoid elevation conflicts.
  - Add new/enhanced pedestrian lighting.
- Surrounding Areas:
  - Lower Montana Avenue right-turn lane. Shift through lanes north and reduce the width of the northern sidewalk.
  - Minnesota Avenue will be cut-off to the east and west of 21st Street and a cul-de-sac installed at each end to provide space for vehicles to turn around.
  - Sidewalk and travel lanes will have to be reconfigured to maintain through lanes and on-street parking.
  - Work with private property owners to remove some parking in the lot south of Montana Avenue.

The primary differences between Alternative 4 and Alternative 3 are the full replacement of the bridge structure and additional lowering of the rightmost lane on Montana Avenue which extends the parking and access impacts.

Advantages:

Increasing vertical clearance by approximately 5.5 feet to 13.5 feet would accommodate large fire trucks and all typical emergency service vehicles. An increase in vertical clearance reduces the likelihood of

structure involved crashes which were a majority of the 20 crashes reported between 2019 and 2023 on 21st Street between Minnesota Avenue and Montana Avenue.

In addition to accommodating emergency vehicles, the 13.5 feet of clearance would accommodate most semi-trucks and trailers, although very long vehicles may be limited by the vertical curvature of 21st Street in the approaches to the underpass. The existing traffic counts at 27th Street identified a heavy vehicle percentage of approximately 7% in the weekday AM peak hour and approximately 3% in the weekday PM peak hour. Assuming a similar percentage of trucks would utilize 21st Street with the increased clearance, it is estimated that approximately 22 trucks would be served in the weekday AM peak hour and 19 trucks would be served in the weekday PM peak hour under existing traffic conditions.

A full reconstruction of the drainage system including the addition of a pumping system would significantly improve drainage assuming downstream drainage infrastructure can accommodate the additional demand.

Similar to Alternative 3, paving the abutment slopes under the underpass would reduce sediment from running off the slope and collecting on the sidewalk. Adding pedestrian and roadway lighting on 21st Street will enhance the pedestrian experience, safety, and improve nighttime sight distance for drivers.

Disadvantages:

Achieving this increase in vertical clearance (5.5 feet) would include the lowering of 21st Street at its intersections with Montana Avenue and Minnesota Avenue intersections by at least 5 feet, which will impact on-street parking and nearby business access. This option requires a robust drainage system with pumps to overcome the high groundwater level which would be expensive to install/maintain and is expected to require upgrades to off-site facilities downstream. This option would also have significant impact on BNSF railroad operations for an extended period and therefore an alternative shoofly track with a temporary crossing of 21st Street would need to be constructed during the removal of the existing bridge and construction of the new bridge structure.

Cost:

Table 14 shows the estimated cost for this alternative. It is estimated this alternative would cost between $26-30 million, depending on the scale of the improvements. If this alternative is carried forward the cost estimate will be refined.

TABLE 14 ALTERNATIVE 4 COST ESTIMATE

ITEM	ESTIMATED COST
1. Roadway and Pedestrian Improvements	$6 – 7.5 Million
2. Drainage & Stormwater Improvements	$1-1.5 Million
3. Railroad Bridge Improvements	$17.5 - $19 Million
4. Railroad Temporary Traffic Control	$1.5 - $2 Million
Total	$26 - 30 Million

FIGURE 16. ALTERNATIVE 4 CONCEPT: INCREASE VERTICAL CLEARANCE TO 13.5'

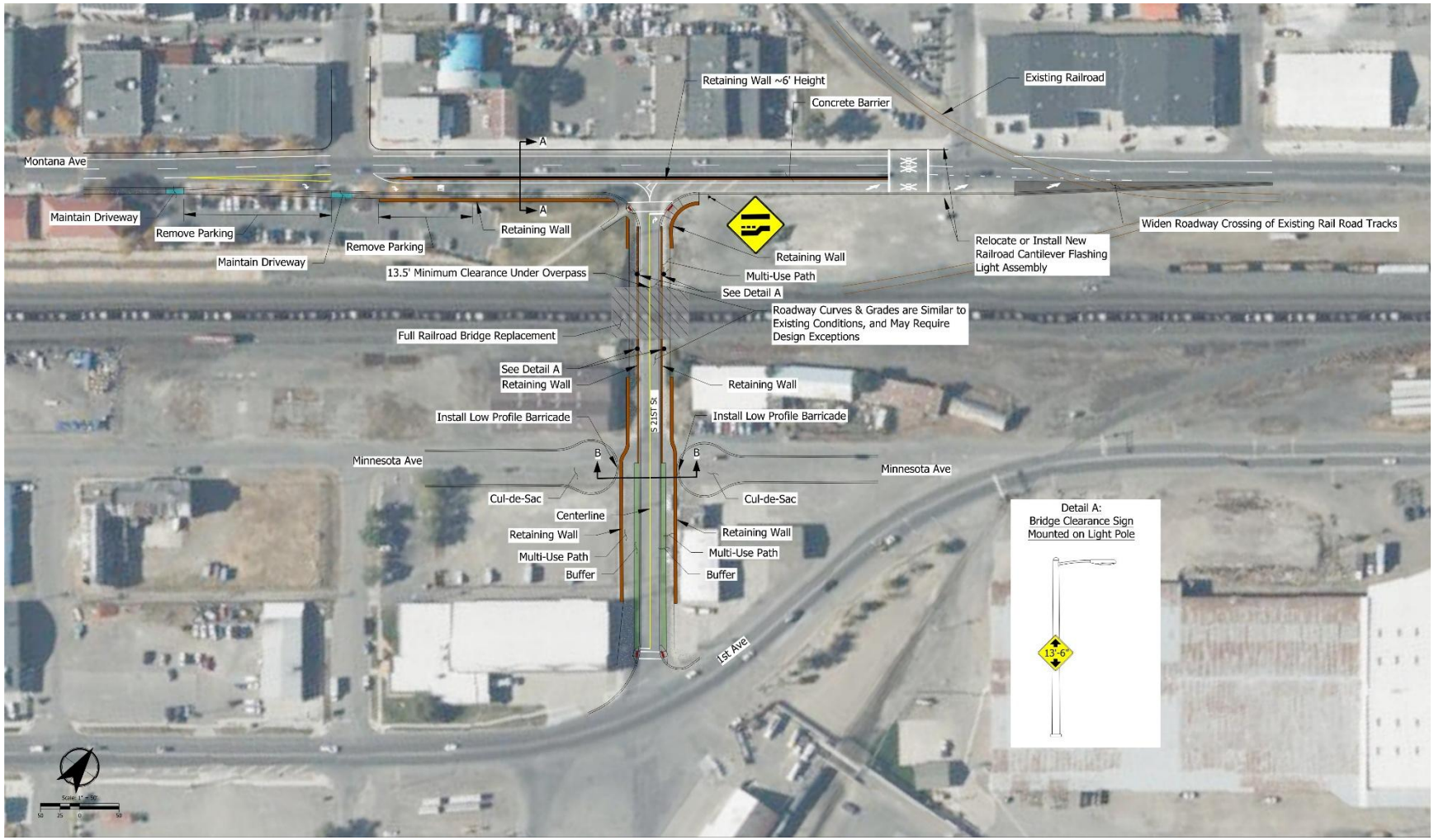


FIGURE 17. ALTERNATIVE 4 CROSS-SECTIONS

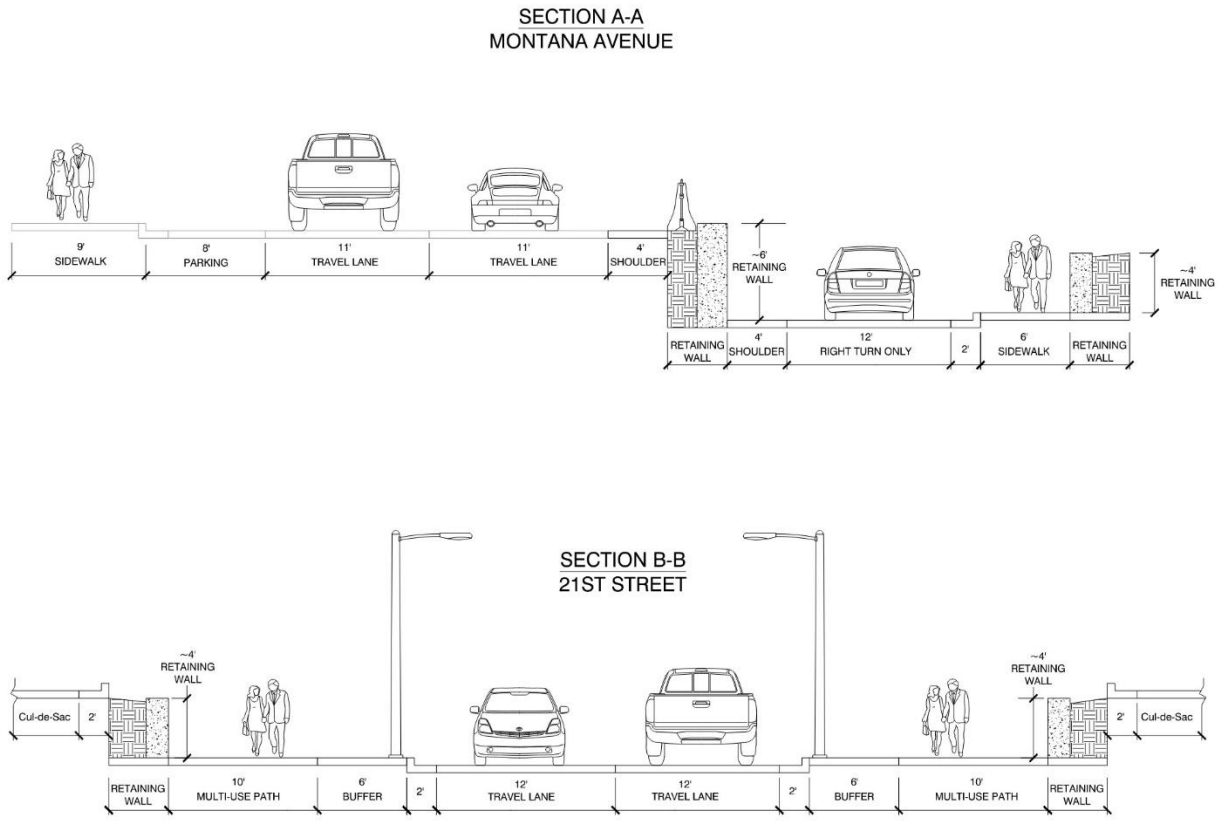
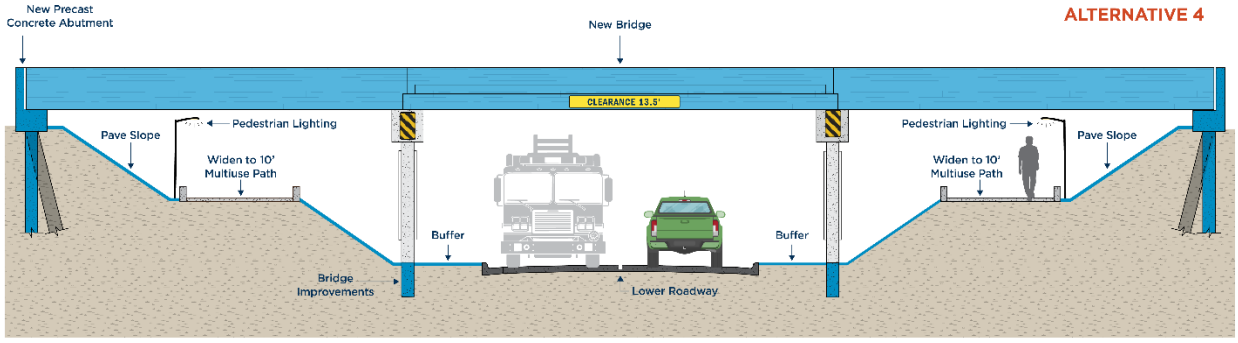


FIGURE 18. ALTERNATIVE 4 BRIDGE STRUCTURE



Similar to Alternative 3, if it is determined that improving the vertical curvature of 21st Street to meet AASHTO policy, improve the cross-slopes across the crosswalks, or generally improve the existing alignment, is desired, further lowering of Montana Avenue and Minnesota Avenue would be required which would lengthen the retaining wall on Montana Avenue and extend the access and parking impacts further to the east and west along Montana Avenue and result in higher and longer retaining walls.

BNSF Review Comments

BNSF has a vested interest in project design and potential impacts. As such, the project team engaged them through the duration of this study. BNSF's main focus is on ensuring safe, reliable, and efficient freight movements. This could be impacted by significant construction.

BNSF staff did have some concerns related to structure strike(s) associated with the existing 21st Street Underpass but have not seen significant issues to date that threaten the integrity of existing infrastructure. The final alternatives were shared with BNSF staff who provided high level comments back, summarized below:

- BNSF prefers Alternative 3.
- BNSF prefers any alternative that does not impact or alter the existing structure.
- No utilities (lighting and signage) will be accepted on the structure.
- A preliminary engineering agreement will be required for all future submittals.
    - *BNSF requires these agreements when they are asked to review engineering plans that may require them to utilize third party reviewers. The City will be required to fund third party review costs incurred by BNSF. Additional costs may also be identified in discussions with BNSF.*

Alternatives Evaluation Criteria

The evaluation criteria are used for two key purposes:

- Evaluating existing conditions and along with treatments included in each of the four alternatives
- Comparing alternatives and ultimately advancing a preferred alternative.

Table 15 outlines a broad set of evaluation criteria that were developed based on the existing conditions analysis, PAC concerns, and project feedback from BNSF and the public.

Each criterion will be used to assess how alternatives compare to one another and the current conditions of the underpass. Each evaluation criterion is given one of three scores represented by a colored dot as described below:

+2 points **+1 point** **+0 point**

TABLE 15 EVALUATION CRITERIA

ALTERNATIVE (S)	EVALUATION CRITERIA	SCORING KEY	
Alternative (s)	Feasibility of Implementation & Railroad Approval	🟢	The alternative has few physical, legal, or other obstacles to implementation.
		🟠	The alternative has some physical, legal, or other obstacles to implementation.
		🔴	The alternative has significant physical, legal, or other obstacles to implementation.
	Built Environment Constraints	🟢	The alternative is expected to have no or little built environment impacts.
		🟠	The alternative is expected to have moderate built environment impacts.
		🔴	The alternative is expected to have significant built environment impacts.
	Roadway Impacts	🟢	The alternative is expected to have no or little roadway impacts.
		🟠	The alternative is expected to have moderate roadway impacts .
		🔴	The alternative is expected to have significant roadway impacts.
	Railroad Bridge Impacts	🟢	The alternative is expected to have no or very little impacts to the existing bridge.
		🟠	The alternative is expected to have moderate structural impacts to the existing bridge.
		🔴	The alternative is expected to have significant structural impacts to the existing bridge.
	Drainage Impacts	🟢	The alternative is expected to improve drainage at the underpass.
		🟠	The alternative may improve drainage at the underpass with proposed improvements.
		🔴	The alternative is not expected to improve drainage at the underpass.
	Conceptual Cost Estimate	🟢	Cost estimate is significantly lower than other alternatives.
		🟠	Cost estimate is similar to other alternatives.
		🔴	Cost estimate is significantly higher than other alternatives.
	Community Priorities Alignment	🟢	The alternative is expected to significantly align with community feedback.
		🟠	The alternative is expected to have some aspects align with community feedback.
		🔴	The alternative is expected to have little to no alignment with community feedback.
	Safety & Emergency Service Access	🟢	The alternative is expected to have a positive safety impact for all users.
		🟠	The alternative is expected to have a positive safety impact, but only for some users.
		🔴	The alternative is expected to have no impact or measurable safety benefit.
	Mobility & Freight	🟢	The alternative is expected to improve mobility for all roadway users.
		🟠	The alternative is expected to improve mobility for some roadway users.
		🔴	The alternative is not expected to improve mobility.

Alternatives Evaluation

The evaluation criteria described above were used to evaluate alternatives as shown in Table 16. Based on the evaluation criteria, alternatives scored highest in the following order:

- Alternative 2 (Highest Score): Minor Improvements With Over-height Vehicle Warning System
- Alternative 1: No Build
- Alternative 3: Increase Clearance to 11.5 Feet With Minor Pedestrian Improvements
- Alternative 4 (Lowest Score): Increase Clearance to 13.5 Feet With Bridge Replacement

TABLE 16 ALTERNATIVE EVALUATION

EVALUATION CRITERIA	ALTERNATIVES			
	1. NO-BUILD	2. MINOR IMPROVEMENTS WITH OVER-HEIGHT VEHICLE WARNING SYSTEM	3. INCREASE CLEARANCE TO 11.5 FEET WITH ROADWAY MODIFICATIONS	4. INCREASE CLEARANCE TO 13.5 FEET WITH BRIDGE REPLACEMENT
Feasibility of Implementation & Railroad Approval	🟢	🟢	🟠	🔴
Built Environment Constraints	🟢	🟢	🟠	🟠
Roadway Impacts	🟢	🟢	🟠	🟠
Railroad Bridge Impacts	🟢	🟢	🟠	🔴
Drainage Impacts	🔴	🟠	🟠	🟠
Conceptual Cost Estimate	🟢	🟢	🟠	🔴
Community Priorities Alignment	🟠	🟢	🟢	🔴
Safety & Emergency Service Access	🔴	🟠	🟠	🟢
Mobility & Freight	🔴	🔴	🟠	🟢
Point Total	11	14	10	7

🟢 *+2 points*

🟠 *+1 point*

🔴 *+0 points*

Section 6 FUNDING SOURCES AND REGULATORY COMPLIANCE

FUNDING SOURCES & REGULATORY COMPLIANCE

Funding and Grant Opportunities

There are two sources of federal funding that could provide additional funding to complete elements of the proposed improvements; the Federal Railroad Authority (FRA) and US Department of Transportation (USDOT) surface transportation funding.

FRA GRANT PROGRAMS

Much of the FRA funding for smaller projects is primarily focused on improving safety by eliminating rail crossings. As the bridge/roadway is already grade separated, the project would not be eligible for grade-separation funding from the Rail Crossing Elimination (RCE) program, and less competitive for other rail funding such as the Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program. As the bridge is a railroad bridge, and the roadway a city road, the project is not eligible for other rail funding programs.

USDOT FUNDING

The USDOT administers two surface transportation funding programs that may be appropriate for the project.

Better Utilizing Investments to Leverage Development (BUILD) Grant Program

The BUILD grant program provides grants for surface transportation infrastructure projects with significant local or regional impact. Several of the alternatives analyzed may be competitive for the BUILD program. Additional analysis and a Benefit Cost Analysis in conformity with USDOT requirements would help determine the competitiveness of the project. Competitive projects must score a "high" rating on the eight merit criteria.

- **Safety** - Improve substandard vertical clearance for fire trucks and ambulances. Reduce repeated crashes with higher-profile vehicles.
- **Environmental Sustainability –** Improve stormwater management and reduce flooding.
- **Quality of Life –** Enhance bicycle and pedestrian experiences by widening the sidewalks and installing lighting.
- **Mobility and Community Connectivity –** Improve vehicular roadway capacity by increasing access for higher-profile trucks. Reconnect communities divided by the low bridge.
- **Economic Competitiveness –** Promote economic growth by allowing box trucks, buses, pickups with campers, and motorhomes and vehicles pulling travel trailers access through the underpass.
- **State of Good Repair** – Improve the condition and safety of core infrastructure.
- **Partnership and Collaboration –** Coordination and local community groups on reviewing alternatives and soliciting feedback. Coordination with BNSF on alternatives, impact to the railroad and construction timing.

- **Innovation –** Implementing solutions that are unique to the community with dynamic messaging and ITS.

Safe Streets and Roads For All (SS4A)

The other competitive grant program that may be a good fit for some of the alternatives is the SS4A program, which funds grants to prevent roadway fatalities and serious injuries.

Depending on the safety data, Billings could ensure that the project is included in a Safety Action Plan and request either planning or implementation funding to complete elements of the project designed to improve safety for vehicles, pedestrians, and bicyclists. The Safe Streets and Roads for All grant program may not be renewed after its scheduled sunset in Federal Fiscal Year 2026.

Regulatory Compliance

The regulatory compliance requirements will vary depending on the selected alternative and the funding source. The No-Build Alternative does not involve any improvements and is therefore not addressed in this section. Alternative 2, because it does not appear to require new right-of-way or substantial ground disturbance, would involve the lowest level of regulatory compliance when compared to the other build alternatives. In general, Alternatives 3 and 4 are expected to have similar impacts related to new right-of-way, ground disturbance (i.e., overall project footprint), and changes in local access and would therefore involve very similar levels of regulatory compliance and environmental documentation. The following information provides details on the potential regulatory compliance requirements based on federal, state, and local regulations applicable to the proposed action.

FEDERAL COMPLIANCE

Any project that requires federal approval, funding, or permits, will need to be evaluated in accordance with the National Environmental Policy Act, or NEPA. The project is likely to involve federal funding from the U.S. Department of Transportation Federal Highways Administration (FHWA) and, as such, the project would be required to comply with regulations found at 23 CFR 771, Environmental Impact and Related Procedures. Additional federal laws and regulations that would be applicable to the NEPA evaluation include a review for compliance with the following:

- **National Historic Preservation Act (Section 106) -** Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to "take into account the effects of their undertakings on historic properties." The purpose of the Section 106 process is to identify historic and archaeological properties that could be affected by the undertaking; assess the effects of the project; and investigate methods to avoid, minimize, or mitigate adverse effects on historic properties. Historic resources, if either listed on or eligible for the National Register of Historic Places (NRHP), are also generally afforded protection under Section 4(f).
    - **Applicability -** Alternative 2 would require minimal review under the NHPA because improvements are occurring within existing right-of-way. Alternatives 3 and 4 would require an historic properties inventory within the project's area of potential effect to identify any NRHP-eligible properties and assess effects to those properties. The existing railroad is likely a significant historic resource.

- **Section 4(f) of the Department of Transportation Act:** Section 4(f) protects publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites of local, state, and national significance. Federally funded transportation projects cannot "use" Section 4(f) properties unless there are no feasible and prudent avoidance alternatives and all possible planning to minimize harm has occurred.
    - **Applicability -** Alternative 2 is not anticipated to have any impact on Section 4(f) resources. Alternatives 3 and 4 may have impacts on Section 4(f) resources depending on the status of adjacent historic resource determinations and overall effects on the historic railroad. Section 4(f) applicability would be determined during the NEPA evaluation.
- **Endangered Species Act (Section 7) -** Section 7 of the Endangered Species Act (ESA) directs federal agencies to ensure that actions they authorize, fund, and/or conduct are not likely to jeopardize the continued existence of any federally proposed or listed species or result in destruction or adverse modification of critical habitat for such species. A Biological Assessment must be prepared if actions by a federal agency, or permits issued by a federal agency, will result in effects to threatened and endangered (T&E) species that occur in the vicinity of a proposed project.
    - **Applicability:** Given the limited scope of effects, urban setting, and no suitable habitat for T&E species, none of the alternatives are anticipated to have an adverse effect on ESA listed species. A determination of "no effect" can be made early in the project development phase within the biological resource baseline report prepared for the selected alternative.

The project area overlaps the Billings PCE (tetrachloroethene) federal Superfund site, which contains contaminated shallow groundwater and soils over large plume in downtown Billings. Available well logs in the vicinity of the project suggest groundwater is approximately 10 feet below ground surface. Alternatives 3 and 4, due to excavation of the roadway, could potentially encounter contamination. If Alternative 3 or Alternative 4 were advanced into the design phase, it is recommended that a Preliminary Site Investigation be conducted through geotechnical borings to collect representative soil and groundwater samples in order to better characterize the contamination and assess potential risk associated with construction. Coordination with the U.S. Environmental Protection Agency would be required during the design phase to identify constraints and construction methods.

STATE COMPLIANCE

The project alternatives include improvements to Montana Avenue, which is a federal-aid route under the jurisdiction of the Montana Department of Transportation (MDT). With the assumption that state funding would partially fund improvements, the projects would also be required to comply with the Montana Environmental Policy Act, or MEPA, by following MDT's environmental process. Implementation of any of the build alternatives would require a MEPA review. Documentation requirements for Alternatives 3 and 4 would be more substantial given the increased impacts of these alternatives.

The Montana State Historic Preservation Office (SHPO) would be involved in the effect determination process during the Section 106 review. MEPA compliance with the Montana Antiquities Act, if required, would also be accomplished through the same process as Section 106.

The project would require compliance with the appropriate water quality requirements of the Montana Water Quality Act as it relates to stormwater management during construction and long-term operation. The Montana Department of Environmental Quality (DEQ) administers the Montana Pollutant Discharge Elimination System (MPDES) project and an MPDES stormwater general permit and preparation of a Stormwater Pollution Prevention Plan (SWPPP) would likely be required for Alternatives 3 and 4 if the disturbance area is equal to or greater than 1 acre. The DEQ also administers the Municipal Separate Storm Sewer Systems (MS4) program; however, compliance with this regulation on a project-level basis would occur at the local level, as described below.

Both Alternatives 3 or 4 would be considered "development" or "redevelopment" and, following MDT's process for MS4 compliance, implementation of either alternative would require an evaluation of the feasibility of using low impact development (LID) practices. The LID practices would need to infiltrate, evapo-transpire, and/or capture for reuse, the post-construction runoff generated from the first 0.5 inches of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation. Completion of this analysis would be in coordination with Yellowstone County MS4 regulations, as described below.

LOCAL COMPLIANCE

Alternatives 3 and 4 would require stormwater compliance and reviews at the local level. The City of Billings is a regulated MS4; the project is located within the City of Billings City Limits and MS4 boundary area, and thus, subject to local MS4 permit requirements. The project will be required to comply with local MS4 permit requirement, including the City of Billings Stormwater Management Manual. Alternatives 3 and 4 would require a City of Billings MS4 compliance review. Additionally, approval of the SWPPP for Alternatives 3 and 4 would require a City of Billings compliance review.

No other local permits relative to the implementation of the build alternatives have been identified.

B.O.C.C Thursday Discussion 3.

Meeting Date: 06/11/2026

Title: Treasurer's Office - Service Complaints/Motor Vehicle 3% Charge

Submitted By: Erika Guy

TOPIC:

Treasurer's Office - Service Complaints/Motor Vehicle 2.5% Charge

BACKGROUND:

NA

RECOMMENDED ACTION:

Discuss

Attachments

Service Complaint 6.9.26

Erika Guy

From: Mark Morse
Sent: Tuesday, June 9, 2026 11:44 AM
To: commission
Subject: FW: Property Taxes

Erika – in discussion packet please, thanks.
Mark

From: Mike Waters <mwaters@yellowstonecountymt.gov>
Sent: Tuesday, June 9, 2026 10:26 AM
To: Hank Peters <hpeters@yellowstonecountymt.gov>
Cc: Mark Morse <mmorse@yellowstonecountymt.gov>; Chris White <cwhite@yellowstonecountymt.gov>
Subject: FW: Property Taxes

Hank,

This is not an isolated email. Please look at the process.

Mike

Mike Waters
Yellowstone County Commissioner, District 3
2825 3rd Ave. N. Billings, MT 59101 (Room 419)
Billings, MT 59101
(406) 256-2701

From: Mac Ketterling <mtketterling@gmail.com>
Sent: Tuesday, June 9, 2026 9:20 AM
To: Mike Waters <mwaters@yellowstonecountymt.gov>
Subject: Property Taxes

Good morning Commissioner. I am hoping you can explain why my recent property tax payment has been mistreated.

I mailed my payment to the Yellowstone County treasurer on the 16th of May. I'm pretty thorough about the follow through on checks I have sent to be sure they process timely. I also mailed another check to another Montana county for property owned there. Check written and mailed the same day as my Yellowstone County payment. The 2nd county involved processed my payment upon receipt. UPON RECEIPT!

In my follow up to the property taxes for Yellowstone County, I was told by the staff at the treasurer's office this morning, my payment for the Yellowstone County property tax I owed had been "placed into a bin". Commissioner, I mailed the check on May 16, I didn't see it posted to my bank by the 31st of May so I'm thinking it is lost??? I rush to make an echeck payment to avoid being

delinquent and potential for a penalty. TODAY I COME TO FIND OUT MY PROPERTY TAX PAYMENT WAS THROWN INTO A BIN???, BUT I'M SUPPOSED TO WAIT 2 WEEKS FOR REIMBURSEMENT?

Further, during this morning phone conversation I was informed they couldn't explain why the process is this way. There is no reason to throw my property tax payment into a bin to be processed at some other time, having the same regard for the excess funds I sent in an attempt to keep current....yet now I wait for reimbursement ?!!?? T

The comment this morning to me made by "Chris" in the treasurer's office was to get you involved. Apparently they can't make the process any more efficient without your blessing. Is that true?

Respectfully,
Mac Ketterling

B.O.C.C Thursday Discussion 4.

Meeting Date: 06/11/2026

Title: Ivy Correctional Medicine- first amendment to PSA

Submitted For: Melissa Williams, Deputy County Attorney

Submitted By: Melissa Williams, Deputy County Attorney

TOPIC:

County Attorney - Ivy Correctional Medicine- first amendment to PSA

BACKGROUND:

Ivy Correctional Medicine's contract will expire on June 20, 2026. The purpose of this discussion is to discuss the terms of the first amendment to Ivy's professional services agreement.

RECOMMENDED ACTION:

Agenda Item

B.O.C.C Thursday Discussion 5.

Meeting Date: 06/11/2026

Title: Mana Seward - Art at MontanaFair

Submitted By: Erika Guy

TOPIC:

Mana Seward - Art at MontanaFair

BACKGROUND:

NA

RECOMMENDED ACTION:

Discuss

B.O.C.C Thursday Discussion 6.

Meeting Date: 06/11/2026

Title: Big Sky EDA - Lockwood TEDD Phase Infrastructure Approach

Submitted By: Teri Reitz, Board Clerk

TOPIC:

Big Sky Economic Development - Lockwood TEDD Phase Infrastructure Approach

BACKGROUND:

See attached.

RECOMMENDED ACTION:

Discuss.

Attachments

Draft Scope of Work for Lockwood TEDD Phase Infrastructure Approach

---

BIG SKY ECONOMIC DEVELOPMENT

EDA • EDC CREATING MONTANA BUSINESS OPPORTUNITIES

Phased Approach Update to the Lockwood TEDD Infrastructure Master Plan Scope of Work

The phased approach should identify infrastructure improvements that are most likely to catalyze private industrial investment and accelerate taxable value growth within the TEDD.

Background

The Lockwood Targeted Economic Development District (TEDD) is located north of Interstate 90 and the Interstate 94 interchange and south of the Yellowstone River in Yellowstone County, Montana. The TEDD encompasses approximately 1,200 acres positioned for future industrial and employment-related development. The district is bisected by an active railroad corridor, existing rail spurs serving multiple properties, providing unique opportunities for rail-served industrial development.

Current access to the district is provided by Johnson Lane, Coulson Road, and the North Frontage Road corridor. Regional accessibility is being significantly enhanced through construction of the Montana Department of Transportation's Billings Bypass project, which will provide direct connectivity between Interstate 90 and transportation routes north of the Yellowstone River and the Billings Heights area. The Johnson Lane interchange serves as a key gateway connecting the TEDD to the regional transportation network.

In 2016, the Yellowstone County Board of County Commissioners established the Lockwood TEDD to facilitate strategic industrial growth, infrastructure investment, and long-term economic development opportunities. Subsequent planning efforts, including the Lockwood TEDD Strategic Plan and the 2017 Infrastructure Master Plan, identified critical infrastructure investments necessary to support development within the district.

Since completion of the original Infrastructure Master Plan, several conditions have evolved, including construction of the Billings Bypass, additional utility planning efforts, and recently awarded infrastructure funding through the U.S. Economic Development Administration (EDA). Current efforts include expansion of water and sewer infrastructure toward the TEDD boundary and potential extension of a 10-inch water line along the North Frontage Road corridor.

The Lockwood TEDD Advisory Board and Yellowstone County seek to build upon these prior planning efforts by exploring the option of a phased infrastructure implementation strategy utilizing the findings, recommendations, and technical analyses contained within previously completed TEDD planning documents. This effort is intended to prioritize infrastructure investments that can accelerate development readiness, including parcels located in flood zones, by providing sewer access and supporting phased industrial growth within the TEDD.

District Goals

The Lockwood TEDD is guided by the following economic development and infrastructure objectives:

- Facilitate development of planned, development-ready industrial land;
- Provide a locally driven funding mechanism for strategic infrastructure investment;
- Foster long-term economic and employment growth opportunities;
- Attract industrial users and encourage private capital investment;
- Support rail-served and transportation-oriented industrial development opportunities;
- Coordinate infrastructure investment with the Billings Bypass and regional transportation improvements;
- Support efficient infrastructure phasing and implementation strategies that maximize development readiness and return on investment;
- Encourage multimodal transportation connectivity and alternative transportation opportunities where appropriate.

Project Intent

This project is intended to update and refine implementation priorities identified within the existing Lockwood TEDD Infrastructure Master Plan and related planning documents. The County does not intend for this effort to recreate or replace previously completed infrastructure planning work.

Rather, the selected consultant shall utilize existing studies, technical memorandums, and infrastructure planning documents as the basis for evaluating current conditions, identifying changed assumptions or opportunities, evaluating the feasibility of a phased development, and providing a phased infrastructure implementation strategy focused on development readiness and strategic infrastructure investment. Upon completion, the phased implementation strategy would integrate all phases into a single system and eliminate any redundant phased infrastructure.

The primary outcome of this effort should be an actionable implementation and phasing framework that assists the Lockwood TEDD Advisory Board and Yellowstone County in prioritizing infrastructure investments capable of supporting near-term and long-term industrial development opportunities.

Timeline

Yellowstone County and the Lockwood TEDD Advisory Board expect the completion of the project within six months of the consultant's selection.

Budget

The project is intended to provide planning-level evaluation and implementation recommendations sufficient to support infrastructure prioritization, grant readiness, and future engineering decisions. Detailed engineering design, surveying, modeling, and construction documentation are not anticipated as part of this scope.

Project Scope of Work

Task 1 – Review of Existing Planning Documents

Consultant shall review and utilize previously completed planning documents including:

- 2017 Lockwood TEDD Infrastructure Master Plan;
- Lockwood TEDD Strategic Plan;
- Preliminary Infrastructure Technical Memorandum by KLJ;
- Billings Bypass planning and engineering information;
- Existing utility and transportation studies;
- Other relevant TEDD planning documents and technical information.

The consultant shall identify:

- infrastructure recommendations that remain applicable,
- changed conditions impacting implementation priorities,
- opportunities to refine infrastructure sequencing,
- temporary or relocatable facilities required for phasing,
- infrastructure investments most likely to support near-term industrial development.
- Phasing that provides earlier utility access to floodplain properties.

Task 2 – Existing Conditions and Development Readiness Evaluation

Rather than conducting a full redevelopment analysis, the consultant shall:

- evaluate current infrastructure availability and constraints;
- assess transportation and freight access opportunities;
- review rail-served development potential;
- identify development-ready and catalyst areas within the TEDD;
- evaluate infrastructure gaps limiting industrial development potential.

Particular consideration should be given to:

- the Billings Bypass;
- Johnson Lane interchange connectivity;
- frontage road access;
- railroad and rail spur access;
- water rights, types and conversion rates
- utility extension opportunities;
- and industrial development patterns.
- Freight mobility considerations;
- Truck circulation and industrial access;
- Rail-served development opportunities;
- Coordination with MDT access management;
- Connectivity to regional freight corridors.

Task 3 – Infrastructure Phasing Strategy

Consultant shall prepare a phased infrastructure implementation strategy that:

- prioritizes infrastructure investments capable of supporting industrial development readiness;
- identifies logical sequencing of water, wastewater, roadway, stormwater, and utility infrastructure improvements;
- evaluates infrastructure phases based on development potential, cost efficiency, constructability, and economic impact;
- identifies infrastructure trigger points for future phases;

- Identifies connectivity of phases into a single system;
- coordinates recommendations with existing and anticipated public infrastructure investments;
- incorporates planning-level cost estimates for each phase.

Deliverables

Consultant shall identify “early action” infrastructure projects that can reasonably be implemented within the near term to support marketable industrial development sites and private investment attraction efforts.

Midpoint, provide an interim report to the Lockwood TEDD Advisory Board of:

- Existing Conditions Memo;
- Preliminary Phasing Matrix;
- Draft Infrastructure Priorities Map

Completion

- Existing Conditions and Findings Memorandum;
- Infrastructure Phasing Matrix;
- Development Readiness Mapping;
- Planning-Level Cost Estimates by Phase;
- Infrastructure Prioritization Recommendations;
- Final Phased Infrastructure Implementation Strategy Memorandum;
- Presentation to the TEDD Advisory Board and Yellowstone County Commissioners.

The County encourages efficient use of previously completed planning documents and available technical information to avoid duplication of prior work.

Planning-level opinion-of-probable-cost estimates by infrastructure phase are sufficient for purposes of this project.

B.O.C.C Thursday Discussion 7.

Meeting Date: 06/11/2026

Title: Melanie Schwarz & Karen Sylvester - Community Prevention Quarterly Update

Submitted By: Erika Guy

TOPIC:

Melanie Schwarz & Karen Sylvester - Community Prevention Quarterly Update

BACKGROUND:

NA

RECOMMENDED ACTION:

Discuss

B.O.C.C Thursday Discussion
Meeting Date: 06/11/2026
Title: CLOSED: Claims- Cooper, Frickle Litigation update- Dauenhauer
Submitted For: Melissa Williams, Deputy County Attorney
Submitted By: Melissa Williams, Deputy County Attorney

TOPIC:
CLOSED: Claims- Cooper, Frickle Litigation update- Dauenhauer

BACKGROUND:
CLOSED

RECOMMENDED ACTION:
Agenda Item

B.O.C.C Thursday Discussion

Meeting Date: 06/11/2026

Title: Litigation update: Vlahos

Submitted By: Steve Williams

TOPIC:

CLOSED: Vlahos v. BOCC

BACKGROUND:

Chris Vlahos filed an appeal regarding the denial of a zoning change in Lockwood. The zone change would permit manufactured homes to be built at Johnson Lane.

RECOMMENDED ACTION:

Discuss
