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<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
</tr>
<tr>
<td>BUILD</td>
<td>Better Utilizing Investments to Leverage Development</td>
</tr>
<tr>
<td>CMAQ</td>
<td>Congestion Mitigation and Air Quality Improvement Program</td>
</tr>
<tr>
<td>DHI</td>
<td>Downtown Helena, Inc.</td>
</tr>
<tr>
<td>HBID</td>
<td>Helena Business Improvement District</td>
</tr>
<tr>
<td>HSIP</td>
<td>Highway Safety Improvement Program</td>
</tr>
<tr>
<td>LOS</td>
<td>Level of Service</td>
</tr>
<tr>
<td>LPI</td>
<td>Leading Pedestrian Interval</td>
</tr>
<tr>
<td>LRTP</td>
<td>Long Range Transportation Plan</td>
</tr>
<tr>
<td>MDT</td>
<td>Montana Department of Transportation</td>
</tr>
<tr>
<td>MIG</td>
<td>MIG, Inc. (Consulting Firm)</td>
</tr>
<tr>
<td>mph</td>
<td>miles per hour</td>
</tr>
<tr>
<td>MRL</td>
<td>Montana Rail Link</td>
</tr>
<tr>
<td>MUTCD</td>
<td>Manual on Uniform Traffic Control Devices</td>
</tr>
<tr>
<td>NH</td>
<td>National Highway Performance Program</td>
</tr>
<tr>
<td>NHS</td>
<td>National Highway System</td>
</tr>
<tr>
<td>NMTAC</td>
<td>Non-Motorized Travel Advisory Council</td>
</tr>
<tr>
<td>PDO</td>
<td>Property Damage Only</td>
</tr>
<tr>
<td>RMDC</td>
<td>Rocky Mountain Development Council</td>
</tr>
<tr>
<td>RPA</td>
<td>Robert Peccia and Associates (Consulting Firm)</td>
</tr>
<tr>
<td>RRFB</td>
<td>Rectangular Rapid Flashing Beacon</td>
</tr>
<tr>
<td>RTP</td>
<td>Recreational Trails Program</td>
</tr>
<tr>
<td>SID</td>
<td>Special Improvement District</td>
</tr>
<tr>
<td>STPU</td>
<td>Surface Transportation Program - Urban Highway System</td>
</tr>
<tr>
<td>TA</td>
<td>Transportation Alternatives Program</td>
</tr>
<tr>
<td>TIF</td>
<td>Tax Increment Financing</td>
</tr>
<tr>
<td>TWLTL</td>
<td>Two-Way Left Turn Lane</td>
</tr>
<tr>
<td>URD</td>
<td>Urban Renewal District</td>
</tr>
<tr>
<td>US 12</td>
<td>US Highway 12</td>
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</table>
ACKNOWLEDGMENTS

The following individuals provided guidance, oversight, and support toward the successful completion of the traffic study.

City of Helena
Mark Young, PE – Project Manager, Transportation Engineer
David Knoepke, PE – Transportation Systems Director
Ryan Leland, PE – Public Works Director
Wilmot Collins – Mayor of Helena
Emily Dean – City Commissioner
Andres Haladay – City Commissioner
Sean Logan – City Commissioner
Heather O’Loughlin – City Commissioner

Consultant Team
This plan was developed by consulting firms Robert Peccia and Associates (RPA) out of Helena, Montana, and MIG, Inc. (MIG) from Denver, Colorado. The following team members contributed to the plan.

Robert Peccia and Associates
Scott Randall, PE, PTOE – Project Manager
Sarah Nicolai, PE, PTP – Senior Planner
Kerry Pedersen, PE – Transportation Planner/Engineer
Dan Norderud, AICP – Senior Environmental Planner
Shane Forsythe, PE – Traffic Engineer
April Gerth, PE – Road Design Manager
Staci Venner, PE – Senior Road Designer

MIG, Inc.
Andy Rutz, CNU-A – Urban Design Project Manager
Evan Lanning – Project Associate
The City of Helena has completed a multimodal traffic study to assess and provide recommendations for improving the five-point intersections and corridors connecting the Downtown and Midtow ne areas of Helena. The two five-point intersections included in the evaluation are located at Lyndale Avenue/Montana Avenue/Helena Avenue and Last Chance Gulch/Helena Avenue/Neill Avenue. The connecting corridor segments evaluated include Last Chance Gulch, Lyndale Avenue, Helena Avenue, and Montana Avenue.

The purpose of the Five-Point Intersections and Corridor Connections Multimodal Traffic Study was to develop a comprehensive long-range plan for managing the transportation network and to identify feasible improvement options to address needs identified by the public, study partners, and local stakeholders. The traffic study provides an examination of geometric characteristics, crash history, land uses, physical constraints, environmental resources, and existing and projected operational characteristics and multimodal needs of the intersections and corridors.

The primary concern at the two five-point intersections is the non-standard layouts and geometrics, which can cause driver confusion and poor operating efficiency, particularly during peak hours. Past studies have identified additional concerns at the intersections regarding safety, a lack of suitable non-motorized infrastructure, and access to commercial and residential areas. Improvements are also needed along the connecting corridors to accommodate multimodal users, integrate green infrastructure and streetscaping, and enhance overall access and connectivity.

The City of Helena and the consulting firms RPA and MIG used a collaborative process to develop the traffic study, with focused outreach efforts to engage the public and key stakeholders. Activities completed during the traffic study include the following:

- Review and consideration of past planning efforts
- Investigation and analysis of existing transportation conditions
- Research of known environmental resources and applicable regulations in the study area
- Identification and documentation of future conditions
- Identification of issues and areas of concern
- Consultation/coordination with local officials, stakeholders, and the public
- Development of improvement options with consideration of costs, available funding, feasibility, public input, and known site constraints

Public and Stakeholder Outreach

Active participation and community input were encouraged throughout the planning process. Key audiences included transportation system users, residents and neighborhood organizations, business groups, property owners, emergency service providers, schools, transit organizations, freight haulers, non-motorized groups, rail companies, and agencies serving low-income, elderly, and disabled populations. The following engagement methods were employed during the traffic study to identify areas of concern which assisted in the process of developing recommended improvement options:

- Engaged the public to refine the project scope and discuss the planning process.
- Provided study information through a project website hosted by the City of Helena.
- Hosted two sets of public meetings to distribute information and gain feedback about the study and improvement options.
- Facilitated conversations with stakeholders to discuss issues, needs, and potential improvements.
- Maintained an email contact list of stakeholders and interested members of the public.

Opinions about issues, needs, and preferred improvements typically varied according to geographic and modal area of interest. From these comments, the following common themes were identified.

**SAFETY**

Improved facilities are needed to minimize conflicts, enhance visibility, and provide comfort for all users at intersections, midblock locations, and along transportation corridors.

**CONNECTIVITY**

Improved vehicular and non-motorized connections are needed to provide continuous facilities and direct routes between Downtown and Midtowne areas of Helena, trail systems, and residential and commercial developments.

**ACCESS**

Improved accessibility is needed to ensure individuals with disabilities can reach desired destinations.

**MOBILITY**

Improved circulation, function, and facility extension is needed at study area intersections and corridors.

**APPEAL**

 Beautification enhancements are desired to visually connect gateway intersections and corridor segments to the Downtown area and to attract pedestrians and bicyclists.
TRANSPORTATION SYSTEM

The traffic study assessed existing transportation conditions through an evaluation of existing documentation, on-site field reviews, and supplemental data collection. This assessment resulted in identification of the following areas of concern related to the transportation system.

Physical Features and Characteristics

- Study corridors provide access to Downtown Helena as well as primary commercial, business, and residential districts.
- The two five-point intersections have non-standard geometrics, which can cause driver confusion and poor operating efficiency, particularly during peak hours and for unfamiliar drivers.
- The community has expressed desires for improved business access and circulation within the Downtown and Midtown areas.
- Past studies have proposed converting Last Chance Gulch to a two-way street, while other plans have recommended maintaining one-way traffic.
- Concerns have been raised regarding loading, visibility, speeds, traffic circulation, and access to businesses and adjacent properties.
- Many businesses in the Downtown area have limited on-site, off-street parking. Based on past planning efforts and public/stakeholder input, the community has expressed that on-street parking is important and should be maintained to the greatest extent possible with any improvements in the study area.

Non-Motorized Characteristics and Accommodations

- Non-motorized activity is common along Last Chance Gulch and near the schools in the study area.
- The 2010 City of Helena Complete Streets Resolution requires all new and reconstructed roadways to accommodate all modes of transportation and people of all ages and abilities.
- Maintaining and prioritizing safe, accessible, and connected multimodal accommodations in the Downtown area is important to the Helena community. Improvements are desired to address the needs of all users.
- Although the study area includes some dedicated facilities for pedestrians and bicyclists, discontinuities, barriers, and a lack of facilities in some locations pose challenges for non-motorized users.
- Several non-motorized accommodations—including better non-motorized connections and extensions of facilities, additional bike lanes/cycle tracks, curb bulbouts, and safer crossings—have been recommended in past planning documents and should be considered with improvements recommended by this traffic study.

Vehicular Traffic Characteristics and Growth

- Distinct peaks in traffic align with morning commute times, midday lunch times, school release times, and evening commute times. The immediate areas around schools in the study area experience short duration/high-density traffic flow issues that are not typically reflected in traffic volume counts and operational calculations.
- Heavy vehicles constitute about one to three percent of the vehicle mix in the study area.
- When a train is present at the Montana Avenue rail crossing, long queues regularly form on Montana Avenue extending as far as Billings Avenue, especially in the right lane for vehicles continuing north on Montana Avenue. Queuing can have a negative effect on traffic operations at the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. It is a high priority for the City of Helena to reduce congestion and increase safety at the rail crossing.
- Over the last 20 years, the study area has, on average, experienced slowly declining traffic volumes. Future modeling and projections predict that the study area will experience moderate growth over the next 20 years.
- Under existing conditions, four intersections operate at a failing level of service (LOS) during one or more peak hours. If no modifications or changes to traffic control are implemented, five intersections are projected to operate at a failing LOS by 2040 during one or more peak hours.
- Redevelopment and revitalization of the study area is anticipated with the recent establishment of the Helena Downtown Urban Renewal District (URD) as well as continued implementation of the Railroad URD and expected redevelopment at the former Caird Engineering Works property. Depending on the type and location of growth and redevelopment that ultimately occurs within the study area, reevaluation of traffic growth rates and intersection operations may be required.

Safety

- A total of 397 crashes were reported within the study area between 2014 and 2018. One crash resulted in a fatality and six crashes resulted in suspected serious injuries. Overall, the number of yearly crashes has declined.
- About 60 percent of crashes were reported as occurring at or being related to an intersection.
- Crashes most commonly occur on weekdays during peak travel times.
- Rear-end (43%) and right-angle (21%) crashes were the most commonly reported crash types.
- Approximately 8 percent of crashes occurred during inclement weather conditions, and about 31 percent of crashes occurred under adverse road conditions.
- There were 11 non-motorists involved in crashes including 8 pedestrians, 2 bicyclists, and 1 unknown type.

Long queues form on Montana Avenue when a train is present. Queuing occasionally impacts operations at the nearby five point intersection.

Over the five-year crash analysis period (2014-2018), 11 non-motorists were involved in crashes. Safe, accessible, and connected non-motorist accommodations are desirable.

Improved business access, circulation, and parking is desired within the Downtown area.
ENVIRONMENTAL SETTING

The following physical, biological, social, and cultural resources were identified which may be affected by future improvements within the study area. Project-level environmental analysis may be required for improvements forwarded from this traffic study.

Physical Resources
- Helena is in a moderate-high seismic risk zone with low-moderate potential for liquefaction.
- Helena is subject to small municipal separate storm sewer system permit requirements and Montana Pollutant Discharge Elimination System permits may be required for any projects advanced.
- About 130 active wells exist within the study area, with most used for monitoring/testing.
- A small area located parallel to Last Chance Gulch is designated with 0.2 percent annual chance of flood.
- There are 12 Brownfield sites and 11 hazardous waste generators within the study area.
- There are 6 hazardous waste release sites and 2 remediation response sites in the study area.
- There are 19 underground storage tanks within the study area, 13 of which are active. There were 26 petroleum release claims filed for 34 releases in the study area.
- There are two abandoned or inactive mine sites in the study area.
- Residences and parklands may be affected by noise impacts during roadway construction.

Biological Resources
- The urban nature of the study area limits the diversity of land cover.
- There are 17 species of concern with evidence of sustained presence in the study area.

Social and Cultural Resources
- There may be a higher percentage of low-income populations within the study area than state and nationwide averages.
- There are several designated parks and open spaces within the study area that may be impacted by improvement options; potential effects should be considered in accordance with Section 4(f) and Section 6(f).
- There are 7 historic properties and 1 historic district within the study area listed on the National Register of Historic Places.

Likely Unaffected Resources
- Due to the urban nature of the study area, adverse impacts to farmlands, irrigation features, wetlands, and air quality are not anticipated.

RECOMMENDED IMPROVEMENTS

Several improvements were developed to address the areas of concern identified through evaluation of transportation and environmental conditions and to reflect the needs and desires voiced by the public and stakeholders. In some cases, a single improvement was identified and recommended to address the issue at a particular location. For more complex issues involving street design, intersection configuration, and routing, an evaluation of multiple potential solutions was conducted to determine a recommended improvement. Screening criteria tailored to each option addressed operations and circulation, safety, impacts, community vision, and implementation considerations. Recommended improvements attempt to balance the needs and concerns identified through the traffic study while minimizing impacts to adjacent properties and land uses, aligning with the community vision, and enabling reasonable, feasible implementation.

Timeframe
The timing and ability to implement improvements depends on factors including availability of funding, right-of-way needs, and other project delivery elements. Implementation timeframes were estimated for each recommendation with consideration of project needs, complexity, and potential funding sources. The following implementation timeframes do not reflect a commitment to develop the recommendations.
- Short-term: Implementation is feasible within a 0- to 5-year period.
- Mid-term: Implementation is feasible within a 5- to 10-year period.
- Long-term: Implementation is feasible within a 10- to 20-year period.

Estimated Cost
Planning-level cost estimates were developed which include estimates for construction, engineering, and a general contingency based on unknown factors. Costs are presented in 2021 dollars and can be expected to increase with inflation depending on the anticipated future year of expenditure.

Potential Funding Sources
Recommended projects may be eligible for funding through local, state, and/or federal programs. Additionally, private funds may be available for certain projects. No funding has been identified or dedicated for any improvements recommended in this traffic study.

Other Project Development Considerations and Next Steps
Recommended improvements forwarded from this traffic study will be subject to the City of Helena and/or the Montana Department of Transportation’s (MDT) standard project development processes. These processes typically include activities such as public and stakeholder coordination, environmental impact analysis and permitting, utility conflict mitigation, traffic and safety analyses, hydraulic and geotechnical investigations, and right-of-way acquisition based on project location and design features. Compliance with all applicable permits, laws, and regulations and coordination with affected landowners and jurisdictional agencies would be required. Recommended improvements can be developed as stand-alone projects, or, in some cases, combined as larger projects to achieve cost savings and efficiencies.
Recommended improvement options are grouped according to four connecting corridor segments.

**Last Chance Gulch Corridor**
- LCG-1. Last Chance Gulch Street Design - South of Neill Avenue
- LCG-2. Last Chance Gulch Street Design - North of Neill Avenue
- LCG-3. Last Chance Gulch Sidewalk Improvements
- LCG-4. Last Chance Gulch Signal Modifications - 6th Avenue and Lawrence Street Intersections
- LCG-5. Last Chance Gulch Pedestrian Improvements - Placer Avenue Intersection
- LCG-6. Last Chance Gulch Five-Point Intersection Improvements

**Lyndale Avenue Corridor**
- LYN-1. Lyndale Avenue Pedestrian Crossing - Ewing/Rodney Streets

**Helena Avenue Corridor**
- HLN-1. Helena Avenue Bike Lanes
- HLN-2. Helena Avenue Pedestrian Improvements
- HLN-3. Helena Avenue Triangle Intersection Improvements - 13th Street to 15th Street
- HLN-4. Helena Avenue Intersection Improvements - 16th/Ewing Streets
- HLN-5. Helena Avenue Intersection Improvements - National/Dakota/Boulder Avenues

**Montana Avenue Corridor**
- MT-1. Montana Avenue Rail Crossing
- MT-2. Montana Avenue Five-Point Intersection Improvements
- MT-3. Montana Avenue Centennial Trail Crossing and Extension
<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Recommendation</th>
<th>Timeframe</th>
<th>Cost</th>
<th>Potential Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCG-1</td>
<td>Last Chance Gulch Street Design – South ofNeill Avenue</td>
<td>Maintain existing roadway configuration; extend streetscape enhancements</td>
<td>Short-term to Mid-term</td>
<td>$50,000 - $150,000</td>
<td>HBID/TIF, City Funds</td>
</tr>
<tr>
<td>LCG-2</td>
<td>Last Chance Gulch Street Design – North ofNeill Avenue</td>
<td>Install streetscape enhancements</td>
<td>Short-term to Mid-term</td>
<td>$350,000 to $1.2M</td>
<td>HBID/TIF, City Funds</td>
</tr>
<tr>
<td>LCG-3</td>
<td>Last Chance Gulch Sidewalk Improvements</td>
<td>Repair or replace deficient sidewalk along northern and southern segments of Last Chance Gulch</td>
<td>Short-term to Mid-term</td>
<td>$230 - $340 per linear foot</td>
<td>HBID/TIF, City Funds, TA</td>
</tr>
<tr>
<td>LCG-4</td>
<td>Last Chance Gulch Signal Modifications – 6th Avenue and Lawrence Street Intersections</td>
<td>Modify traffic signal to provide leading pedestrian interval (LPJ)</td>
<td>Short-term</td>
<td>$3,000</td>
<td>City Funds</td>
</tr>
<tr>
<td>LCG-5</td>
<td>Last Chance Gulch Pedestrian Improvements - Place Avenue Intersection</td>
<td>Install Americans with Disabilities Act (ADA) compliant curb ramps, curb bulbouts, and colored crosswalks</td>
<td>Short-term</td>
<td>$110,000</td>
<td>HBID/TIF, City Funds, TA</td>
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<tr>
<td>LCG-6</td>
<td>Last Chance Gulch Five-Point Intersection Improvements</td>
<td>Install single-lane roundabout (long-term); implement pedestrian/ beautification improvements (short-term)</td>
<td>Short-term to Long-term</td>
<td>$90,000 (short-term); $2.5M - $3.2M (long-term)</td>
<td>HBID/TIF, City Funds, Discretionary Grant Funding, STPU, CMAQ</td>
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**LAST CHANCE GULCH CORRIDOR**

**LYNDALE AVENUE CORRIDOR**

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Recommendation</th>
<th>Timeframe</th>
<th>Cost</th>
<th>Potential Funding Sources</th>
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</thead>
<tbody>
<tr>
<td>LYN-1</td>
<td>Lyndale Avenue Pedestrian Crossing - Ewing/Rodney Streets</td>
<td>Remove existing crossing at Warren Street; provide enhanced pedestrian crossing at Ewing Street/Rodney Street; install shared use path or sidewalk adjacent to northern leg of intersection connecting to Centennial Trail; install sidewalks and sharrow markings on Rodney Street from Lyndale Avenue to Helena Avenue</td>
<td>Short-term to Mid-term</td>
<td>$520,000</td>
<td>City Funds, Railroad URD/TIF, TA, NH, HSIP</td>
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</tbody>
</table>

**HELENA AVENUE CORRIDOR**

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th>Recommendation</th>
<th>Timeframe</th>
<th>Cost</th>
<th>Potential Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLN-1</td>
<td>Helena Avenue Bike Lanes</td>
<td>Extend bike lanes to within a half block of the two five-point intersections; install signage instructing bicyclists to use the full travel lane where bike lanes end approaching the five-point intersections</td>
<td>Short-term</td>
<td>$3,000</td>
<td>City Funds, Railroad URD/TIF, TA</td>
</tr>
<tr>
<td>HLN-2</td>
<td>Helena Avenue Pedestrian Accommodations</td>
<td>Provide continuous sidewalks on both sides of Helena Avenue; install ADA accessible curb ramps</td>
<td>Short-term to Mid-term</td>
<td>$190,000</td>
<td>City Funds, Railroad URD/TIF, TA</td>
</tr>
<tr>
<td>HLN-3</td>
<td>Helena Avenue Triangle Intersection Improvements – 13th Street to 15th Street</td>
<td>Convert triangle spurs to open space or parking; extend constructed corners with curb/gutter, sidewalk, and ADA curb ramps; install marked crosswalks and appropriate signage</td>
<td>Short-term to Mid-term</td>
<td>$150,000 - $190,000</td>
<td>City Funds, TA, Private</td>
</tr>
<tr>
<td>HLN-4</td>
<td>Helena Avenue Intersection Improvements – 16th/Ewing Streets</td>
<td>Install ADA accessible pedestrian crossing enhancements including curb bulbouts, signage, and pavement markings; reorient northern Ewing Street approach</td>
<td>Short-term</td>
<td>$120,000</td>
<td>City Funds, TA</td>
</tr>
<tr>
<td>HLN-5</td>
<td>Helena Avenue Intersection Improvements - National/Dakota/ Boulder Avenues</td>
<td>Install pedestrian crossing enhancements including curb bulbouts, signage, and pavement markings; realign intersection to improve geometrics</td>
<td>Short-term</td>
<td>$190,000</td>
<td>City Funds, Railroad URD/TIF, TA</td>
</tr>
</tbody>
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**MONTANA AVENUE CORRIDOR**

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<tr>
<th>ID</th>
<th>Name</th>
<th>Recommendation</th>
<th>Timeframe</th>
<th>Cost</th>
<th>Potential Funding Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-1</td>
<td>Montana Avenue Rail Crossing</td>
<td>Construct grade-separated rail crossing on Montana Avenue</td>
<td>Long-term</td>
<td>$35.4M</td>
<td>City Funds, Discretionary Grant Funding, NH, Private</td>
</tr>
<tr>
<td>MT-2</td>
<td>Montana Avenue Five-Point Intersection Improvements</td>
<td>Install a multi-lane roundabout (long-term); implement pedestrian and streetscaping beautification improvements (short-term)</td>
<td>Short-term to Long-term</td>
<td>$4.9M - 5.9M</td>
<td>City Funds, Railroad URD/TIF, Private, Discretionary Grant Funding, NH, CMAQ</td>
</tr>
<tr>
<td>MT-3</td>
<td>Montana Avenue Centennial Trail Crossing and Extension</td>
<td>Extend Centennial Trail along National Avenue and Argyle Street; provide enhanced pedestrian crossing at Bozeman Street; update the Centennial Trail Master Plan</td>
<td>Short-term to Mid-term</td>
<td>$420,000 - $530,000</td>
<td>City Funds, Railroad URD/TIF, TA, Private</td>
</tr>
</tbody>
</table>

**Table ES-1: Recommended Improvements**

After a comprehensive review of transportation infrastructure and user characteristics, coupled with focused public and stakeholder outreach, a package of feasible improvement options were identified to improve multimodal safety, connectivity, access, mobility, and appeal within the Downtown and surrounding areas of Helena. Implementation of improvement options ultimately depends on funding availability, right-of-way needs, and other project delivery elements. Recommended improvements are presented as preliminary concepts and may be refined or modified during future project development and engineering design activities. Table ES-1 contains a summary of recommended improvements.

**Timeframe:** The timing and ability to implement improvements depends on factors including availability of funding, right-of-way needs, and other project delivery elements. Implementation timeframes were estimated for each recommendation in consideration of project needs, complexity, and potential funding sources and do not reflect a commitment to develop the recommendations. 
- **Short-term:** Implementation is feasible within a 0- to 5-year period; Mid-term: Implementation is feasible within a 5- to 10-year period; Long-term: Implementation is feasible within a 10- to 20-year period

**Costs:** Planning-level cost estimates include construction, engineering, and a general contingency to account for unknown factors and anticipated project development risk level. Estimates do not include costs for right-of-way as additional design details may be needed. The estimates are presented in 2021 dollars and can be expected to increase with inflation depending on the anticipated future year of expenditure.
CHAPTER 1: INTRODUCTION

The City of Helena engaged Robert Peccia and Associates (RPA) to develop a multimodal traffic study to assess and provide recommendations for improving the five-point intersections and corridors connecting the Downtown and Midtowne areas of Helena. The two five-point intersections included in the evaluation are located at Lyndale Avenue/Montana Avenue/Helena Avenue and Last Chance Gulch/Helena Avenue/Neill Avenue. The multimodal traffic study also evaluated the connecting corridor segments of Last Chance Gulch, Lyndale Avenue, Helena Avenue, and Montana Avenue. A study area map is shown in Figure 1.

The two five-point intersections have non-standard layouts and geometrics. The configurations can cause driver confusion and poor operating efficiency, particularly during peak hours. Past studies have identified concerns regarding safety, a lack of suitable non-motorized infrastructure, and access to commercial and residential areas. Additionally, improvements are needed to connecting corridors to accommodate multimodal users, integrate green infrastructure and streetscaping, and enhance access and connectivity.

This traffic study considered all previously completed planning efforts, assessed existing and projected transportation and environmental conditions, provided an in-depth analysis of feasible improvement options, and identified recommendations to be implemented over the next 20 years to address multimodal safety, connectivity, access, mobility, and appeal needs within the study area.
Figure 1: Study Area

The study area includes the four connecting corridors: Last Chance Gulch, Helena Avenue, Lyndale Avenue, and Montana Avenue as well as the two five-point intersections of Lyndale Avenue/Montana Avenue/Helena Avenue and Last Chance Gulch/Helena Avenue/Neill Avenue.
1.1. STUDY BACKGROUND
Multiple local plans and documents are related to transportation and land use within the study area. Some of these documents include analysis and recommendations for facilities or future improvements to the study corridors. The following sections provide a summary of the plans and studies as they relate to this traffic study.

Centennial Trail Master Plan (2009)
The Centennial Trail Master Plan\(^1\) explored options for implementing an east/west bicycle and pedestrian route through Helena to connect Spring Meadow State Park to the East Helena Bike Path. Numerous alternatives were derived for routing Centennial Trail through Helena including specific configurations for various major street crossings. The segment from Centennial Park to North Montana Avenue lies within the study area for this traffic study. The portion between Centennial Park and National Avenue has been completed while the segment between National Avenue and North Montana Avenue has not due to the need for route determination, possible land acquisition, and stakeholder input. Two alternatives were proposed for crossing North Montana Avenue. Alternative A routed the trail on Argyle Street with a midblock crossing of Montana Avenue at Gallatin Street. Alternative B routed the trail on Lyndale Avenue and provided a crossing at the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. Alternative B was recommended for implementation.

City of Helena Parks, Recreation and Open Space Plan (2010)
The primary purpose of the Helena Parks, Recreation and Open Space Plan\(^2\) was to develop goals and recommendations for managing parks and recreation services in the City of Helena. The plan assesses the needs of the community, identifies recommendations for improving, enhancing and maintaining these facilities, opportunities and programs, and provides code enforcement. While the plan does not make specific recommendations for the transportation system, it does recommend utilizing the Helena Long Range Transportation Plan to promote continued development of connections to key community resources and to the broader regional trail network.

Helena Gateway Intersection Concept Study (2012)
The Helena Gateway Intersection Concept Study\(^3\) evaluated the feasibility of improvements to the intersection of Last Chance Gulch/Helena Avenue/Neill Avenue. The alternatives included converting the intersection into a roundabout or expanding the signalized intersection. Based on intersection analysis results, public input, and study conclusions, Alternative 1B (single-lane roundabout with two-lane entry from Neill Road) and Alternative 6 (enlarged signalized intersection) were recommended to be carried forward for further analysis. Further evaluation for converting Last Chance Gulch to two-way travel was also recommended, along with completion of a full environmental review process.

Caird Property & Midtowne Neighborhood Community Visioning Project (2014)
The Caird Engineering Works property is located in the southeast quadrant of the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. The site was contaminated with asbestos, arsenic, and lead from historic industrial use of the property. Cleanup of the site was completed in 2014 and redevelopment activities are currently being evaluated. The Caird Property & Midtowne Neighborhood Community Visioning Project\(^4\) identified needs, opportunities, and a vision for social, ecological, and economic revitalization of the 2.7-acre former industrial site. As part of its broad vision for the area within a quarter-mile radius of the property, community feedback indicated a desire for green corridors, enhanced infrastructure for transit, walking, and biking, and an emphasis on child safety and access. Specific transportation strategies included: greenways providing biking and walking routes connecting with the Centennial Trail, safe pedestrian crossings on Montana Avenue, improved vehicle access and operations, with specific attention to the five-point intersection and commercial/industrial destinations; and enhanced public transit. Two design concepts were developed for redevelopment of the Caird property. Concept A focused on creating a railroad history and arts district, with the Lyndale Avenue/Montana Avenue/Helena Avenue intersection converted to a standard four-way intersection by closing Helena Avenue to vehicular traffic within the project area and providing protected lanes and/or refuge islands for bikes and pedestrians. Concept B outlined elements for a “green district”, with a roundabout at the five-point intersection. Both concepts included transportation elements such as dedicated bike and pedestrian routes and crossings, traffic calming measures, and off-street parking.

Greening Last Chance Gulch (2013)
Under the U.S. Environmental Protection Agency’s Greening America’s Capitals program, the Greening Last Chance Gulch\(^5\) creates a common vision for the historic Downtown main street, Last Chance Gulch. The focus sites for the study included Last Chance Gulch north of Neill Avenue; Fuller Avenue/Neill Avenue/Front Street Area; Last Chance Gulch from Neill Avenue to the Pedestrian Mall; Last Chance Gulch and 6th Avenue Intersection; and Last Chance Gulch/Helena Avenue/Neill Avenue intersection. Recommended options included a street redesign that supports all transportation modes, makes better use of existing parking spaces, adds new green infrastructure features for environmental benefit, and provides improved walkability on Downtown streets. Specifically, the study proposed a pilot project to gauge community acceptance of converting Last Chance Gulch to two-way traffic, as well as modifying the five-point intersection to a “greenabout” directing vehicular traffic counter-clockwise around Cruse Park, simplifying vehicle and bicycle travel movements and signal functions.

The Centennial Trail ends abruptly at National Avenue. The connection across Montana Avenue has not yet been completed.
Greater Helena Area Long Range Transportation Plan (2014)

The Greater Helena Area Long Range Transportation Plan – 2014 Update (LRTP) was a joint effort between the City of Helena, Lewis and Clark County, and the Montana Department of Transportation (MDT) to update the 2004 LRTP. The LRTP is a summary of the existing transportation system with an in-depth analysis of projected transportation conditions. The plan identifies recommendations for the vehicle and non-motorized networks as well as additional transportation considerations and a financial analysis. Both the 2004 and 2014 LRTPs identified recommendations to improve intersections and non-motorized facilities within the study area for this traffic study. Table 1 provides a list of these recommendations.


The City of Helena completed a Railroad Urban Renewal District (URD) Plan and established a tax increment financing (TIF) district to help fund improvements for the area bordered by North Last Chance Gulch to the west, Interstate 1-15 to the east, and extending several blocks north and south of the Montana Rail Link (MRL) tracks that run roughly through the center. The Railroad URD Plan identified a vision, goals, and objectives to revitalize the existing Railroad District with upgraded infrastructure, business expansion, and improved transportation functionality and connections within and outside the district, while still maintaining a commitment to preserving the area’s historic integrity.

Montana Rail Grade Separation Study (2016)

The Montana Rail Grade Separation Study included an evaluation of the more than 5,200 at-grade rail crossings and more than 400 grade-separated crossings in Montana. One of the crossings identified in the study was the Montana Avenue at-grade rail crossing. Improvements at this location have been identified in previous studies, including the 2004 and 2014 Helena LRTPs. The crossing is a high priority for the City of Helena to reduce congestion and increase safety. Due to existing site conditions, an underpass crossing solution was recommended, with Montana Avenue traversing underneath the railroad. Additionally, the study concluded that a new grade separation at Montana Avenue could allow closure of the crossings at Roberts Street and National Avenue. A pedestrian overpass was recommended at Roberts Street to maintain neighborhood pedestrian connectivity between schools and residential areas.

Downtown Helena Master Plan (2016)

The Downtown Helena Master Plan provides a conceptual vision for Downtown Helena. The plan is intended to guide growth and investment in Downtown Helena over the next 20 years through a diverse range of policy actions, physical changes, and marketing steps. Recommendations in the plan are based on five guiding principles: Walkability, Connected to Community, Desirable Place, Alive, and Convenient. Implementation of the recommendations requires the collective support of the City of Helena, Downtown Helena, Inc. (DHI), Helena Business Improvement District (HBID), and other partnering organizations.

Table 1: Helena LRTP Recommendations

<table>
<thead>
<tr>
<th>Project ID</th>
<th>Location</th>
<th>Recommendations</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSN-17</td>
<td>Montana Avenue/Lyndale Avenue/Helena Avenue Intersection</td>
<td>Construct a roundabout</td>
<td>Not Complete</td>
</tr>
<tr>
<td>TSM-35</td>
<td>Neill Avenue/Helena Avenue/Cruise Avenue/Last Chance Gulch</td>
<td>Modify intersection geometry</td>
<td>Not Complete</td>
</tr>
<tr>
<td>MSN-15</td>
<td>Montana Avenue/Lyndale Avenue/Helena Avenue Intersection</td>
<td>Create four-legged intersection, signalize National/Lyndale when warranted, limit Boulder/Montana to right-in/right-out</td>
<td>Not Complete</td>
</tr>
<tr>
<td>TSM-22</td>
<td>Neill Avenue/Helena Avenue/Cruise Avenue/Last Chance Gulch</td>
<td>Consider roundabout, enlarged signaled intersection, and no build options</td>
<td>Not Complete</td>
</tr>
<tr>
<td>C-6</td>
<td>Lyndale &amp; Montana Avenue</td>
<td>Install sidewalks and ADA improvements</td>
<td>Completed in 2020</td>
</tr>
<tr>
<td>TSM-16 / PED-11</td>
<td>Last Chance Gulch &amp; 14th Street</td>
<td>Improve intersection operations, install curb bulb-outs and crosswalk markings</td>
<td>Completed in 2020</td>
</tr>
<tr>
<td>PED-7</td>
<td>Helena Avenue &amp; 14th Street</td>
<td>Install curb bulb-outs and an Rectangular Rapid Flashing Beacon (RRFB)</td>
<td>Not Complete</td>
</tr>
<tr>
<td>PED-15</td>
<td>Lyndale Avenue &amp; Warren Street</td>
<td>Install hybrid beacon</td>
<td>Not Complete</td>
</tr>
<tr>
<td>BL-14</td>
<td>Lyndale Avenue</td>
<td>Install bike lanes</td>
<td>Not Complete</td>
</tr>
<tr>
<td>BL-18</td>
<td>Helena Avenue: Last Chance Gulch to 13th Street</td>
<td>Extend existing bike lanes up to five-point intersection; consider sharrow</td>
<td>Not Complete</td>
</tr>
<tr>
<td>BL-19</td>
<td>Helena Avenue: National Avenue to Roberts Street</td>
<td>Extend existing bike lanes across Montana Ave terminating at Roberts Street</td>
<td>Not Complete</td>
</tr>
<tr>
<td>CT-5</td>
<td>Last Chance Gulch: 6th Avenue to Front Street</td>
<td>Consider cycle track with on-lane one-way travel lane</td>
<td>Not Complete</td>
</tr>
</tbody>
</table>
The Downtown Helena Master Plan proposed the following recommendations which are applicable to this traffic study:

- Improve pedestrian crossings at intersections by adding curb bulbs, median refuges, and crosswalk markings.
- Improve pedestrian connectivity by improving, formalizing, and maintaining existing stairways and walkways connecting neighborhoods to Downtown.
- Improve the Neill Avenue corridor by creating a conventional T-intersection at Fuller Street, eliminating the right-turn slip lane at Park Avenue intersection, and providing improved pedestrian crossings.
- Allow bikes on malls (Last Chance Gulch and Great Northern walking malls) by signing these areas as Slow or Dismount Zones to minimize conflicts with pedestrians.
- Create an on-street bike network of bike routes and bike lanes. On low volume, low speed streets, sign bike routes with “sharrows”. On higher-volume, higher-speed routes, provide designated bike lanes by removing parking or reconfiguring lanes.
- Develop a north-south bikeway consisting of trails and cycle tracks to connect Centennial Park to Mount Helena Park.
- Convert Last Chance Gulch to two-way traffic to promote lower speeds and easier access.
- Simplify the five-point intersection at Last Chance Gulch/Helena Avenue to a 4-way stop.
- Improve the Hauser Boulevard/14th Street corridor by converting Hauser Boulevard to two-way traffic and adding a new traffic signal at 14th Street/Last Chance Gulch. Also consider a signal at Benton Avenue/ Hauser Boulevard.

City of Helena ADA Transition Plan (2017).

The Americans with Disabilities Act (ADA) Transition Plan documents the City of Helena’s ongoing commitment to providing equal access to all its public facilities, programs, services and activities for citizens with disabilities. In support of this goal, the plan summarizes a comprehensive evaluation of accessibility barriers and outlines recommendations to help guide future planning and implementation of necessary accessibility improvements. Building on an intersection curb ramp inventory conducted in 2011 for all streets in the city, the plan identifies five priority routes for accessibility. Priority routes include streets in proximity to government facilities, streets with higher traffic volumes, streets located along emergency snow routes, streets with public transit service, and streets with pedestrian attractors like schools, parks, and shopping. The following priority routes are located within the study area boundary:

- Helena Avenue, between Neill Avenue and Railroad Avenue.
- Downtown Area, east-west generally between North Park and Benton Avenue and Cruse Avenue and north-south between Neill Avenue to the intersection of South Park and Cruse Avenue. A leg section extends northward from Neill Avenue to Lyndale Avenue along North Last Chance Gulch.

City of Helena Growth Policy Update (2019)

The City of Helena Growth Policy guides future growth and development within the Helena city limits and adjacent areas. It serves as a basis for zoning and land use development and is intended to help with decisions related to budgeting, capital improvements, and annexation. The transportation chapter addresses multimodal transportation options for the city including non-motorized transportation, transit, rail, and other transportation service issues. The content of the chapter relies on a review of regional transportation trends and issues identified in the Helena LRTR Greater Helena Area Community Transportation Safety Plan and the Helena Area Transit Development Plan. As stated in the transportation goals and objectives, Helena intends to establish and maintain a strong multimodal transportation system, providing opportunity for all to travel safely and efficiently, on-pace and in concert with demand and overall Growth Policy objectives.

Downtown Renewal Vision for Cruse Avenue (2020)

The City of Helena prepared the Downtown Renewal Vision for Cruse Avenue to identify redevelopment options for the portion of Cruse Avenue from its intersection with Park Avenue to Lawrence Street. The plan considered three options including 1) narrowed vehicular right-of-way with the addition of bike lanes, pocket/linear parks, and residential development; 2) conversion to a linear park focused on pedestrians, bicyclists, and new residential development; and 3) a hybrid of the previous two approaches. The first alternative received the most support based on public and stakeholder feedback. Option 1 was further refined into two sub-options based on follow-up conversations with the Rocky Mountain Development Council (RMDC) and their plans for potentially constructing a new Neighborhood Center building if funding becomes available. The proposed improvements include Option A: Existing RMDC Neighborhood Center and Option B: RMDC Neighborhood Center Relocated.

The portion of Cruse Avenue between Lawrence Street and Neill Avenue is excluded from the Downtown Renewal Vision Plan due to dependencies associated with the evaluation of the five-point intersection at Last Chance Gulch/Helena Avenue/Neill Avenue in this traffic study. It will be important to ensure continuity for vehicular, bicycle, and pedestrian users in this portion of the Cruse Avenue corridor.
Public and stakeholder involvement was an important component of this planning process. Sharing information was critical to ensure transparency and to build public trust, and communication with interested parties helped to identify needs, understand constraints and opportunities, and provide support for reasonable improvements given available resources.

For this traffic study, informational materials were provided electronically for public review to enable convenient, on-demand opportunities to learn about the traffic study. Additionally, outreach efforts included a series of informal meetings with members of the public and stakeholders to discuss concerns, focus areas, and potential solutions within the study area. These conversations were critical to understand the perspectives of residents, businesses, and everyday multimodal users reflecting their observations of the study corridors and intersections. Public and stakeholder input directly influenced the identification, evaluation and recommendation of improvements. Copies of meeting presentations, notes, exhibits, and other outreach materials are provided in Appendix A.
2.1. INITIAL PUBLIC INPUT

A set of meetings were held in June 2018 to discuss the traffic study scope and the planning process. The meetings were identical in format and content and included a brief presentation followed by an open discussion period. The intent of the meetings was to discuss the work effort necessary to develop the traffic study and to identify project needs from stakeholders and the public. About 40 people participated in the meetings, not including members of the planning team. Attendees included area business owners, stakeholder representatives, local agencies, and members of the public.

Topics of discussion included the study area, intersection operations, access and circulation, connectivity, safety, the Montana Avenue rail crossing, school areas, and non-motorized accommodations including Downtown routes and Centennial Trail. Additionally, attendees commented on public noticing procedures and identification and involvement of stakeholders. Public feedback was used to develop an approach and to identify focus areas for the traffic study.

Attendees offered specific input about needed improvements for the two project areas: the intersections and connected corridors, including traffic flow considerations, traffic signal phasing, intersection configurations, roadway and trail routing, turn lanes, parking, pedestrian/bicycle facilities and crossings, signage, and beautification. This input was considered and addressed during identification and development of improvement options for the traffic study.

Two additional public meetings were held on February 10, 2021, at noon and 5:30 PM. The intent of these meetings was to present recommended improvements, answer questions, and collect feedback. Both meetings followed the same format, starting with a brief presentation and ending with a question/answer period. The presentation at each meeting was identical. Video recordings of the meetings were posted to the website for those unable to attend the live event.

To advertise the events, a notice was placed on the project website, a display ad was placed in the local newspaper, and a news release was sent to various media outlets. Additionally, a total of 230 postcards were mailed to adjacent property and business owners. An email notice and flyer were also sent to 104 stakeholder contacts in advance of the meetings, and printed copies of the mailer were provided upon request to stakeholders and for distribution at area businesses. A total of 35 individuals attended the meetings in addition to project team members.

Attendees offered input and asked questions about business and property impacts, right-of-way acquisition, implementation considerations, parking, roundabout configurations, project funding, Centennial Trail extension, non-motorized safety at roundabouts, large truck considerations, intersection angles, pedestrian crossings, bike lanes, street trees, signal timing, project sequencing, bicycle connectivity, and business deliveries. Appendix A contains a summary of individual comments provided during the meeting.

A second round of stakeholder outreach was conducting in January and February 2021. Meetings included an overview of recommended improvements for the five-point intersections and key locations along the connecting corridors. Stakeholders were encouraged to provide feedback and ask questions about the study recommendations.

A total of 47 stakeholders participated in the meetings. Comments reflected stakeholders’ geographic or modal areas of interest and expertise. Stakeholder input was considered and addressed during identification and development of improvement options for the traffic study. Appendix A contains a detailed summary of stakeholder comments.

2.4. INFORMATIONAL MATERIALS

Information about the traffic study was posted to the City of Helena’s website. The website provided several resources for those interested in the project, including the following:

Project Overview: A brief overview of the project was included to share the project goals, purpose, and area of focus.

Introduction Video: The project team prepared an informational video providing an overview of the traffic study and updates on the project status. Topics discussed included background and past planning, traffic and safety data, and potential areas for improvement. This video was created to share project information with those who were unable to attend the September 2020 public meeting.

Public Involvement Opportunities: Information about upcoming public involvement opportunities was included on the website including dates, times, scheduling tools for appointment reservations, and health and safety protocol.

Project Resources: Various maps, draft reports, and public meeting materials were posted to the project website for the public to review and provide comments.

Project Contacts: Email and phone contacts for the project managers from both the City of Helena and the consulting firm were provided on the website.

2.5. PUBLIC REVIEW PERIOD

A public review period was held to coincide with the release of the draft study. The review period extended from January 21 through February 19, 2021. A total of 13 written comments were received on topics related to the five-point intersection configurations, sidewalk continuity and accessibility, grade-separated rail crossing on Montana Avenue, Downtown parking, rail crossing influence on five-point intersection, parking on Bozeman Street, bike lanes, and continuity through the five-point intersections, 6th Ward access and connectivity, Centennial Trail extension, pedestrian crossings, streetcasing, alternatives scoring, tree impacts, intersection realignment considerations, and roundabout impacts on vehicular traffic, truck mobility, pedestrians, and adjacent business owners. Written comments are provided in Appendix A.
2.6. PUBLIC AND STAKEHOLDER COMMENTS

Public and stakeholder comments were collected and considered throughout the traffic study. Opinions about issues, needs, and preferred improvements often varied according to geographic and modal area of interest, with multiple instances of contradictory perspectives. Common themes relating to the five-point intersections and study corridors are summarized below. Appendix A contains a more detailed compilation of comments received, including comments relating to locations outside the study area.

GENERAL

Public and stakeholder comments emphasized the need to prioritize safety for all users, including pedestrians, bicyclists, and school children. Study recommendations should improve pedestrian and bicycle connectivity, mobility, and comfort while limiting adverse impacts to businesses and private property. Complete streets elements are desired with a focus on comfort and welcoming aesthetics. Specific suggestions included pedestrian-activated signals, pedestrian crosswalks at high-use crossings, pedestrian refuge islands, increased traffic signal timing, and continuous non-motorized facilities. Improved vehicular access and connectivity is desired between the 6th Ward neighborhood/Midtowne, Downtown Helena, schools, and commercial developments within the study area. Improvements should consider traffic impacts from school drop-off/pick-up activity, school bus operations, events at Memorial Park and Kindrick Field, and at-grade rail crossing activity. Additionally, improved wayfinding signage and beautification are desired throughout the study area.

LYNDALE AVENUE / MONTANA AVENUE / HELENA AVENUE INTERSECTION

Some members of the public and stakeholders believe traffic operates acceptably at the intersection and do not want to see changes, while others believe intersection improvements should be a priority. While some individuals oppose a roundabout configuration, some voiced support for installing a roundabout to improve intersection efficiency, enhance safety, and reduce delay. Many comments opposing closing Helena Avenue, although some supported closing one or more legs to create a standardized 4-legged intersection with Montana Avenue and Lyndale Avenue. Commenters noted that the intersection is a barrier for pedestrians and bicyclists, and improvements should include lengthening the signal phase to allow more time for pedestrians to cross and carrying bike lanes through the intersection. Access from the intersection is very important, and improvements should strive to maintain existing access to adjacent properties and improve access to the 6th Ward neighborhood. Improvements to lane configurations are desired, including adding a left-turn from the west leg of Lyndale Avenue onto Helena Avenue, providing a northbound right-turn bay on Montana Avenue, and providing separated lanes for each movement on the east leg of Helena Avenue.

LAST CHANCE GULCH / HELENA AVENUE / NEILL AVENUE INTERSECTION

Many community members believe traffic operates acceptably at the intersection, noting that a few improvements, while others believe installing a roundabout could improve intersection efficiency, enhance safety, and reduce delay. There are no desires to close the Helena Avenue leg of intersection but it was suggested that if two-way traffic is recommended on Last Chance Gulch, closing the Cruse Avenue leg and routing 11th Avenue traffic down to Last Chance Gulch could be considered. Improvements for non-motorists are desired, especially carrying the existing bike lanes on Helena Avenue through the intersection and considering bike detection. In general, recommendations should align with the Cruse Avenue Visioning project.

LAST CHANCE GULCH CORRIDOR

Feedback on converting Last Chance Gulch to two-way traffic was mixed. Some business owners support conversion in the hopes of increasing Downtown business activity, while others noted concerns about queuing and circulation impacts relating to parallel parking maneuvers and loading/delivery activity. Businesses are strongly opposed to the loss of any on-street parking. In general, commenters agreed on the need for improved pedestrian accommodations including sidewalks, curb ramps, and crosswalks. Improved bicycle accommodations are desired Downtown, although feedback was mixed on whether bike facilities should be provided on Last Chance Gulch or other parallel corridors. Beautification and improved aesthetics are desired to enhance pedestrian appeal.

MONTANA AVENUE CORRIDOR

Construction of a grade-separated rail crossing on Montana Avenue is a high priority. Pedestrian and bicycle crossing accommodations should also be provided, either at grade or via a grade-separated facility. 6th Ward neighborhood residents, schools, and adjacent commercial developments rely on the existing Boulder Avenue intersection for access from Montana Avenue. The existing southbound left-turn lane onto Boulder Avenue should remain unless alternate access is provided. Some support was voiced for extension of Livingston Avenue to Roberts Street to provide additional vehicular access to the 6th Ward area, however safety concerns were raised regarding frequent pedestrian use of the Helena High School parking lot. As noted for Lyndale Avenue, MDT must maintain the function and operations of this National Highway System (NHS) facility.

LYNDALE AVENUE CORRIDOR

Public and stakeholder feedback focused on the need for improved pedestrian and bicycle accommodations. There is a desire to improve visibility at the existing Warren Street crossing with a pedestrian beacon and enhanced signage to safely accommodate children and provide connectivity to parks and schools. Alternately, new marked crosswalks were proposed at Ewing Street and National Avenue, recognizing the need to consolidate crossing locations, provide appropriate receiving facilities, and consider proximity to adjacent signals. To improve intersection operations at National Avenue, signalization was suggested, along with prohibiting northbound left-turn movements from National onto Lyndale Avenue. To minimize confusion, placement of signage on Lyndale Avenue was suggested in advance of the five-point intersection indicating restricted turn movements. Some comments indicated a desire to lower the speed limit on Lyndale Avenue and place increased emphasis on non-motorized accommodations instead of vehicular users, however MDT must maintain the function and operations of this NHS highway facility.

HELENA AVENUE CORRIDOR

In general, Helena Avenue is valued as a multimodal connection between the Midtowne and Downtown areas. There is strong support for maintaining connectivity through the two five-point intersections. Improved pedestrian crossings were suggested at 14th Street and 16th Street with marked crosswalks and curb bulbouts. There is desire to extend bike lanes on Helena Avenue and provide transitions to carry through the five-point intersections. The skew alignment was noted at National Avenue/Dakota Avenue/Boulder Avenue and other corridor intersections, resulting in poor visibility. There is a desire to maintain adequate access from Helena Avenue to schools and parks.

CENTENNIAL TRAIL CORRIDOR

There is strong support for extending Centennial Trail to the east across Montana Avenue to connect with the trail segment currently ending at California Street. Commenters noted the importance of providing non-motorized connectivity to Helena Avenue, the Downtown area, and the 6th Ward neighborhood. Routing suggestions included extending the trail north on National Avenue and east on Argyle Street, with a crossing at Bozeman Street or at the five-point intersection. Alternately, the trail could be extended to the south on National Avenue, with a crossing at the existing Livingston Avenue or Billings Avenue traffic signals. Selection of a crossing location should consider potential traffic operational impacts to Montana Avenue.
CHAPTER 3: TRANSPORTATION SYSTEM

An analysis of transportation conditions examined existing and historic traffic data, vehicle crash history, field measurements and observations, roadway plans, aerial imagery, and geographic information system data. This technical analysis was used to understand the condition and function of existing transportation facilities, determine user characteristics, recognize travel patterns between key origins and destinations, identify conflict areas, and provide support for anecdotal public and stakeholder observations. Review and synthesis of the traffic study findings led to the identification of areas of concern for the study area. Additional detail is provided in the Existing and Projected Conditions Technical Memorandum (Appendix B).
3.1. PHYSICAL FEATURES AND CHARACTERISTICS

The study area is situated in the heart of Helena and provides access to the Capitol and other government offices to the southeast, the railroad and Helena Regional Airport to the northeast, Carroll College to the northwest, and Downtown Helena to the southwest. The study area includes primary commercial, business, and residential districts. The study corridors and five-point intersections each have unique character, settings, and configurations, as described in the following sections.

Last Chance Gulch Corridor

Last Chance Gulch is an urban route functionally classified as a principal arterial between Lyndale Avenue and Helena Avenue. This segment consists of one lane in each direction, center two-way left turn lane (TWLTL), and parking on both sides. The roadway transitions into a one-way street south of the Helena Avenue intersection and provides two lanes in the southbound direction and parking on both sides. This segment is an off-system route functionally classified as a minor arterial. The speed limit on Last Chance Gulch is 25 miles per hour (mph). At 6th Avenue, Last Chance Gulch turns into a pedestrian walking mall.

The Last Chance Gulch corridor from Lyndale Avenue to Lawrence Street is flanked by general commercial district land uses. The Great Northern Central Business District, to the west, can also be accessed via Last Chance Gulch between Lyndale Avenue and 13th Street. Between Lawrence Avenue and 6th Avenue, Last Chance Gulch is the primary access corridor to the Downtown Helena Central Business District.

The Helena Parking Commission manages public parking areas in the Downtown area. In addition to on-street parking, there are also several public parking lots and parking garages in the area. Recent changes to parking costs, including installation of new parking meters/kiosks, went into effect in August 2019. Many businesses in the Downtown area have limited on-site, off-street parking. Community feedback has indicated on-street parking is important and should be maintained to the greatest extent possible with any improvement options forwarded from this traffic study.

The community has expressed desires for improved access and circulation within the Downtown area. While some past plans have noted two-way streets may promote lower speeds, provide easier access, improve visibility, and increase property values, some business and property owners in the Downtown area have concerns about the impacts that a potential conversion of Last Chance Gulch to a two-way street may have on parking, loading, and access to their businesses and properties.

Helena Avenue Corridor

Helena Avenue is an off-system route functionally classified as a minor arterial between Montana Avenue and Last Chance Gulch. The speed limit on this segment is 25 mph. There is one vehicle travel lane and one bike lane in each direction. Parking is allowed on both sides of the street.

The corridor provides access to multiple land uses including general commercial, public lands and institutions, residential districts, and neighborhood business districts. Helena Middle School is situated south of Helena Avenue between Idaho Avenue and 15th Street.

US Highway 12 Corridor (Lyndale Avenue/Montana Avenue)

Within the study area, Lyndale and Montana Avenues are part of US Highway 12 (US 12), an NHS non-interstate route, functionally classified as a principal arterial. The highway generally consists of two travel lanes in each direction and dedicated left-turn lanes or center TWLTL. The speed limit is 30 mph along Montana Avenue and 35 mph along Lyndale Avenue.

The Montana/Lyndale Avenue corridor is part of the Railroad URD. The corridor is bordered mainly by commercial development consisting of commercial and light industrial businesses. Helena High School sits along the eastern edge of Montana Avenue across from Livingston Avenue.

Last Chance Gulch/Helena Avenue/Neill Avenue Intersection

This five-point intersection is considered the “gateway” to Downtown Helena and is the start of the one-way configuration on Last Chance Gulch. Businesses with parking lots sit on all but one corner of the intersection, and maintaining access is important to business owners. The intersection is located in close proximity to the Cruse Avenue/11th Avenue intersection, which operates on the same traffic controller. Between Cruse Avenue and Last Chance Gulch, 11th Avenue is a one-lane, one-way street in the westbound direction. A small park is located in the triangle between Cruse Avenue, 11th Avenue, and Last Chance Gulch. A pedestrian refuge island is located between Cruse Avenue and Helena Avenue separating the right-turn slip lane onto Helena Avenue. A sharp left-turn from Cruse Avenue to Last Chance Gulch is not permitted but is accommodated by the one-way on 11th Avenue. All other turning movements are permitted.

The traffic signals for this intersection and the Cruse Avenue/11th Avenue intersection are coordinated. This means that vehicles can typically travel through both intersections without having to stop between them. It was occasionally observed that the queue on Cruse Avenue stacks through the Cruse Avenue/11th Avenue intersection onto 11th Avenue. When the signal turns green the observed queue always dissipated. Queues on other legs were shorter and always cleared each cycle. On Neill Avenue queues were observed to reach to as far as Fuller Avenue but were more regularly shorter, extending only to Front Street. Moderate queues were observed on Helena Avenue and southbound Last Chance Gulch although they rarely contained more than ten vehicles.

Lyndale Avenue/Montana Avenue/Helena Avenue Intersection

This five-point intersection is situated on US 12. All traffic moving eastbound on Lyndale Avenue must continue onto southbound Montana Avenue or make a sharp right-turn onto Helena Avenue. A left turn onto Montana Avenue or Helena Avenue is not permitted. US 12 transitions from Lyndale Avenue to Montana Avenue at the intersection. Lyndale Avenue continues approximately 120 feet east of the intersection as a local road.

Northeast bound vehicles on Helena Avenue are permitted to turn in all directions. The sharp left onto Lyndale Avenue can be avoided by using nearby National Avenue. Westbound vehicles on Helena Avenue are also permitted to make all turns. Channelization and striping in the center of the intersection direct westbound vehicles on Helena Avenue through the intersection and allow eastbound vehicles to wait for passing cars to initiate a left turn onto Montana Avenue.

Montana Avenue runs directly north-south through the intersection. Approximately 700 feet south of the five-point intersection, Livingston Avenue intersects Montana Avenue at a 65-degree angle. A crosswalk is provided on the southbound leg for pedestrian access mainly to Helena High School, with intersection control provided by a traffic signal. North of that intersection...
approximately 400 feet, Boulder Avenue intersects Montana Avenue and provides vehicle access to Helena High School. The leftmost lane on Montana Avenue in the northbound direction must continue onto Lyndale Avenue, while the rightmost lane splits at the intersection with vehicles allowed to either continue onto Lyndale Avenue or continue onto Montana Avenue. About 900 feet north of the intersection is an at-grade railroad crossing. When a train passes through this crossing it can impede traffic operations at the five-point intersection. Southbound vehicles on Montana Avenue are permitted to execute turns in all directions.

During the peak hours there is regular queuing on Lyndale Avenue. The queues occasionally stack as far as National Avenue. Northbound queues on Montana Avenue regularly build up to about Livingston Avenue. However, queues as far as Billings Avenue were observed especially in the right lane for vehicles continuing north on Montana Avenue. Southbound queues on Montana Avenue occasionally reach as far as Argyle Street. Although queues at this intersection can be long, they generally clear within one cycle of the traffic signal.

The nearby intersection with Boulder Avenue, approximately 250 feet to the south, can also impact operations at the intersection. The left-turn lane in the southbound direction onto Boulder Avenue is short (approximately 75 feet) and only allows for minimal vehicle storage. Queues extending south along Montana Avenue also frequently block the intersection. The short storage length of the turn bay, coupled with the queues blocking the intersection, can result in spill over into the through travel lane on Montana Avenue. This was most commonly observed during Helena High School start and release times.

Mergenthaler’s Transfer and Storage, a large trucking activity center, is located in the northwest quadrant of the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. Local deliveries by large trucks to restaurants and other businesses within the study area are common. Traffic counts conducted in 2018 indicate that about 100 heavy vehicles travel on Last Chance Gulch each day.

Non-Motorized Traffic

Maintaining and prioritizing multimodal accommodations in the Downtown area is important to the Helena community. In particular, it is important that roadway infrastructure be safe, accessible, and connected for non-motorized users. In 2010, the City of Helena adopted a Complete Streets resolution that requires all new and reconstructed roadways to accommodate all modes of transportation and people of all ages and abilities. The 2014 Helena LRTP indicates that in 2012, a significant percentage of workers in Helena commute to work by walking or bicycling (about 11 percent). Data from the National Household Travel Survey 2009 estimates indicate that, for all trip types, about 16 percent of the Helena population walks or bikes for transportation.

3.2. MULTIMODAL TRANSPORTATION ACCOMMODATIONS

Downtown Helena serves multiple transportation modes including passenger vehicles, freight and heavy vehicles, bicycles, pedestrians, transit operations, and rail services. Providing a multimodal transportation network is important to the community. The following subsections discuss modes other than passenger vehicles that use the transportation network in the study area.

Freight and Heavy Vehicles

There are no designated truck routes within the study area. Geography and trade routes generally dictate which roads trucks use. For east/west travel, US 12 (Montana Avenue/Lyndale Avenue through the study area) is a commonly used route. In 2013, US 12 within Helena carried upwards of 500 heavy vehicles per day. More recent traffic data suggests that freight traffic is declining in Helena, with approximately 350 heavy vehicles per day recorded in 2018 along US 12.

The sidewalk network within the primary study area is generally complete with sidewalks existing on both sides of the roadways in the study corridors. Crosswalks are generally marked at major intersections within the study area. Accommodations specific to bikes in the study area occur on Helena Avenue, which provides a bike lane on each side of the roadway between Jackson Street and National Avenue. The bike lanes do not continue through the two primary five-point intersections. Despite the lack of dedicated bicycle facilities, bike activity is prominent in the Downtown area and multiple bicycle racks are provided.

The Centennial Trail runs north of the study area and is continuing to be developed. Once complete, the trail will be about five miles long, providing an east/west bicycle and pedestrian route through Helena connecting Spring Meadow State Park to the East Helena Bike Path. Portions of the trail are complete, while others are still in the planning stage. The segment between National Avenue and North Montana Avenue, including the crossing at North Montana Avenue, has not been completed due to the need for route determination, possible land acquisition, and stakeholder input issues.

Based on crosswalk and on-street bicycle counts collected in December 2019, non-motorized activity within the study area is fairly consistent throughout the day picking up around 8:00 AM and tapering off around 6:00 PM. Most of the crossing activity occurs at the intersections on Last Chance Gulch, the heart of Downtown Helena. The intersections near Helena High School (Montana Avenue/Livstngton Avenue) and Helena Middle School (Helena Avenue/ Rodney Street) saw moderate pedestrian activity with 57 and 77 pedestrians, respectively, counted over the AM and School/PM peak hours. December weather may have influenced counts, and it is expected that non-motorized activity would be greater during the summer months.

Transit

Capital Transit is a public bus system that provides year-round, fare-based transit services in the study area via two routes, the Red and Blue Lines. The Red Line is a north-south service route through the Downtown and Capitol areas of Helena. Within the study area, the route travels south down Helena Avenue from its intersection with Montana Avenue to Nellie Avenue. The Blue Line is an east-west route via Carroll College and Downtown. The route travels the Helena Avenue, and Last Chance Gulch north of the Last Chance Gulch/Helena Avenue/ Nellie Avenue intersection. The bus station is located at the Montana Avenue/ Bozeman Street intersection, just north of the Lyndale Avenue/Montana Avenue/ Helena Avenue intersection. Additionally, seasonal tour train and trolley service is also provided in the Downtown Helena area.
Railroad

The Helena area sits along MRL’s main east-west rail line that travels from Laurel, Montana, to Sandpoint, Idaho. The rail line crosses Montana Avenue approximately 1,000 feet north of the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. The crossing has an active traffic control system. When a train is present at the Montana Avenue crossing, long queues regularly form on Montana Avenue. Although the queues were not observed to stack through the Lyndale Avenue/Montana Avenue/Helena Avenue intersection, the train crossing can have a negative effect on traffic operations at the intersection.

On the rail line, MRL operates its own trains in addition to shunting BNSF trains. According to the 2014 Helena LRTP, an average of 35 trains pass through the Montana Avenue crossing each day. Typical speeds on the railroad range from 10 to 20 mph. About 18 of those trains pass through between 6:00 AM and 6:00 PM, making this line MRL’s busiest route. A railroad quiet zone was considered in Helena beginning in 2015. The quiet zone went into effect on December 19, 2017 after many roadway improvements were completed including extended crossing arms, construction of medians, and mounting wayside horns.

The Montana Avenue rail crossing was identified in the 2016 MDT Montana Rail Grade Separation Study. Improvements at this location have been identified in previous studies, including the 2004 and 2014 Helena LRTPs. It is a high priority for the City of Helena to reduce congestion and increase safety at the rail crossing. The Grade Separation Study concluded that a new grade separated crossing at Montana Avenue could allow closure of the nearby rail crossings at Roberts Street and National Avenue. A pedestrian overpass was recommended at Roberts Street as part of closure work to maintain neighborhood pedestrian connectivity between schools and residential areas. Ultimately, due to existing site conditions, an underpass was proposed at this location with Montana Avenue traversing underneath the railroad.

3.3. TRAFFIC DATA AND OPERATIONS

A detailed traffic data collection effort was conducted in December 2019. The data collection effort included intersection turning movement counts, vehicle classification counts, and field observations.

Turning movement count data were evaluated to understand travel patterns within the study area. Based on the traffic volumes and corridor conditions for the four intersections presented in Figure 2, traffic operations were evaluated during three peak hours: AM (7:00 AM – 9:00 AM); School (2:00 PM to 4:00 PM); and PM (4:00 PM – 6:00 PM).

Existing and projected traffic conditions were assessed using an intersection-level operational analysis. The analysis was performed to gain an understanding of the operational conditions of each of the study intersections. The analysis used methodologies contained in the Highway Capacity Manual 6th Edition which does not directly account for network effects and influence from adjacent intersections. The intersection models used existing signal timings and field-collected turning movement counts, with minor adjustments based on MDT’s standard guidance and to more accurately reflect traffic conditions observed during field review.

Based on an assessment of historic growth characteristics, anticipated future land uses, and travel demand modeling exercises, varying growth rates were identified within the study area. For the 14 study intersections, growth rates were grouped by zones exhibiting similar growth characteristics, as presented in Table 2. Growth rates along Montana Avenue, Lyndale Avenue, and Last Chance Gulch were relatively low, while the projected growth along Helena Avenue was anticipated to be higher.

These growth rates were applied to existing traffic volumes in order to develop projected future traffic volumes, which served as the basis for analyzing future traffic conditions at the study intersections. Operational conditions of the intersections are characterized by Level of Service (LOS) and vehicle delay with LOS A representing the best conditions and LOS F representing failing conditions. The results of the existing and projected conditions operational analysis are summarized in Figure 3 on the following page.

Depending on the types and location of growth and redevelopment that ultimately occurs within the study area, the growth rates used for this traffic study may over- or underestimate changes in traffic volumes. If growth occurs at the rates identified in this report, it is anticipated that the 5 of the 14 study intersections will experience severe operational issues in the future. However, if growth in the area differs from those assumptions made in this report, the results of the traffic operational analysis may no longer hold true.

Table 2: Growth Rates by Zone

<table>
<thead>
<tr>
<th>ID</th>
<th>Included Intersections</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Last Chance Gulch/6th Avenue</td>
<td>0.62%</td>
</tr>
<tr>
<td>2</td>
<td>Last Chance Gulch/Lawrence Street</td>
<td>0.62%</td>
</tr>
<tr>
<td>3</td>
<td>Last Chance Gulch/Placer Avenue</td>
<td>0.62%</td>
</tr>
<tr>
<td>4</td>
<td>Cruse Avenue/11th Avenue</td>
<td>0.62%</td>
</tr>
<tr>
<td>5</td>
<td>Last Chance Gulch/Helena Avenue/Nell Ave</td>
<td>0.62%</td>
</tr>
<tr>
<td>6</td>
<td>Last Chance Gulch/Lyndale Avenue</td>
<td>0.62%</td>
</tr>
<tr>
<td>7</td>
<td>Lyndale Avenue/Rodney Street</td>
<td>0.14%</td>
</tr>
<tr>
<td>8</td>
<td>Lyndale Avenue/National Avenue</td>
<td>0.14%</td>
</tr>
<tr>
<td>9</td>
<td>Montana Avenue/Boulder Avenue</td>
<td>1.62%</td>
</tr>
<tr>
<td>10</td>
<td>Helena Avenue/National Avenue</td>
<td>1.62%</td>
</tr>
<tr>
<td>11</td>
<td>Helena Avenue/Boulder Avenue</td>
<td>1.62%</td>
</tr>
<tr>
<td>12</td>
<td>Lyndale Ave/Montana Ave/Helena Ave</td>
<td>0.56%</td>
</tr>
</tbody>
</table>

Figure 2: Existing Traffic Volumes

When a train arrives at the Montana Avenue at-grade rail crossing, long queues often form and have been shown to impact operations at nearby intersections, including Lyndale Avenue/Montana Avenue/Helena Avenue.
If traffic grows at the rates identified in this report, it is anticipated that the 5 of the 14 study intersections will experience severe operational issues in the future.
3.4. SAFETY

MDT provided crash data for the study area from January 1, 2014, through December 31, 2018. A total of 397 crashes were reported during this five-year time period. The crash reports obtained from MDT are a summation of information collected at the scene of the crash provided by the responding officers. Some of the information contained in the crash reports may be subjective. Any crash records from other law enforcement agencies that were not reported to or by the Montana Highway Patrol were not contained in the database and are not included in this analysis.

Crash Severity
Crash severity can range from property damage only (PDO) to fatal injury crashes. The reported crash severity is the most severe injury that occurred during the crash. For example, if a crash results in a suspected minor injury and a suspected serious injury, the crash will be reported as a suspected serious injury crash. Analysis of the crash data found that PDO crashes were the most common, accounting for approximately 80 percent of all crashes. A combined 18 percent of crashes were listed as suspected minor injury or possible injury. Severe crashes, or those with fatal or suspected serious injuries, accounted for less than two percent of all crashes. Over the five-year period, there was one fatality and six suspected serious injuries. The fatality was a fixed object crash at the intersection of Helena Avenue and National Avenue. Two of the suspected serious crashes involved a pedestrian, one on Lyndale Avenue and one on Helena Avenue. Figure 4 presents locations of the seven severe crashes within the corridor.

Crash Time Period
Over the five-year analysis period, the number of crashes per year reached a peak of 91 in 2015 and trended downward between 2016 and 2018 with 70 crashes occurring in 2018. The highest number of crashes occurred during August (45 crashes) and September (43 crashes) which corresponds with the end of the tourism season and the beginning of the school year. A similar peak occurred in January (42 crashes) when inclement weather conditions are more common.

Crashes occurred most commonly on Tuesdays, with noticeably lower numbers of crashes on the weekend, which correlates with higher weekday traffic volumes. On the weekends, crashes were concentrated in the afternoon/early evening between 12:00 PM and 6:00 PM. Most weekday crashes occurred between 7:00 and 9:00 AM, 11:00 AM and 1:00 PM, and 2:00 and 5:00 PM corresponding to morning, noon, and school/weekday peak-hour periods for traffic volumes. As traffic volumes increase, the likelihood of a crash typically increases due to higher exposure rates.

Environmental Factors
Approximately 63 percent of crashes occurred under clear weather conditions, and approximately 69 percent of crashes occurred on dry roads. Overall, approximately 8 percent of crashes occurred during inclement weather conditions, and about 31 percent of crashes occurred under adverse road conditions. The majority of crashes occurred during daylight hours (86 percent), while about 10 percent occurred under dark-lighted conditions.

Vehicle Details
A total of 793 vehicles were involved in the 397 crashes reported in the study area. Of the 793 vehicles involved in crashes, passenger vehicles accounted for 97 percent. About 2 percent of crashes involved large vehicles; of those crashes, 1 involved a bus, 4 involved heavy trucks, and 12 involved “other” large vehicles (i.e., farm equipment/heavy machinery). Additionally, there were 11 non-motorists involved in crashes including 8 pedestrians, 2 bicyclists, and 1 of unknown type.

Driver Demographics
A total of 750 drivers were involved in the 397 reported crashes, reflecting more than one driver involved in multiple-vehicle crashes and 43 crashes involving a parked vehicle with no driver. Males accounted for 49 percent of drivers, while females accounted for 46 percent of drivers. The remaining 5 percent of drivers were reported as unknown gender.

The average age of drivers was 40.4 years. The youngest and oldest drivers were reported as 15 and 90 years, respectively. Individuals 25 years old and younger accounted for 28 percent of drivers, while individuals 66 years old and older accounted for 11 percent of drivers.

Non-motorized Crashes
There were 10 non-motorist-involved crashes reported within the study area, including 8 pedestrian related crashes and 2 bicycle related crashes. Pedestrian related crashes occurred at three intersections: Last Chance Gulch/Lawrence Street, Last Chance Gulch/6th Avenue, and Montana Avenue/Livingston Avenue. All three intersections each had two pedestrian crashes reported, and the remaining two pedestrian crashes did not occur at an intersection. One of the bicycle related crashes was reported at the Last Chance Gulch/Lyndale Avenue intersection, the other was reported at Last Chance Gulch/14th Street. Of the reported non-motorist involved crashes, two resulted in suspected serious injuries, six resulted in non-severe injuries, one crash was reported as PDO, and the remaining two crashes were reported as unknown severity.

<table>
<thead>
<tr>
<th>Source: MDT provided crash data January 1, 2014 through December 31, 2018</th>
<th>397 TOTAL CRASHES (2014-2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 <strong>FATAL INJURY</strong></td>
<td></td>
</tr>
<tr>
<td>8 <strong>PEDESTRIAN CRASHES</strong></td>
<td></td>
</tr>
<tr>
<td>6 <strong>SERIOUS INJURIES</strong></td>
<td></td>
</tr>
<tr>
<td>2 <strong>BICYCLE CRASHES</strong></td>
<td></td>
</tr>
<tr>
<td>10% <strong>occurred at NIGHT with LIGHTING</strong></td>
<td></td>
</tr>
<tr>
<td>22% <strong>were REAR END crashes</strong></td>
<td></td>
</tr>
<tr>
<td>31% <strong>occurred under ADVERSE ROAD CONDITIONS</strong></td>
<td></td>
</tr>
<tr>
<td>60% <strong>occurred at or were related to an INTERSECTION</strong></td>
<td></td>
</tr>
<tr>
<td>21% <strong>were RIGHT ANGLE crashes</strong></td>
<td></td>
</tr>
</tbody>
</table>
Intersection Crash Analysis

Of the 397 total crashes, 237 crashes (about 60 percent) were reported as occurring at or being related to an intersection, and an additional 47 crashes occurred within 100 feet of an intersection. This distribution of crashes is expected in an urban environment such as Downtown Helena with a large number of intersections and approaches.

- **(1) Last Chance Gulch/6th Avenue** – This intersection had seven reported crashes. Rear end crashes were the most common at this intersection accounting for three crashes. Two pedestrian crashes occurred at this intersection.

- **(2) Last Chance Gulch/Lawrence Street** – This intersection had 14 reported crashes. Sideswipe and right-angle crashes were the most common at this intersection accounting for five and four crashes, respectively. Two pedestrian crashes occurred at this intersection. This intersection had the highest severity rate of the intersections studied, which reflects the number of vehicles entering into the intersection, the number of crashes, and the crash severity.

- **(3) Last Chance Gulch/Placer Avenue** – This intersection had nine reported crashes. The most common crash types included rear end (2), sideswipe (2), and “other” crashes (2).

- **(4) Cruse Avenue/11th Avenue** – This intersection had five reported crashes. The crashes included 3 sideswipe, one rear end, and one right angle crashes. All vehicles involved in crashes were traveling in the westbound direction on 11th Avenue.

- **(5) Last Chance Gulch/Helena Avenue/Neill Avenue** – This intersection had 13 reported crashes. Most were rear end crashes (8). Two crashes involving motorcycles occurred at this intersection (one roll over and one “other” crash type).

- **(6) Last Chance Gulch/Lyndale Avenue** – This intersection had 71 reported crashes, reflecting the highest number of crashes at an intersection within the study area as well as the intersection with the most traffic. Rear end crashes were the most common at this intersection accounting for 51 crashes. An additional 13 crashes were sideswipe crashes. One bicycle crash occurred at this intersection.

- **(7) Lyndale Avenue/Rodney Street** – This intersection had 10 reported crashes. Sideswipe crashes were the most common at this intersection accounting for four crashes. Two right angle crashes and one left turn opposite direction crashes occurred at the intersection, all involving vehicles entering the highway from the southbound approach leg. The Lyndale Avenue/Rodney Street intersection had the highest severity index due to three suspected serious injuries occurring at the intersection.

- **(8) Lyndale Avenue/National Avenue** – This intersection had 32 reported crashes. The most common crash types were rear end (13) and right angle (12) crashes.

- **(9) Helena Avenue/Rodney Street** – This intersection had four reported crashes. The crashes included three right angle crashes and one rear end crash.

- **(10) Helena Avenue/National Avenue** – This intersection had 15 reported crashes. The most common crash types were right angle (7) and rear end (5) crashes. All of the rear end crashes occurred between southbound vehicles. The right-angle crashes involved left turning vehicles from primarily the southbound approach.

- **(11) Helena Avenue/Boulder Avenue** – This intersection had three reported crashes. The crashes included two rear end crashes and one sideswipe crash.

- **(12) Lyndale Avenue/Montana Avenue/Helena Avenue** – This intersection had 59 reported crashes. The most common crash types were rear end (21), right angle (16) and sideswipe (14).

- **(13) Montana Avenue/Boulder Avenue** – This intersection had 24 reported crashes. Rear end crashes were the most common at this intersection accounting for 11 crashes. Right angle crashes were the second most common crash type, accounting for 6 crashes. The majority of vehicles involved in crashes at this intersection were traveling in the northbound direction on Montana Avenue (33 of 47 vehicles).

- **(14) Montana Avenue/Livingston Avenue** – This intersection had 18 reported crashes. Rear end crashes were the most common at this intersection accounting for 11 crashes. Two pedestrian crashes occurred at this intersection. Both crashes involved school aged children crossing Montana Avenue and being struck by a southbound vehicle.
Crashes reported between January 1, 2014 and December 31, 2018

397 Total Crashes

Legend
- # Number of Crashes Occurring at Intersection
- # Number of Crashes Occurring along Corridor (not including intersection crashes)
- Pedestrian Involved Crash(es)
- Bicyclist Involved Crash(es)

Crash Type
- Fixed Object*
- Left-Turn, Opposite Direction
- Rear-end
- Right Angle

Note: An additional three crashes occurred on Montana Avenue between Livingston Avenue and Lyndale Avenue. An additional two crashes occurred on Cruse Avenue between 11th Street and Neill Avenue.

* Fatal Crash

Figure 4: Crash Locations

Of the 397 crashes that occurred on study roadways over the five-year crash analysis period, 7 crashes resulted in severe injuries and 10 crashes involved non-motorists.
CHAPTER 4: ENVIRONMENTAL SETTING

With all improvements to the transportation system, the City of Helena works to avoid, minimize, mitigate, and disclose temporary and permanent impacts to the built and natural environment, including physical, biological, and social and cultural resources. To identify and understand the presence and characteristics of features within the study area, a planning-level overview of environmental resources was conducted to identify potential constraints, risks, and opportunities based on readily available information. While the urban, developed nature of the study area limits the types of environmental resources present, there is potential to affect valued and sensitive features.

To support the summary provided in this chapter, additional information on environmental resources is contained in the Existing and Projected Conditions Technical Memorandum (see Appendix B). If improvement options are advanced from this traffic study into project development, an analysis for compliance with current environmental regulations will be completed. Information in this report may be used to support future environmental documentation.
4.1. PHYSICAL RESOURCES

Surface Waters

The study area lies entirely within the Upper Missouri Watershed (Hydrologic Unit Code 10030101) as delineated by the United States Geological Survey. There are no surface water features (e.g., streams or ponds) within the study area. Coordination with federal, state, and local agencies would be necessary to identify any necessary permits based on the improvement options forwarded from this traffic study. Impacts should be avoided and minimized to the maximum extent practicable. Impacts to streams and wetlands may trigger compensatory mitigation requirements.

Helena is subject to the small municipal separate storm sewer systems permit requirements. The applicability of this Montana Pollutant Discharge Elimination System permit for improvement projects within the study area would need to be reviewed for any projects that may be brought forward from this traffic study.

Groundwater

The Helena Water System (MT0000241) is the primary public water system in the Helena area. About 130 active wells are located within the study area. Well depths vary by individual location, but most have been drilled to depths of less than 100 feet. Static water levels generally range from 0 to 40 feet below the ground surface in most locations. The wells in the study area are primarily for monitoring groundwater, although wells used for domestic, irrigation, and geotechnical uses are also present. Some wells have unknown use or are no longer in use. There are no public water supply wells in the study area. Impacts to the groundwater supply and areas of high groundwater should be considered in any improvement option forwarded from this traffic study.

Floodplains and Floodways

A small area lying parallel to Last Chance Gulch is designated as an area with 0.2 percent annual chance of flood, although the majority of the buffer area lies outside the floodplain boundary (Zone X). A portion of the buffer area lies within an unmapped area with undetermined flood hazard (Zone D). Evaluation of any floodplain encroachments should occur for any improvements forwarded from this traffic study.

Hazardous Substances

Evaluation of contaminated properties and hazardous sites within the study area identified the following findings. Impacts to these sites should be avoided or minimized with any improvements forwarded from this traffic study.

- 12 Brownfield sites, with no current activities at 11 sites and redevelopment in progress at 1 site (former Caird steel fabrication site at 1200 Boulder Avenue)
- 11 hazardous waste generators, including 9 active and 2 closed
- 6 hazardous waste release sites, including 3 delisted and 3 with unknown status
- 2 remediation response sites, both identified as high priority
- 13 active underground storage tanks, 3 tanks temporarily out of use, and 3 tanks permanently removed
- 26 petroleum release fund claims associated with 34 releases
- Two abandoned or inactive mine sites

![Figure 5: Hazardous Substances](image-url)
Geologic Resources

A portion of the Helena Valley has a low to moderate potential for liquefaction, a condition that results when an earthquake causes soil to become unstable and semi-liquid. Susceptibility to liquefaction is determined by the presence of alluvial soils (loosely compacted deposits) and a high water table. Both of these conditions exist in the study area. The potential for damage to water pipes, septic systems, and buried infrastructure during a major earthquake is high in these areas.

The Helena area is in a moderate to high seismic risk zone. The Bald Butte Fault, which runs through the western portion of the study area, is believed to be the most seismically active fracture in the area.

Geotechnical investigations would be required for reconstruction or significant improvements to the study area to determine potential stability, erosion, and settlement concerns posed by surface geology and soil conditions.

Noise

Residences and parklands comprise the sensitive noise receptors that could be affected by roadway improvements within the study area. Construction activities associated with improvements to the study area may result in localized and temporary noise impacts in the vicinity of residences or parklands. These impacts can be minimized by incorporating measures to control noise sources during construction. A detailed noise analysis may be required for any projects that would reconstruct a roadway on a new location, change the horizontal or vertical alignment, or increase the number of through-traffic lanes.

4.2. BIOLOGICAL RESOURCES

Generally, the urban nature of the study area limits the diversity of land cover, which is primarily developed residential and commercial/industrial areas. Isolated pockets of Rocky Mountain lower montane, foothill, and valley grassland systems exist, especially adjacent to the railroad.

Of the threatened and endangered species occurring within Lewis and Clark County, only the grizzly bear and Canada lynx have been observed within or near the study area. According to species occurrence records reflecting evidence of sustained presence within the study area, there are 4 mammal, 10 bird, and 3 plant species of concern that are at risk due to declining population trends, threats to habitats, and restricted distribution, and other factors. If any projects are forwarded from the traffic study, updated field surveys, review of sightings databases, and coordination with appropriate regulatory agencies should be conducted, and measures to avoid or minimize impacts to biological resources should be incorporated into project design and implementation.

4.3. SOCIAL AND CULTURAL RESOURCES

Demographic and Economic Conditions

Based on demographic data from 2013-2017, Helena is generally composed of similar racial and ethnic populations compared to the county and state, with approximately 90 percent of individuals identifying as White (not Hispanic or Latino). Nearly 4% identify as Hispanic or Latino, and less than 1% identify for each of the following categories: Black or African American, Asian, and Native Hawaiian and Other Pacific Islander. Helena and Lewis and Clark County have a lower population of people identifying as Native American or Alaska Native (1.8% compared to 6.2% for the state).

Median household income in Helena ($53,892) is higher than the state ($50,801) but lower than the county ($60,789). The unemployment rates of Helena and Lewis and Clark County (3.2%) are both lower than that of Montana (4.8%). The poverty rate, however, is higher in Helena (15.6%) than in both Lewis and Clark County (11.4%) and Montana (14.4%).

The Helena economy is dominated by the public administration industry due to the city’s designation as the state’s capital. Other top industries in the city include health care and social assistance; education; professional, scientific, and technical services; hospitality and food services; and construction. It is a trading center and transportation center for nearby livestock, mining, and farming enterprises. Helena also maintains an interest in mineral production and processing, and the nearby City of East Helena is the site of smelters, quartz crushers, and zinc reduction works. Although the economy remains stable, job growth has seen declines in past years and future job growth is projected to be about 10 percent less than national averages.

Within the study area, minority populations are generally below averages for the state and nation. Low-income populations within the study area, however, may be higher than averages. If improvement options are forwarded from the traffic study, environmental justice would need to be further evaluated during the project development process if federal funds are used.

Recreational Resources

Several designated parks and open spaces within the study area may be impacted by improvement options forwarded from the traffic study. Additionally, five projects funded through the Land and Water Conservation Fund Act have been implemented in the study area including Memorial Park, the tennis courts at Civic Center Park, Sixth Ward Park, Centennial Park, and Ramey Park. If improvement options are forwarded from the traffic study, potential effects on recreational use should be investigated and appropriately considered in accordance with Section 4(f) and Section 6(f) requirements.

Cultural and Historic Resources

Seven historic properties are listed within the study area as well as one historic district. If any projects are forwarded from the traffic study, a cultural resource survey for unrecorded historic and archaeological properties would need to be completed within the area of potential effect defined for each project. Direct and indirect impacts (such as visual, noise, and access impacts) to eligible or listed properties would need to be considered if improvement options are carried forward. The list of historic properties and districts includes:

- Cuthbert, D. H., House (602 N Ewing Street)
- Evans Christmas Gift House (404 N Benton Ave)
- Montana State Arsenal Armony and Drill Hall (1100 N Main Street)
- Olsen House (516 N Park Avenue)
- Western Life Insurance Company Helena Branch Office (600 North Park Avenue)
- Wick-Seiler Residence (729 11th Avenue)
- Young Women’s Christian Association (501 N Park Avenue)
- Helena Historic District (Irregular pattern from Hauser Boulevard to Acropolis, and between Garfield and Rodney Streets)

Visual Resources

The study area generally includes residential and commercial development, parklands, and urban roadway corridors. Projects forwarded from this traffic study that involve construction in a new location or that involve expansion, realignment or other changes that could alter the character of an existing landscape or move the roadway closer to residential areas, parks and recreation areas, historic or other culturally important resources should be further evaluated for visual resource impacts.

4.4. LIKELY UNAFFECTED RESOURCES

Due to the urban nature of the study area, several environmental resources either do not occur or are not likely to be negatively affected by proposed improvements, including farmlands, irrigation features, wetlands, and air quality.
CHAPTER 5: RECOMMENDED IMPROVEMENTS

This traffic study identified improvements to enhance multimodal safety, connectivity, access, mobility, and appeal for the two five-point intersections and connecting corridors. The improvements address areas of concern identified through evaluation of transportation and environmental conditions in the study area and reflect the needs and desires voiced through public and stakeholder outreach. The improvements offer a range of potential short-term and long-term strategies to facilitate travel within and between the Downtown and Midtowne areas of Helena by supporting modal choice, improving the function and circulation of key intersections, enabling access for disabled individuals, and providing enhanced comfort and visual appeal for all users. These recommended improvements attempt to balance the needs and concerns identified through the traffic study while minimizing impacts to adjacent properties and land uses, aligning with the community vision, and enabling reasonable, feasible implementation.
Recommended improvement options are grouped according to four connecting corridor segments.

**Last Chance Gulch Corridor**
- LCG-1. Last Chance Gulch Street Design - South of Neill Avenue
- LCG-2. Last Chance Gulch Street Design - North of Neill Avenue
- LCG-3. Last Chance Gulch Sidewalk Improvements
- LCG-4. Last Chance Gulch Signal Modifications - 6th Avenue and Lawrence Street Intersections
- LCG-5. Last Chance Gulch Pedestrian Improvements - Placer Avenue Intersection
- LCG-6. Last Chance Gulch Five-Point Intersection Improvements

**Lyndale Avenue Corridor**
- LYN-1. Lyndale Avenue Pedestrian Crossing - Ewing/Rodney Streets

**Helena Avenue Corridor**
- HLN-1. Helena Avenue Bike Lanes
- HLN-2. Helena Avenue Pedestrian Improvements
- HLN-3. Helena Avenue Triangle Intersection Improvements - 13th Street to 15th Street
- HLN-4. Helena Avenue Intersection Improvements - 16th/Ewing Streets
- HLN-5. Helena Avenue Intersection Improvements - National/Dakota/Boulder Avenues

**Montana Avenue Corridor**
- MT-1. Montana Avenue Rail Crossing
- MT-2. Montana Avenue Five-Point Intersection Improvements
- MT-3. Montana Avenue Centennial Trail Crossing and Extension

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**Legend**
- **Pedestrian Crossing/Improvement**
- **Bicycle Accommodations**
- **Non-Motorized Accommodations**
- **Intersection Improvement**
- **Streetscaping/Enhancements**
- **Rail Crossing**
5.1. RECOMMENDED IMPROVEMENT OPTIONS

In addition to an overview description and background information, the following elements are included for each option.

**Recommendation**

In some cases, a single improvement was identified and recommended to address the issue at a particular location. These sites typically involved a straightforward concern and solution. For more complex issues involving street design, intersection configuration, and routing, an evaluation of multiple potential solutions was conducted to determine a recommended improvement. Screening criteria addressing the areas of concern and consideration listed below, were developed and tailored to each option. A summary of the alternatives considered, and the final recommendation is included in this report. Detailed screening criteria, scores, visualizations, and supporting data are provided in Appendix C.

**Project Development Considerations**

Recommended improvements are presented as preliminary concepts. Any improvements forwarded from this traffic study will be subject to the City of Helena and/or MDT’s standard project development processes. These processes typically include project-specific design activities such as public and stakeholder coordination, environmental impact assessment and permitting, utility conflict mitigation, traffic and safety analyses, hydraulic and geotechnical investigations, and right-of-way acquisition based on project location and design features.

Notable project development considerations are listed for each option such as potential stakeholder interests, resources and site features, indirect effects, and other factors to be addressed during project development.

If improvements are advanced for implementation, detailed analysis would be required during the project development process to quantify specific resource impacts and identify associated permits, laws, and regulations that may apply. Information contained in this report may be used to support future project development and environmental documentation.

Recommended improvements can be developed as stand-alone projects, or, in some cases, combined as larger projects as appropriate. Cost savings and efficiencies may be gained by concurrently implementing multiple improvements within a corridor.

**Implementation Agency/Partners**

Successful implementation of improvements may require cooperation and effort from multiple entities. While the City of Helena would be the primary implementation agency on many of the improvements, MDT has jurisdiction over some roadways within the study area, including US 12 (Lyndale and Montana Avenues) and Urban routes (the five-point intersection of Last Chance Gulch/Helena Avenue/Neill Avenue and Last Chance Gulch from Neill Avenue to Lyndale Avenue). Additionally, entities such as UDRPs, TIF Districts, local and state boards and committees, and stakeholder groups may have resources, funds, or special expertise that would help accomplish the recommended improvements.

**Timeframe**

The timing and ability to implement improvements depends on factors including availability of funding, right-of-way needs, and other project delivery elements. Implementation timeframes were estimated for each recommendation with consideration of project needs, complexity, and potential funding sources. The following implementation timeframes do not reflect a commitment to develop the recommendations.

- **Short-term**: Implementation is feasible within a 0- to 5-year period.
- **Mid-term**: Implementation is feasible within a 5- to 10-year period.
- **Long-term**: Implementation is feasible within a 10- to 20-year period.

**Estimated Cost**

Planning-level cost estimates were developed for each improvement option. The cost estimates include construction, engineering, and a general contingency to account for unknown factors and anticipated project development risk level. Estimates do not include costs for right-of-way as additional design details may be needed. Cost ranges are provided in some cases, indicating a range of options or other variables. The estimates are presented in 2021 dollars and can be expected to increase with inflation depending on the anticipated future year of expenditure. Total costs are included in this report, and Appendix D contains supporting cost estimate information for each recommendation.

**Potential Funding Sources**

Recommended projects may be eligible for funding through multiple local, state, and federal programs. Additionally, private funds may be available for certain projects. No funding has been identified or dedicated for any improvements recommended in this traffic study. Refer to Chapter 6 for more information on potential funding mechanisms.

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**Figures and Illustrations**

For each improvement option, project development considerations, implementation agencies/ partners, funding timeframe, estimated costs, and potential funding sources have been identified to aid in the planning and development of improvement projects.
The southern segment of Last Chance Gulch is currently configured with two lanes providing one-way southbound travel from the Helena Avenue/Neill Avenue/Cruse Avenue intersection to the 6th Avenue intersection, where it transitions to a pedestrian walking mall. Continuous sidewalks and on-street parallel parking are provided on both sides of the street, with intermittent landscaped areas. Marked crosswalks and curb bulbouts are provided to facilitate pedestrian crossings at intersections. The corridor serves as the core of the Downtown area and is lined with eateries, retail establishments, and other businesses and service providers. It is a popular destination both for residents and tourists.

Two-way traffic has been contemplated on this corridor in previous years, with the intent to improve business access and traffic circulation. Converting the corridor to two-way traffic was proposed in the 2012 Helena Gateway Intersection Concept Study, 2013 Greening Last Chance Gulch, and the 2016 Downtown Master Plan, with the Greening Last Chance Gulch report suggesting a pilot project to test two-way conversion of Last Chance Gulch to gauge community interest and acceptance. However, the 2014 Helena LRTP recommended maintaining the current one-way configuration and potentially removing a vehicular lane to add a cycle track (CT-5). While the Downtown Master Plan noted two-way streets can promote lower speeds, provide easier access, and increase property values, some business and property owners are concerned about impacts on parking, loading, and access to their businesses and properties that may result from two-way conversion.

Appendix C discusses the operational feasibility and potential impacts of two-way conversion of the Last Chance Gulch corridor conducted for this traffic study. The following alternatives were considered within the existing curb-to-curb roadway width:

- **Alternative A: Existing Configuration** – Maintain existing two-lane, one-way configuration with parking on both sides and additional streetscaping.
- **Alternative B: Two-lane, Two-way** – Maintain existing two-lane configuration with parking on both sides; allow two-way traffic on Last Chance Gulch between Neill Avenue and 6th Avenue.
- **Alternative C: One-lane, One-way, Plus Cycle Track** – Remove one lane of traffic and create a two-way cycle track in its place; maintain one-way traffic in southbound direction with parking on both sides.
- **Alternative D: Two-lane, One-way, Plus Cycle Track** – Remove parking on one side and create a two-way cycle track in its place, with parking on alternate sides between blocks, if desired; maintain two-lane, one-way traffic in southbound direction.
- **Alternative E: Two-lane, Two-way, Plus Bike Lanes** – Remove parking on one side and add bike lanes on both sides of roadway, with parking on alternate sides between blocks, if desired; allow two-way traffic on Last Chance Gulch between Neill Avenue and 6th Avenue.

Two-way traffic and the inclusion of dedicated bicycle accommodations were considered as improvements to the corridor. Many of the potential configurations resulted in a loss of on-street parking which is not desirable in the Downtown area. It is recommended that the existing configuration be maintained. Additionally, streetscaping enhancements are recommended between Neill Avenue and Placer Avenue to enhance pedestrian access and visual appeal, and provide continuity with the Downtown.
Due to relatively low traffic volumes on the southern segment of Last Chance Gulch, vehicular operations remain adequate under all scenarios studied. No direct physical impacts would result from alternative configurations since alternative configurations were considered within the existing curb-to-curb width, however indirect impacts would include changes in use and access.

Public involvement and stakeholder outreach activities did not identify strong support for conversion to two-way traffic flow, removal of a travel lane, or the addition of bike facilities on Last Chance Gulch. The traffic study found that the existing configuration provides valuable business access for parking, loading, and delivery needs, and that bicycle routing through the Downtown area can be better accommodated on parallel routes such as Cruse Avenue and Fuller Avenue instead of Last Chance Gulch. Given public and stakeholder feedback, it is recommended that the existing two-lane, one-way configuration (Alternative A) for this corridor be maintained.

Working within the existing travel lane and parking configuration, extended streetscape improvements to enhance pedestrian access and appeal are also recommended. Enhancements such as ornamental signage and lighting, street furniture, street trees, and other landscape plantings have already been implemented along the southern blocks of Last Chance Gulch. There is opportunity to extend these enhancements from Placer Avenue to Neill Avenue, which currently lacks streetscape features. Enhancements in this area would help to reinforce a gateway entrance into the Downtown core and create a more uniform appearance and environment on this segment of Last Chance Gulch.

**RECOMMENDATION:**
Maintain existing roadway configuration; extend streetscape enhancements

**Project Development Considerations:**
- Ensure streetscape furniture design does not hinder pedestrian access; maintain adequate sidewalk clear width; coordinate streetscaping with sidewalk improvements (LCG-3).
- Consider maintenance requirements for any streetscape improvements.
- Accommodate Downtown bicycle routing on parallel corridors.

**Implementation Agency/Partners:**
- City of Helena
- HBID/DHI

**Timeframe:** Short-term to Mid-term

**Estimated Cost:** $25,000 - $100,000

**Potential Funding Sources:** HBID/TIF, City Funds
The northern segment of Last Chance Gulch is currently configured with one travel lane in each direction and a TWLTL. Continuous sidewalks and on-street parallel parking are provided on both sides of the street, with limited landscaped areas. Compared to the southern segment, this portion of Last Chance Gulch includes a wider paved roadway width and accommodates higher traffic volumes, approaching 10,000 daily vehicles. There are no marked pedestrian crossings, except for the recently installed traffic signal at 14th Street. During the 2014-2018 analysis period, one crash involving a bicycle was reported at Last Chance Gulch/14th Street (occurring before installation of the traffic signal). Commercial developments line both sides of the street, including professional offices, retail, and service providers primarily accessed by vehicle. This segment of Last Chance Gulch is less frequently used by pedestrians.

Based on current operational performance and business access needs, this segment was not evaluated for modifications to the roadway configuration. However, streetscape improvements are recommended to improve aesthetics, increase pedestrian appeal and usage, and provide an enhanced connection with the Downtown core. Similar to the southern segment of this corridor, improvements could include ornamental signage and lighting, street furniture, street trees, and other plantings. Additionally, by removing a few select on-street parking spaces in this segment, parklets (or small-scale green spaces) could periodically be placed adjacent to sidewalks to beautify the corridor, calm traffic, and provide buffered protection between vehicular travel lanes and pedestrian facilities.

**RECOMMENDATION:**

Install streetscape enhancements

**Project Development Considerations:**
- Ensure streetscape furniture design does not hinder pedestrian access; maintain adequate sidewalk clear width; coordinate streetscaping with sidewalk improvements (LCG-3).
- Consider maintenance requirements for any streetscape improvements.

**Implementation Agency/Partners:**
- City of Helena
- HBID/DHI
- MDT

**Timeframe:** Short-term to Mid-term

**Estimated Cost:** $350,000 - $1.2M

**Potential Funding Sources:** HBID/TIF, City Funds

To improve aesthetics and increase pedestrian usage, streetscaping enhancements, such as those shown in the example image, could be implemented along Last Chance Gulch north of Neill Avenue.
LCG: 3. Last Chance Gulch Sidewalk Improvements

Last Chance Gulch is heavily used by pedestrians for access to the Downtown core as well as the Great Northern Town Center. The City of Helena’s ADA Transition Plan identifies the Downtown as one of its top five priority areas for accessible routes. Along the roadway, sidewalk widths vary from approximately eight to 12 feet on each side. The City of Helena recommends a minimum sidewalk width of five feet. For downtown and commercial areas, the National Association of City Transportation Officials Urban Street Design Guide recommends a pedestrian through zone width of 8 to 12 feet. The pedestrian through zone is the primary accessible path for pedestrians and should be free from street furniture (lighting, benches, utility poles, bicycle parking, or tree pits) and building frontage amenities (entryways, sidewalk cafes, or sandwich boards). Although the sidewalks on Last Chance Gulch meet the minimum width, the majority of sidewalks, especially in the Downtown core, are obstructed by various street furniture and building frontage amenities making them difficult to navigate, especially for disabled users.

Some of the sidewalks on Last Chance Gulch are also showing signs of deterioration. In some locations, the deterioration has caused vertical displacements, spalling, chipping, or cracking which may be attributable to frost heaving, tree roots growing under the sidewalk, or application of chemicals such as ice melt. These sidewalk deficiencies are a safety concern for pedestrians and limit mobility of disabled individuals.

Where applicable, sections of deteriorating and inaccessible sidewalk should be replaced or repaired to improve safety, mobility, and accessibility for all pedestrians. It is recommended that the sidewalks along Last Chance Gulch be kept as wide as possible and minimum pedestrian through zones should be kept clear of obstructions. This may require coordination with Downtown business and property owners.

RECOMMENDATION:

Repair or replace deficient sidewalk along northern and southern segments of Last Chance Gulch

<table>
<thead>
<tr>
<th>Project Development Considerations:</th>
<th>Implementation Agency/Partners:</th>
<th>Estimated Cost:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Coordinate sidewalk improvements with streetscape enhancements (LCG-1 and LCG-2) to ensure adequate pedestrian clear width.</td>
<td>• City of Helena</td>
<td>$230 to $340 per linear foot</td>
</tr>
<tr>
<td>• Ensure compliance with ADA requirements for all pedestrian improvements.</td>
<td>• Business/Property Owners</td>
<td>Potential Funding Sources: HBID/TIF, City Funds, TA</td>
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<td></td>
<td>• HBID/DHI</td>
<td>Timeframe: Short-term to Mid-term</td>
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The Last Chance Gulch/6th Avenue and Last Chance Gulch/Lawrence Avenue intersections are located in the heart of Downtown Helena. At these signalized intersections, southbound one-way travel lanes on Last Chance Gulch intersect two-way east/west traffic on 6th Avenue and Lawrence Street, respectively. The south leg of the 6th Avenue intersection is the beginning of the pedestrian walking mall, with vehicles restricted to entry/exit into the Medical Arts Block parking garage. Curb bulbouts and colored/stamped crosswalks are installed on the intersection corners to facilitate pedestrian crossings.

The intersections are heavily used by pedestrians. During the five-year period between January 1, 2014, through December 31, 2018, seven crashes were reported at the 6th Avenue intersection, including two crashes involving pedestrians. During the same period, 14 crashes were reported at the Lawrence Street intersection, again including two crashes involving pedestrians.

To improve pedestrian crossing safety at these two signalized intersections, the traffic signals could be modified to include a protected walk phase, enabling pedestrians to cross while vehicles are stopped during a red phase. A common treatment, known as a leading pedestrian interval (LPI), gives pedestrians a three to seven second protected walk phase which allows them to better establish their presence in the crosswalk before vehicles have priority to turn right or left.

Painted or raised intersection treatments were also considered to enhance pedestrian visibility. Due to the nature of the 6th Avenue intersection and the connection with the walking mall, it was determined that raising the intersection may give the false impression that the walking mall continues, creating new safety concerns. Painted intersections and crosswalks have been implemented in other areas with the goal of enhancing pedestrian visibility and improving safety. However, official rulings issued by the Federal Highway Administration state that colored pavement and crosswalk art do not provide increased safety and may provide a false sense of security for both motorists and pedestrians. The use of subdued-colored aesthetic treatments is permissible, however. Acceptable treatments include brick lattice patterns, paving bricks, paving stones, setts, or cobbles in earth tone colors. Most of the crosswalks on Last Chance Gulch consist of rust-colored, brick-patterned stamped concrete already. It has been noted, however, that the stamped concrete can be difficult for people with disabilities to cross due to gaps and vertical discontinuities. It is recommended that colored crosswalks be perpetuated with any reconstruction project and efforts to increase accessibility for all users should also be considered.

**RECOMMENDATION:**
Modify traffic signal to provide LPI

**Project Development Considerations:**
- Consider increased vehicle delay resulting from protected pedestrian crossing phase.

**Implementation Agency/Partners:**
- City of Helena
- MDT

**Timeframe:** Short-term

**Estimated Cost:** $3,000

**Potential Funding Sources:** City Funds

To enhance visibility and safety of pedestrians, an LPI is recommended. The colored crosswalk should also be perpetuated with sensitivity to accessibility needs.
The Downtown Helena U.S. Post office is located on the northwest corner of this intersection, with retail and dining establishments on the other three corners. This intersection enables unrestricted through and turning movements from Last Chance Gulch, with stop control provided on Placer Avenue. One-way southbound traffic may continue forward through the intersection or turn right or left onto Placer Avenue. After stopping at the stop sign, eastbound and westbound traffic may continue forward or turn south onto Last Chance Gulch.

During the 2014-2018 analysis period, nine crashes were reported at this intersection, including one resulting in a suspected minor injury. The most common crash types included rear end (2), sideswipe (2), and “other” crashes (2).

This intersection has curb bulbouts on the two southern corners and ADA-compliant curb ramps on the two eastern corners. Only the crosswalk on the south leg is marked with stamped concrete, while the other crosswalks are marked with standard white transverse lines. The City of Helena’s ADA Transition Plan identifies the Downtown as one of its top five priority areas for accessible routes. To improve pedestrian safety and mobility, ADA curb ramps and curb bulbouts should be installed on all corners of the intersection. Additionally, stamped concrete, as discussed in LCG-4, could be used to enhance unimproved crosswalks and provide consistency with other crosswalks along Last Chance Gulch.

**LCG-5. Last Chance Gulch Pedestrian Improvements - Placer Avenue Intersection**

Recommending:

- Install ADA compliant curb ramps, curb bulbouts, and colored crosswalks

**Project Development Considerations:**
- None identified

**Implementation Agency/Partners:**
- City of Helena

**Timeframe:** Short-term

**Estimated Cost:** $110,000

**Potential Funding Sources:** HBID/TIF, City Funds, TA

ADA accommodations are only provided on two corners of this intersection. To enhance safety and accessibility for pedestrians, intersection modifications are recommended. Landscaping could be incorporated for visual enhancements.
The Last Chance Gulch/Helena Avenue/Neill Avenue five-point intersection exercises non-standard geometrics, which can be confusing to unfamiliar drivers and can impede traffic operations during peak travel times. The intersection is considered the “gateway” to Downtown Helena and is the start of the one-way configuration on Last Chance Gulch. Businesses with parking lots sit on all but one corner of the intersection, and maintaining access is important to business owners. The intersection is close in proximity to the Cruse Avenue/11th Avenue intersection, which operates on the same traffic controller. Between Cruse Avenue and Last Chance Gulch, 11th Avenue is a one-lane, one-way street in the westbound direction. A small park is located in the triangle between Cruse Avenue, 11th Avenue, and Last Chance Gulch. A pedestrian refuge island is located between Cruse Avenue and Helena Avenue separating the right-turn slip lane onto Helena Avenue. A sharp left-turn from Cruse Avenue to Last Chance Gulch is not permitted but is accommodated by the one-way on 11th Avenue. All other turning movements are permitted.

A total of 13 crashes were reported at the intersection from 2014 to 2018, including two possible injury crashes and one suspected minor injury crash. All but one crash occurred during daylight hours, and eight of the 13 crashes occurred during snow, ice, or frost conditions. Eight were rear-end crashes, and two involved motorcycles (one roll over and one “other” crash type).

The intersection currently operates at LOS C during the AM and School peak hours and LOS D during the PM peak period. By 2040, operations during the AM peak are projected to degrade to LOS D. Based on observations at the intersection, vehicles can typically travel through the Last Chance Gulch/Helena Avenue/Neill Avenue and the Crust Street/11th Avenue intersections without having to stop between them. Occasionally, the queue on Cruse Avenue stacks through the Cruse Avenue/11th Avenue intersection onto 11th Avenue. However, when the signal turns green, the observed queue dissipates. Queues on other legs were shorter and typically cleared in a single cycle. Queues on Neill Avenue were observed to reach to as far as Fuller Avenue but more typically extended to Front Street. Moderate queues were observed on Helena Avenue and southbound Last Chance Gulch although they rarely contained more than ten vehicles. The configuration and signal timings at the intersection result in induced delay and inefficiencies beyond what would typically result from vehicle traffic volumes alone.

Multiple past studies have evaluated potential improvements to address intersection function and configuration.

- The 2012 Helena Gateway Intersection Concept Study recommended further evaluation of a single-lane roundabout with two-lane entry from Neill Avenue (Alternative 1B) and an enlarged signalized intersection (Alternative 6).
- The 2013 Greening Last Chance Gulch effort recommended a “greenabout” at the intersection to direct vehicular traffic counterclockwise around Cruse Park, simplifying vehicle and bicycle travel movements and signal functions.
- The 2016 Downtown Helena Master Plan recommended simplifying the five-point intersection

The existing five-point intersection operates well under existing conditions but is projected to fail with increased traffic growth. Past studies have proposed multiple alternative configurations to improve the circulation, function, and operations of the intersection. These options were further explored for this traffic study in conjunction with an evaluation of two-way traffic on Last Chance Gulch. Ultimately, a roundabout was identified as the preferred configuration. In the interim, pedestrian enhancements and streetscaping, like those pictured above, could be implemented.
This traffic study evaluated intersection alternatives in conjunction with potential two-way travel on Last Chance Gulch to determine the best configuration for safety, operations, and connectivity to serve all modes. Appendix C discusses the analysis of the Last Chance Gulch/Helena Avenue/Neill Avenue intersection configurations. The following alternatives were considered:

- **Alternative A: Existing Configuration** – Maintain existing five-point signalized configuration with enhanced wayfinding
- **Alternative B: Reconfigured Signal** – Close 11th Avenue spur from Cruse Avenue to Last Chance Gulch; remove right-turn slip lane onto Helena Avenue; simplify signal timing
- **Alternative C: Roundabout** – Remove traffic signal and install single-lane roundabout, maintaining access from all current intersection legs; close 11th Avenue spur; install stop control at Cruse Avenue/11th Avenue intersection
- **Alternative D: Two-Way Last Chance Gulch with Signal** – Convert Last Chance Gulch to two-way traffic, close Cruse Avenue from 11th Avenue to Neill Avenue; install stop control at Cruse Avenue/11th Avenue intersection
- **Alternative E: Two-Way Last Chance Gulch with Roundabout** – Convert Last Chance Gulch to two-way traffic; remove traffic signal and install single-lane roundabout; close Cruse Avenue from 11th Avenue to Neill Avenue; install stop control at Cruse Avenue/11th Avenue intersection

After evaluation of improvement options for the intersection, **Alternative C: Roundabout** was identified as the preferred configuration. The evaluation found that a roundabout would best balance the access, operational, and aesthetic needs and desires for this location. A roundabout is projected to operate well with adequate capacity and reduced vehicular delay compared to current conditions. The configuration would provide improved vehicular and non-motorized access at all five approaches. With this configuration, there would also be an opportunity to beautify and enhance the aesthetics of the intersection. Improvements could include landscaping within the center roundabout island, reconfiguration and expansion of Cruse Park, signage, and other streetscape enhancements. These improvements would help define the intersection as the gateway into the Downtown core.

Recognizing that construction of a roundabout would be a costly long-term pursuit, near-term improvements to the existing configuration could include enhancements such as updated crosswalk striping for improved pedestrian visibility, removal of the existing median triangle, and corner beautification improvements. No short-term vehicular improvements were identified that would both improve conditions while minimizing costs and impacts.

**RECOMMENDATION:**
Install single-lane roundabout (long-term); Implement pedestrian/beautification improvements (short-term)

**Project Development Considerations:**
- Minimize impacts to adjacent properties to the extent practicable while providing appropriate access and operations.
- Identify impacts to Cruse Park and potential need for Section 4(f) evaluation.

**Implementation Agency/Partners:**
- City of Helena
- MDT
- HBID/DHI
- Business/Property Owners

**Timeframe:** Short-term to Long-term

**Estimated Cost:** $90,000 (short-term, enhancements); $2.5M-$3.2M (long-term, roundabout)

**Potential Funding Sources:** HBID/TIF, City Funds, Discretionary Grant Funding, STPU, CMAQ
LYN-1. Lyndale Avenue Pedestrian Crossing - Ewing/Rodney Streets

Commercial developments line both sides of the roadway. Memorial Park, Kindrick Legion Field, and the Centennial Trail are located just to the north. Lyndale Avenue provides two travel lanes in each direction and four-foot shoulders. A painted crosswalk is provided on the east leg of Lyndale Avenue at the Warren Street intersection. The crossing consists of painted yield triangles and yield-to-pedestrian signs in advance of the crosswalk, which is marked with white transverse lines perpendicular to traffic flow. The crossing connects the residential area to the south with the park and recreational areas to the north.

To improve pedestrian safety and crossing visibility, improvements are recommended to provide an enhanced pedestrian crossing along Lyndale Avenue. The following locations were considered for an enhanced crossing: Warren Street at the existing crosswalk location; Ewing Street/Rodney Street to improve the connection from Helena Middle School to Kindrick Legion Field and Memorial Park; and National Avenue/Bedford Street to strengthen the Centennial Trail connection.

The 2014 LRTP recommends improving the existing Warren Street crossing by providing an overhead hybrid beacon since there is no pedestrian median refuge (PED-15). Based on MDT’s Uncontrolled Pedestrian Crossing Treatment Selection Process and Matrix\(^1\), a pedestrian-actuated beacon or a pedestrian signal may be warranted based on traffic volumes and roadway configuration of Lyndale Avenue.

Based on an evaluation of pedestrian usage along the corridor, discussions with stakeholders, proximity to existing signalized intersections, and in consideration of connectivity to other non-motorized facilities in the area, it is recommended that the existing pedestrian crossing at Warren Street be removed and a new, enhanced crossing at Ewing Street/Rodney Street be installed. This location represents the approximate mid-point between the signalized intersections and would provide desired connectivity between residential and recreational areas. An overhead pedestrian hybrid beacon or an RRFB paired with enhanced pavement markings and signage is recommended to enhance visibility of the crosswalk.

The northern leg of this intersection is a gravel-surfaced roadway which provides access to Kindrick Legion Park and commercial developments. It does not include appropriate receiving pedestrian accommodations. ADA curb ramps are recommended on all corners, along with either a new shared use path adjacent to the gravel roadway or a new sidewalk combined with roadway paving, curb, and gutter between Lyndale Avenue and the Centennial Trail connection.

To the south, sidewalks are discontinuous along Rodney Street and there are no dedicated bicycle facilities. It is recommended that continuous sidewalks and sharrows markings be installed along Rodny Street between Lyndale Avenue and Helena Avenue to facilitate non-motorized connection from Centennial Trail to Helena Avenue. Recommended improvements to the north and south of the intersection would need to be sequenced appropriately in coordination with crossing improvements.

The current Lyndale Avenue crossing is located at Warren Street but is difficult to see. It is recommended that the crossing be relocated to the Ewing/Rodney Street intersection and upgraded as an enhanced crossing such as those illustrated below to improve connectivity to the Centennial Trail, parks, and residential areas.

### RECOMMENDATION:

Remove existing crossing at Warren Street; provide enhanced pedestrian crossing at Ewing Street/Rodney Street; install shared use path or sidewalk adjacent to northern leg of intersection connecting to Centennial Trail; install sidewalks and sharrows markings on Rodney Street from Lyndale Avenue to Helena Avenue.

**Project Development Considerations:**

- Conduct engineering study and prepare site-specific information outlining justification for crossing treatment for MDT consideration.

**Implementation Agency/Partners:**

- City of Helena
- MDT

**Timeframe:** Short-term to Mid-term

**Estimated Cost:** $520,000

**Potential Funding Sources:**
- City Funds
- Railroad URD/TIF
- TA, NH, HSIP
Within the study area, the only accommodations specific to bikes occur on Helena Avenue, which provides a bike lane on each side of the roadway between Jackson Street and National Avenue, where striping abruptly ends. The bike lanes do not continue through the two primary five-point intersections at Lyndale Avenue/Montana Avenue/Helena Avenue and Last Chance Gulch/Helena Avenue/Neill Avenue. Despite the lack of dedicated bicycle facilities, bike activity is prominent in the Downtown area, and multiple bicycle racks are provided.

The 2014 Helena LRTP recommended extending existing bike lanes on Helena Avenue from 13th Street to Last Chance Gulch, with a shared lane marked by sharrow for the westbound approach at the Neill Avenue/Last Chance Gulch intersection (BL-18). As part of the visionary bicycle network, the bike lanes on Helena Avenue would connect to bike lanes on Cruse Avenue and cycle tracks on Neill Avenue and Last Chance Gulch at the five-point intersection. At the other end of Helena Avenue, the LRTP recommended extending the existing Helena Avenue bike lanes from National Avenue through the five-point intersection and across Montana Avenue to Roberts Street (BL-19). These recommendations are supported by the 2016 Downtown Helena Master Plan, which recommends creating a connected on-street bike network of bike routes and bike lanes.

In support of past planning efforts, it is recommended that the bicycle facilities be extended up to within a half-block of the five-point intersections on Helena Avenue to improve bicycle connectivity within the Downtown core.

There are various treatments for carrying bike lanes through standard four-point intersections, however, five-point intersections are more challenging. At multi-leg intersections, a bicyclist’s path is not evident and there are more conflict points between bicyclists and turning vehicles. Potential treatments include installing multiple bike lanes on the approach leg for each turning movement; installing a striped bike box to place bicyclists in front of stopped vehicles at the Helena Avenue leg of the intersection to enhance visibility; painting sharrows in the travel lane; or installing signage instructing bicyclists to take the travel lane (MUTCD Sign R4-11).

Given the potential conflicts between vehicles and bicycles at this intersection and the potential confusion that a new treatment such as bike boxes might produce, installation of appropriate signage is recommended guiding bicyclists to take the travel lane as they approach intersections so they can easily choose a turning or through lane and navigate the intersection.

**RECOMMENDATION:**
Extend bike lanes to within a half block of the two five-point intersections, install signage instructing bicyclists to use the full travel lane where bike lanes end approaching the five-point intersections.

**Project Development Considerations:**
- Ensure new signage complies with MUTCD requirements.

**Implementation Agency/Partners:**
- City of Helena

**Timeframe:** Short-term

**Estimated Cost:** $3,000

**Potential Funding Sources:** City Funds, Railroad URD/TIF, TA
The City of Helena’s 2017 ADA Transition Plan identified Helena Avenue between Neill Avenue and Railroad Avenue as one of its top five priority routes for accessibility. In general, sidewalks are provided on both sides of Helena Avenue between the five-point intersections. However, there are some gaps in sidewalk accommodations, primarily on the north side of the roadway between 15th Street and the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. Most locations where sidewalks are lacking are located along parking lots which provide few barriers between vehicles and pedestrians. Most of the existing sidewalks are lacking ADA curb ramps at intersections. Additionally, marked pedestrian crossings are only provided across Helena Avenue at 14th Street and on all legs of Rodney Street.

It is recommended that continuous sidewalks be provided on both sides of Helena Avenue between the two five-point intersections. Existing sidewalks showing signs of deterioration should also be repaired or replaced as appropriate. ADA accessible curb ramps should also be installed at all intersections.

**RECOMMENDATION:**

Provide continuous sidewalks on both sides of Helena Avenue; install ADA accessible curb ramps

**Project Development Considerations:**
- Ensure compliance with ADA requirements for all pedestrian improvements.

**Implementation Agency/Partners:**
- City of Helena

**Timeframe:** Short-term to Mid-term

**Estimated Cost:** $190,000

**Potential Funding Sources:** City Funds, Railroad URD/TIF, TA

Approximately 1,000 feet of new sidewalk is needed to complete the existing gaps in sidewalk along the north side of Helena Avenue. More than 25 ADA curb ramps are needed at intersections along the corridor to improve accessibility for pedestrians.
In this segment, Helena Avenue includes one travel lane in each direction, a striped, yellow centerline, striped bike lanes on each side of the roadway, parallel parking on both sides of the street, and continuous sidewalks. With its northeast/southwest orientation, Helena Avenue bisects the right-angle street grid, forming a series of three painted median triangles at the 13th, 14th, and 15th Street intersections. These triangles make the effective curb-to-curb distance on the west leg of each intersection more than 130 feet long, approximately double the crossing distance on the east leg. The curb-to-curb distance on the north leg is even longer at more than 160 feet, creating an area of heightened pedestrian exposure. Due to the skew angle, the configuration also creates sight distance issues for vehicles entering Helena Avenue from Jackson, Logan, and Warren Streets.

In this area, the 14th Street corridor provides an important connection for vehicles, bicyclists, and pedestrians traveling between residential neighborhoods to the east, commercial districts to the north and south, and the Great Northern Town Center to the west. The Last Chance Gulch/14th Street intersection was recently upgraded with a traffic signal and ADA compliant pedestrian enhancements. Currently, the Helena Avenue/14th Street intersection is stop-controlled on the 14th Street leg. Wesleyan Park is located south of Helena Avenue and north of 14th Street at the intersection. The 2014 Helena LRTP recommended improving this crossing for pedestrians and bicyclists using bulbouts and installing an RRFB (PED-7). Given the low existing traffic volumes along Helena Avenue, a marked crosswalk with appropriate signage may be appropriate in the short-term. Since the LRTP was completed, and in support of priority routing for accessibility identified in the 2017 ADA Transition Plan, the City of Helena installed ADA pedestrian ramps, a crosswalk across the east leg of Helena Avenue, and updated signage at the 14th Street intersection.

To improve pedestrian safety and comfort at all three intersections, it is recommended that protected pedestrian facilities be provided by extending the constructed corner with curb and gutter, sidewalks, ADA curb ramps, landscaped median, and painted crosswalks along with appropriate signage. Additionally, to reduce pedestrian crossing distance and to eliminate skewed angle vehicle entry from the north, closure of the northern approaches of Jackson Street, Logan Street, and Warren Street onto Helena Avenue is recommended. The short roadway spur segments adjacent to the existing median triangles could be converted into landscaped parklets to serve as public open space or parking for adjacent properties. Bulbouts could also be considered to enhance pedestrian crossing comfort and safety.

**RECOMMENDATION:**

Convert triangle spurs to open space or parking: extend constructed corners with curb/gutter, sidewalks, and ADA curb ramps; install marked crosswalks and appropriate signage

**Project Development Considerations:**
- Coordinate with adjacent property owners to determine appropriate redevelopment of former roadway spurs.
- Consider maintenance requirements associated with improvements.

**Implementation Agency/Partners:**
- City of Helena
- Property Owners

**Timeframe:** Short-term to Mid-term

**Estimated Cost:** $150,000 (parking area);
$190,000 (parklet)

**Potential Funding Sources:** City Funds, TA, Private
Helena Avenue diagonally intersects 16th Street and Ewing Street, which are oriented at approximately a 90-degree angle, forming an offset six-point intersection. Helena Avenue is uncontrolled, while the minor legs of 16th Street and Ewing Street are stop controlled. None of the corners have accessible curb ramps, and no crossing accommodations are provided on the intersection legs.

Helena Middle School is located southeast of the intersection. Parents and buses commonly use 16th Street to access the school, and a crossing guard assists students at Rodney Street/16th Street. Pedestrians also walk to access residential areas to the north and south, the RB Drive-In on the northwest quadrant of the intersection, and the triangle park bordered by 16th Street, Helena Avenue, and Rodney Street.

To improve pedestrian safety and connectivity and to improve school access, intersection crossing enhancements are recommended at this location. A marked crosswalk with appropriate signage is most appropriate based on traffic volumes, speeds, and lane configuration on Helena Avenue. Additionally, in support of the ADA Transition Plan priority designation for Helena Avenue, the improvements should include ADA accessible curb ramps, curb bulbouts to reduce crossing distance, and signage and pavement markings to alert motorists of pedestrian usage. Reorienting the northern Ewing Street approach to intersect Helena Avenue at a 90-degree angle is also recommended to enable safer vehicle movements by providing additional separation from the 16th Street intersection and improving visibility.

**RECOMMENDATION:**
Install ADA accessible pedestrian crossing enhancements including curb bulbouts, signage, and pavement markings; reorient northern Ewing Street approach

**Project Development Considerations:**
- None identified.

**Implementation Agency/Partners:**
- City of Helena

**Timeframe:** Short-term

**Estimated Cost:** $120,000

**Potential Funding Sources:** City Funds, TA
National Avenue/Dakota Avenue and Boulder Avenue intersect Helena Avenue immediately adjacent to each other at a skew angle, creating an offset five-point intersection. Each roadway provides one travel lane in each direction, and Helena Avenue has a striped bike lane beginning just west of the intersection. Sidewalks are provided on some of the legs but marked crosswalks are not provided on any of the intersection legs, and some of the corners are lacking accessible curb ramps. Parking lots for commercial establishments are located on three quadrants.

Eastbound vehicles traveling on Helena Avenue can turn left at National Avenue or turn right at Boulder Avenue to avoid the Lyndale Avenue/Montana Avenue/Helena Avenue five-point intersection. The intersection skew angle and the offset distance between Boulder and National Avenues creates sight distance challenges for drivers making turning movements at this location.

A marked crosswalk with appropriate signage is most appropriate at this location based on traffic volumes, speeds, and lane configuration on Helena Avenue. The best spot for a crosswalk based on safety, visibility, and connectivity considerations is on the west leg of Helena Avenue between National Avenue and Dakota Avenue. Additionally, crossings could be added to the minor legs and curb bulbouts could be installed to shorten the crossing distance for pedestrians.

To improve the intersection geometrics, realignment of Boulder Avenue is recommended to intersect Helena Avenue at a 90-degree angle. This would improve driver sight lines and increase the distance between Boulder Avenue and the National Avenue intersection, resulting in a more functional four-point intersection at Helena Avenue/National Avenue/Dakota Avenue. The realignment may impact the southeast and/or southwest corner of Helena Avenue/Boulder Avenue, which currently provide parking and access for business developments, and the elevation differential may require a retaining structure. Curb bulbouts could be provided on the Boulder Avenue leg to increase pedestrian safety.

**RECOMMENDATION:**

Install pedestrian crossing enhancements including curb bulbouts, signage, and pavement markings; realign intersection to improve geometrics

**Project Development Considerations:**
- Consider Boulder Avenue grade when designing roadway realignment.

**Implementation Agency/Partners:**
- City of Helena

**Timeframe:** Short-term

**Estimated Cost:** $190,000

**Potential Funding Sources:** City Funds, Railroad URD/TIF, TA
MT-1. Montana Avenue Rail Crossing

MRL’s main east-west rail line crosses Montana Avenue approximately 1,000 feet north of the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. According to the 2014 Helena LRTP, an average of 35 trains pass through the Montana Avenue crossing each day, with typical speeds ranging from 10 to 20 mph. When a train passes through the crossing, it can impede traffic operations at the five-point intersection and cause long queuing north and south of the crossing.

Improvements at this location have been identified in previous studies, including the 2004 and 2014 Helena LRTPs and the 2016 Montana Rail Grade Separation Study. The crossing is a high priority for the City of Helena to reduce congestion and increase safety. In the 2016 study, MDT combined the Montana Avenue rail crossing with the at-grade crossings at Roberts Street and National Avenue for evaluation due to their proximity. The study concluded a new grade-separated crossing at Montana Avenue could allow closure of the crossings at Roberts Street and National Avenue. A pedestrian overpass was recommended at Roberts Street as part of the potential closure work to maintain neighborhood pedestrian connectivity between schools and residential areas. Ultimately, due to existing site conditions, the proposed crossing solution at this location was identified as an underpass with Montana Avenue traversing underneath the railroad.

In accordance with past findings, this traffic study recommends replacing the existing at-grade rail crossing with an underpass to improve safety and operations on Montana Avenue. The image to the right illustrates the proposed configuration. Further consideration should be given to closing the Roberts Street and National Avenue at-grade rail crossings. Closing these crossings decreases connectivity to and from the Railroad District.

Estimated costs for the Montana Avenue grade-separated crossing do not include a pedestrian overpass at Roberts Street or closure of the Roberts Street or National Avenue crossings.

Source: MDT, Montana Rail Grade Separation Study (2016)

RECOMMENDATION:

Construct grade-separated rail crossing on Montana Avenue

Project Development Considerations:
- Consider effects to Roberts Street and National Avenue at-grade rail crossings.
- Coordinate with improvements at Lyndale Avenue/Montana Avenue/Helena Avenue intersection and Centennial Trail crossing.

Implementation Agency/Partners:
- MDT
- MRL
- City of Helena

Timeframe: Long-term

Estimated Cost: $35.4M

Potential Funding Sources:
- City Funds
- Discretionary Grant Funding
- NH, Private
This five-point intersection is situated on US 12. All traffic moving eastbound on Lyndale Avenue must continue southbound Montana Avenue or make a sharp right-turn onto Helena Avenue. A left turn onto Montana Avenue or Helena Avenue is not permitted. US 12 transitions from Lyndale Avenue to Montana Avenue at the intersection. Lyndale Avenue continues approximately 120 feet east of the intersection as a local road.

Northeast bound vehicles on Helena Avenue are permitted to turn in all directions. Westbound vehicles on Helena Avenue are also permitted to make all turns. Channelization and striping in the center of the intersection direct westbound traffic. Pole/light signal for Helena Avenue is not permitted. US 12 transitions from Lyndale Avenue to Montana Avenue at the intersection. Helena Avenue continues approximately 120 feet east of the intersection as a local road.

MT-2. Montana Avenue Five-Point Intersection Improvements

The existing five-point intersection does not allow all turning movements which impacts connectivity into the Midtowne area and 6th Ward Neighborhood. Although the intersection is shown to operate at acceptable levels of service under existing conditions, the intersection is projected to experience increased delay by 2040. Operations are also impacted by the nearby Montana Avenue at-grade rail crossing. A roundabout is shown to adequately address operational and safety concerns at the intersection.

The five-point signalized intersection currently operates at an overall LOS C during the peak hours. The eastbound leg of Helena Avenue experiences the longest delay and a LOS D. By 2040, the intersection is shown to continue operating at LOS C with minor increases in delays on each leg. Both of the Helena Avenue legs and the Lyndale southeast-bound leg are projected to experience LOS D delays during peak hours. While the overall delays generally remain within thresholds for a LOS C, the configuration and signal timing results in inefficient traffic movements and restrictions for some turns. The intersection is also a barrier for non-motorized traffic.

During the 2014-2018 analysis period, 59 crashes were reported. The most common crash types were rear end (21), right angle (16) and sideswipe (14). The majority (47) resulted in no apparent injury and were coded as PDO crashes. Of the remaining crashes, seven were reported as possible injury crashes, four were suspected minor injury crashes, and 1 was unknown. Three crashes involved a collision with a fixed object (curb and utility pole/light support); all others involved a collision with one or more other vehicles. No pedestrians were involved in any of the crashes.

The 2014 Helena LRTP recommended closing both Helena Avenue approaches to create a traditional ‘four-legged’ intersection. For the Caird Property & Midtowne Neighborhood Community Visioning Project, two concepts were proposed: concept A included conversion of the intersection to a standard four-way intersection by closing Helena Avenue to vehicular traffic and providing protected lanes and/or refuge islands for bikes and pedestrians; concept B proposed a five-legged roundabout at the intersection.
Appendix C discusses the analysis of the Lyndale Avenue/Montana Avenue/ Helena Avenue intersection conducted for this traffic study. The following alternatives were considered:

- **Alternative A: Existing Configuration** – Maintain existing five-point intersection configuration with enhanced wayfinding.
- **Alternative B: Reconfigured Traffic Signal** – Add left-turn lane on Lyndale Avenue, enabling left turns onto Montana and Helena Avenues; add left-turn lane on southbound leg of Montana Avenue, enabling left turns onto Helena Avenue; provide separated through and left-turn lanes on westbound leg of Helena Avenue; remove raised medians.
- **Alternative C: Four-Legged Intersection** – Close eastbound and westbound legs of Helena Avenue before intersection with Montana Avenue, create standard four-legged intersection with Montana Avenue and Lyndale Avenue; provide left, through, and dual-right lanes on west leg of Lyndale Avenue; add left-turn lane on southbound leg of Montana Avenue, enabling left turns onto Lyndale Avenue, install new traffic signals at Lyndale Avenue/National Avenue and Montana Avenue/Boulder Avenue.
- **Alternative D: Roundabout** – Remove traffic signal; install two-lane roundabout, maintain access from all current intersection legs.

Public involvement and stakeholder outreach activities identified the need for improved access to the 6th Ward neighborhood from Lyndale and Montana Avenues and the desire to maintain Helena Avenue as a continuous route from the Railroad District to the Downtown core through this intersection. Feedback from MDT reinforced the need to maintain acceptable operations for vehicles traveling on Highway 12. The traffic study found that a roundabout (Alternative D) would best balance these operational and access needs. Coordination between the Montana Avenue rail grade separation (MT-1) and the five-point intersection would likely be needed to ensure efficient operations if a roundabout were to be installed.

Recognizing that construction of a roundabout would be a costly long-term pursuit, near-term improvements to the existing configuration could include enhancements such as updated crosswalk striping for improved pedestrian visibility and median/corner beautification. No short-term vehicular improvements were identified that would both improve conditions while minimizing costs and impacts.

**RECOMMENDATION:**

Install a multi-lane roundabout (long-term); Implement pedestrian and streetscaping beautification improvements (short-term)

**Project Development Considerations:**
- Pursue funding partnership between MDT and City of Helena.
- Coordinate with property owners regarding roundabout impacts.
- Ensure roundabout configuration compatibility with grade-separated rail crossing.
- Evaluate potential intersection modification needs at the Boulder Avenue intersection in coordination with MDT and in consideration of resident and business access.

**Implementation Agency/Partners:**
- MDT
- City of Helena
- Property Owners

**Timeframe:** Short-term to Long-term

**Estimated Cost:** $4.9M - 5.9M

**Potential Funding Sources:** City Funds, Railroad URD/TIF, Private, Discretionary Grant Funding, NH, CMAQ
The Centennial Trail is a shared use path for pedestrians and bicyclists. Once complete, the trail will be about five miles long and provide an east/west bicycle and pedestrian route through Helena connecting Spring Meadow State Park to the East Helena Bike Path. Within the study area, the segment between Centennial Park and National Avenue has been completed. The segment between National Avenue and North Montana Avenue has not been completed due to the need for route determination, possible land acquisition, and stakeholder input.

The 2009 Centennial Trail Master Plan explored options for routing the trail through Helena including specific configurations for various major street crossings. Two alternatives were proposed for crossing North Montana Avenue: Alternative A proposed to use Argyle Street and complete a crossing midblock at Gallatin Street; Alternative B proposed to use City of Helena right-of-way just north of Lyndale Avenue and provide a crossing at the Lyndale Avenue/Montana Avenue/Helena Avenue intersection. Ultimately, Alternative B was recommended for implementation. In support of the Master Plan, the Caird Property & Midtowne Neighborhood Community Visioning Project proposed greenways providing biking and walking routes connecting with the Centennial Trail.

Safe crossings and improved pedestrian connectivity concepts are echoed in the 2016 Helena Master Plan. The 2009 Centennial Trail Master Plan for crossing North Montana Avenue: Alternative A proposed to use Argyle Street and complete a crossing at Bozeman Street; Alternative B proposed to use Lyndale Avenue and Montana Avenue then south to Livingston Avenue and east across Montana Avenue to Roberts Street. The alignment would require all vehicles in both directions to stop at a hybrid signal while trail users crossed all four travel lanes at once. This configuration would minimize the need for roadway reconstruction and could be accomplished within the existing roadway width. Alternatively, a two-phase crossing could be provided using an RRFB with a protected center median, which would require roadway widening and reconstruction. This configuration would require only two lanes of traffic to yield to trail users at a time, which would minimize queue lengths and delay by allowing continued through movement for the remaining two travel lanes. An appropriate crossing configuration would need to be determined during design to meet user needs and ensure coordination with rail crossing operations.

In 2017, the City of Helena conveyed the deed for a portion of right-of-way within the Alternative B alignment for development of the Loose Caboose Casino. Mergenthaler’s Transfer and Storage, a large trucking activity center, is located in the northwest quadrant of the Lyndale Avenue/Montana Avenue/Helena Avenue intersection, and other commercial/light industrial developments are located on the remaining portions of the block. Additionally, since 2009, the City of Helena constructed the Helena Area Transit Service building south of Bozeman Street, making a Gallatin Avenue trail connection more difficult. For these reasons, the past recommended alignment from the Master Plan (Alternative B) warrants reevaluation.

For this traffic study, modified versions of the 2009 Master Plan alternatives were evaluated based on current right-of-way conditions and site constraints. Additional new alternatives were also considered. Appendix C discusses the evaluation of potential routing options conducted for this traffic study. The following alternatives were considered:

- **Alternative A: Lyndale Avenue with Crossing at 5-Point Intersection** – Shared use path south on National Avenue and east along north side of Lyndale Avenue; Montana Avenue crossing at the five-point intersection
- **Alternative B: Argyle Street with Crossing at Bozeman Street** – Shared use path north on National Avenue, east on Argyle Street, and south along Montana Avenue; provide a crossing at Bozeman Street
- **Alternative C: Argyle Street with Crossing at 5-Point Intersection** – Shared use path north on National Avenue, east on Argyle Street, and south along Montana Avenue; provide a crossing at the five-point intersection
- **Alternative D: National Avenue to Livingston Avenue** – Shared use path south on National Avenue; provide Lyndale Avenue and Helena Avenue crossings; continue south on Dakota Avenue to Livingston Avenue and east across Montana Avenue to Roberts Street
- **Alternative E: Ewing Street to Livingston Avenue** – Shared use path south on Ewing Street; provide Lyndale Avenue and Helena Avenue crossings; continue east to Dakota Avenue then south to Livingston Avenue and east across Montana Avenue to Roberts Street
To minimize out-of-direction travel for trail users, provide desired access and connectivity, and address safety and operational needs for both non-motorized and vehicular modes, this traffic study identified Alternative B: Argyle Street with Crossing at Bozeman Street as the preferred alternative to enable trail connectivity and provide a safe non-motorized crossing on Montana Avenue.

The recommendation in this traffic study differs from that in the 2009 Master Plan due to changed conditions and additional evaluation. This traffic study focused on identifying the best opportunity to cross Montana Avenue to promote east/west connectivity of the trail system. Further consideration will need to be made to identify the best route to connect the trail between the Montana Avenue crossing and the current trail termini at California Street near the I-15 underpass. It is recommended that the Master Plan be updated to identify recommendations to fully connect the trail.

**RECOMMENDATION:**
Extend Centennial Trail along National Avenue and Argyle Street; provide enhanced pedestrian crossing at Bozeman Street; update the Centennial Trail Master Plan.

**Project Development Considerations:**
- Identify need for additional right-of-way to enable a shared use path facility separated from the roadway.
- Conduct engineering study and prepare site-specific memorandum outlining justification for crossing treatment and confirmation of operational performance and queuing on Montana Avenue for MDT consideration.
- Evaluate crossing configurations on Montana Avenue in terms of trail user safety, vehicular delay and queuing, and construction impacts.
- Consider impacts to on-street parking.
- Consider impacts from future grade-separated rail crossing (MT-1).

**Implementation Agency/Partners:**
- City of Helena
- MDT
- Railroad URD
- NMTAC
- Adjacent property owners

**Timeframe:** Short-term to Mid-term

**Estimated Cost:** $420,000 (Option A Crossing); $530,000 (Option B Crossing)

**Potential Funding Sources:** City Funds, Railroad URD/TIF, RTP, TA, Private

To minimize out-of-direction travel for trail users, provide desired access and connectivity, and address safety and operational needs for both non-motorized and vehicular modes, this traffic study identified Alternative B: Argyle Street with Crossing at Bozeman Street as the preferred alternative to enable trail connectivity and provide a safe non-motorized crossing on Montana Avenue.

The recommendation in this traffic study differs from that in the 2009 Master Plan due to changed conditions and additional evaluation. This traffic study focused on identifying the best opportunity to cross Montana Avenue to promote east/west connectivity of the trail system. Further consideration will need to be made to identify the best route to connect the trail between the Montana Avenue crossing and the current trail termini at California Street near the I-15 underpass. It is recommended that the Master Plan be updated to identify recommendations to fully connect the trail.
5.2. LOCATIONS CONSIDERED BUT NOT ADVANCED

The following locations were also evaluated for improvements but were ultimately not advanced for further consideration due to site constraints, lack of feasibility, jurisdictional considerations, existing and projected traffic operations, and spacing considerations.

**Lyndale Avenue/Last Chance Gulch**

The Last Chance Gulch/Lyndale Avenue signalized intersection provides two travel lanes in each direction. The east leg of Lyndale Avenue includes a single left-turn lane separated by a painted median, while the west leg includes two dedicated left-turn lanes separated by a raised median. Last Chance Gulch provides two through travel lanes north of the intersection, and one through lane to the south. The south leg of the intersection provides a dedicated left-turn lane, a through lane, and a combined through/right-turn lane. The north leg includes dedicated right-turn, through, and left-turn lanes separated from opposing traffic by a raised median. Continuous sidewalks are provided on all four corners. Painted crosswalks, pedestrian signal heads, and accessible curb ramps facilitate pedestrian crossings. No dedicated bicycle facilities are provided.

From 2014-2018, 71 crashes were recorded at the intersection, which was the highest number of crashes of the study intersections. Rear-end crashes were the most common at this intersection accounting for 51 crashes. An additional 13 crashes were sideswipe crashes. One bicycle crash occurred at this intersection.

This intersection experiences the highest traffic volumes of the study intersections. On eastbound Lyndale Avenue, queues occasionally stack as far as Getchell Street but typically only extend to Front Street. During peak travel times, the storage space in the left-turn bay reaches capacity and left-turning vehicles spill over into the through lanes. On westbound Lyndale Avenue, queues generally do not build up past Jackson Street, however, during peak travel periods queues were observed to reach as far as Logan Street. On the southbound Last Chance Gulch approach the queue in the right-turn lane was generally to Memorial Drive. During peak hours, queues in the through lane were observed to reach as far as the Old Glory Landmark Flag with some regularity. The northbound Last Chance Gulch approach had generally short queues of 5-10 vehicles, however, during the PM peak hour queues were observed to reach as far as 15th Street.

Currently, the intersection operates at LOS C and D during the peak hours, and it is projected to operate and LOS D and E by 2040. This is reflective of the high traffic volumes and the associated delay to clear the intersection.

It is not feasible to increase lane capacity due to physical constraints. The majority of the crashes are typical of congested areas, limiting the potential for preventative treatments to reduce crashes. Because the intersection is fully developed and MDT has already optimized signal timing, no improvements are recommended for this intersection.

**Lyndale Avenue Bike Lanes**

Lyndale Avenue consists of two 12-foot travel lanes in each direction separated by a painted yellow centerline, 4-foot shoulders, and sidewalks on both sides of the roadway. No on-street parking is provided. The MDT Geometric Design Standards recommend a minimum travel lane width of 12 feet for outside travel lanes and 11 feet for inside travel lanes on multi-lane urban principal arterial facilities classified as NHS Non-Interstate. Minimum bicycle lane width is recommended at 4 feet, however bicycle lane width can include the shoulder width if no parking is provided. A minimum 5-foot width is recommended from the face of the curb. The MDT NHS Route Segment Plan suggests a width of 40 feet or greater for the corridor.

Minimal bike usage wasrecorded during counts collected in December 2019 at the Lyndale Avenue/Rodney Street and Lyndale Avenue/National Avenue intersections. While bicycle usage is likely higher during warmer months, it is not anticipated that this corridor is a commonly used bicycle corridor.

The 2014 Helena LRTP recommended installing 6-foot bike lanes on Lyndale Avenue from the west parking lot of the old National Guard Armory (just west of Last Chance Gulch) to Boulder and Montana Avenues when the roadway is resurfaced (BL-14). This recommendation is supported by the 2016 Downtown Helena Master Plan, which recommends creating an on-street bike network of bike routes and bike lanes.

If the two inside lanes on Lyndale Avenue were reduced to 11 feet, a 5-foot combined bike lane/shoulder could be provided within the existing curbline. This change, however, would be made at the discretion of the owner of the roadway, MDT. Safety concerns may arise due to narrow travel lanes and a lack of physical separation or protection between vehicles and bicycles. No improvements are recommended for this location at this time.

**Lyndale Avenue/National Avenue**

Lyndale Avenue forms the east/west legs of this unsignalized intersection, with National Avenue intersecting to the north and south and Bedford Street located to the southwest forming a five-point intersection. Bedford Street and National Avenue intersect Lyndale Avenue at immediately adjacent points, creating an approximately 130-foot-wide approach on the highway. Bedford Street lies at a 25-degree skew angle, creating sight distance issues for northbound entry onto Lyndale Avenue. The intersection is located about 500 feet from the Montana Avenue/Lyndale Avenue/Helena Avenue five-point intersection and installing a signal could contribute to operational issues at the five-point intersection.

A total of 32 crashes were reported at this intersection, including seven possible injury crashes and two suspected minor injury crashes. The most common crash types were rear end (13) and right angle (12) crashes. Most crashes occurred during daylight (32), clear/cloudy (31), and dry (24) conditions.

The intersection currently operates at LOS D and E during the peak hours and is projected to degrade to LOS D and F by 2040. The longest delay occurs during the School and PM peak hours on the northbound leg. The 2014 Helena LRTP recommended signalizing the intersection of Lyndale Avenue/National Avenue when signal warrants are met (MSN-15). Although the intersection is shown to operate poorly today and into the future, it does not currently meet the Manual on Uniform Traffic Control Devices (MUTCD) signal warrants.

If conditions change in the future, a signal may be warranted at this intersection, at which time further evaluation would be needed. While a signal may become warranted, there is concern about impacts to the nearby five-point intersection due to the close proximity. Any improvements to the intersection would need to be approved by MDT through their System Impact Action Process. Due to these concerns, no improvements are currently recommended for this location.
Helena Avenue/Rodney Street

The Helena Avenue/Rodney Street intersection is signalized and includes marked crosswalks on all four legs. ADA curb ramps were installed on all corners of the intersection; however, two of the corners lack sidewalk connectivity (see HLN-2). Rodney Street provides a single through lane in each direction. The south leg of Rodney Street intersects Helena Avenue at approximately a 35-degrees skew angle, creating some sight distance difficulties for vehicles turning right during a red phase.

The intersection is primarily impacted by Helena Middle School. The entrance to the school is located on Rodney Street south of the intersection. During school pick up/drop off times, several buses travel through the intersection from all directions. Parents commonly use the intersection to access the school in addition to Idaho Avenue, 16th Street, and the parking lot at Rodney Street/15th Street. There is a crossing guard at Rodney Street/16th Street and kids dropped off on Idaho Avenue are able to walk around the corner onto Helena Avenue and then Rodney Street to access the school without having to cross the street. In the afternoons, kids were observed walking towards Helena High School at school release via Helena Avenue, presumably using the Montana Avenue, Livingston Avenue intersection to cross Montana Avenue. The intersection experiences moderate pedestrian activity, particularly during the AM and school peak hours. Vehicle queuing does not appear to be an issue at this intersection.

From 2014-2018, four crashes were reported, including three right angle crashes and one rear end crash, none of which resulted in injury. An additional crash occurred just to the east at Helena Avenue/Irondo Avenue that involved a pedestrian but did not result in injury.

The intersection currently operates at LOS B during the peak hours and is projected to continue operating at LOS B through 2040. However, the immediate area surrounding Helena Middle School experiences short-duration/high-density traffic flow issues that are not typically reflected in traffic volume counts and LOS calculations.

Since the intersection was recently upgraded to include ADA accommodations and the signal operates at an acceptable level, no immediate improvements are needed. In the future, if work is done to the intersection, updating the midblock crosswalks and curb bulbouts could be considered at this location to improve pedestrian safety. For purposes of this traffic study, no improvements are recommended at this time for this location.

Montana Avenue/Boulder Avenue and Montana Avenue/Livingston Avenue

South of the five-point Lyndale Avenue/Montana Avenue/Helena Avenue intersection, Boulder Avenue intersects Montana Avenue and provides vehicle access to Helena High School, Bryant Elementary School, and the Railroad URD. The left-turn lane in the southbound direction onto Boulder Avenue is short (approximately 75 feet) and only allows for minimal vehicle storage. Queues extending south along Montana Avenue frequently block the intersection. The short storage length of the turn bay, coupled with the queues blocking the intersection, can result in spillover into the southbound travel lane on Montana Avenue. This was most commonly observed surrounding Helena High School start and release times. There are no crosswalks marked at the Boulder Avenue intersection.

Immediately south, Livingston Avenue intersects Montana Avenue at a 65-degree angle. A crosswalk is provided on the north leg for pedestrian access mainly to Helena High School, with intersection control provided by a traffic signal and pedestrian signal heads.

During the 2014-2018 analysis period, 24 crashes were reported at the Montana Avenue/Boulder Avenue intersection. Rear-ends were the most common (11 crashes), followed by right angle (6 crashes). The majority of vehicles involved in crashes at this intersection were traveling in the northbound direction on Montana Avenue (33 of 47 vehicles). At the Montana Avenue/Livingston Avenue intersection, 18 crashes were reported. Rear-end crashes were also the most common at this intersection, accounting for 11 crashes. Two pedestrian crashes occurred at this intersection. Both involved school-aged children crossing Montana Avenue and being struck by a southbound vehicle.

The 2014 Helena LRTP recommended limiting the east leg of the Montana Avenue/Boulder Avenue intersection to right-in/right-out movements and eliminating the southbound left-turn movement (MSN-15). There has also been some discussion in the community about fully closing the Boulder Avenue approach at Montana Avenue and connecting Livingston Avenue through the Helena High School parking lot to the intersection with Roberts Street. The intent would be to reduce the number of conflict points in this segment of Montana Avenue, reduce queuing effects from left-turning vehicles onto Boulder Avenue, and improve school access. There have been expressed concerns about student safety if a Livingston Avenue connection were to be completed, however, since the area is heavily used by students to access their vehicles and the vocational-technical school located on the northeast corner of the lot. Closing Boulder Avenue to southbound left turns is also a point of concern for many due to the current lack of connectivity across Montana Avenue for eastbound vehicles on Highway 12.

For purposes of this traffic study, no improvements are recommended for either the Boulder Avenue or Livingston Avenue intersections.

Centennial Trail Routing Alternatives

Several potential alternate alignments were proposed by the public and stakeholders for routing the Centennial Trail. The first alignment involved routing the trail north on National Avenue and using a strip on the southern edge of railroad right-of-way to extend the trail east to Roberts Avenue. However, input from Montana Rail Link indicated that there is an active rail line along the southern portion of the right of way and it is not feasible to construct a trail near an active rail line. Additionally, portions of the railroad right of way are leased to other entities along the proposed route.

Another option that was explored involved constructing a grade-separated crossing across Montana Avenue in the form of a pedestrian bridge or tunnel. These options were found to be unfeasible due to the high cost and substantial impacts. However, if an underpass is pursued at the rail crossing (MT-2), an alternative crossing may be investigated at that time.

Lastly, potential routing options between Kindrick Field and the Argyle Street/National Avenue intersection were explored, including routing the trail through the private property or using a utility alley parallel to National Avenue. While these routes would provide a more direct east/west connection and may be less impactful to construct, they were determined to be unfeasible at this time due to the current uses of the land for the proposed routes.

For these reasons, it is recommended that the trail be continued from its current terminus north to Argyle Street and across Montana Avenue at Bozeman Street as described in MT-3.
CHAPTER 6: CONCLUSIONS AND NEXT STEPS

Through a comprehensive evaluation of transportation and environmental conditions and a wide-ranging public and stakeholder outreach process, this traffic study identified a set of 15 recommendations to address multimodal safety, connectivity, access, mobility, and appeal needs for the five-point intersections and connecting corridors. Recommended improvements offer a range of potential short-term and long-term strategies to address areas of concern, including streetscaping enhancements, sidewalk improvements, ADA curb ramps, enhanced crosswalks, traffic signal timing adjustments, bike lane extensions, intersection realignment, a grade-separated rail crossing, trail extension, and intersection reconstruction with roundabout configurations. These recommended improvements attempt to balance the needs and concerns identified through the traffic study while minimizing impacts to adjacent properties and land uses, aligning with the community vision, and enabling reasonable and feasible implementation.
6.1. FUNDING

The ability to advance recommendations from this traffic study and develop projects depends on the availability of existing and future local, state, federal, and private funding. Projects identified in this traffic study may be eligible for funding through the following programs and sources. Currently, no funding has been identified to complete any of the recommended improvement options contained in this traffic study.

Local Funding

The City of Helena generates revenues through a variety of funding mechanisms and uses several local programs related to transportation for budgeting purposes and to disperse revenues. These programs are tailored to fulfill specific transportation functions or provide particular services. The following programs could be used to finance improvements recommended by this traffic study:

- **City Funds** are generated through multiple sources. Fuel taxes are apportioned from the State of Montana to incorporated cities and towns based on population and street mileage ratios. Transfers are made from the State to the City Funds to reimburse expenditures for construction, reconstruction, repair, and maintenance of local streets. Additionally, a street maintenance assessment is imposed against every parcel within the city limits, with a square footage cap based on the type of property (residential versus commercial). Revenues generated from the assessment fund maintenance activities on public roadways.

- **The Downtown Helena Business Improvement District (HBID)** generates revenues from a special assessment on the district’s property owners’ tax bill. Continued operation of the district requires 60% of property owners to approve the tax plan, which includes an additional assessment on their property tax billing that is directed back to the HBID for improvements within the district.

- **Tax Increment Financing (TIF)** districts established within the study area include the Railroad URD and Downtown URD. As improvements are made within the defined district boundaries and as property values increase, the incremental increases in property tax revenue are used for improvements within the district. Expenditures of revenue generated by this method are subject to certain spending restrictions and must be spent within the district.

- **The SID Revolving Fund** provides financing to satisfy bond payments for special improvement districts (SIDs) in need of additional funds. The city can establish street SIDs with bond repayment to be made by the adjoining landowners receiving the benefit of the improvement. For past projects, the city has provided labor and equipment through City Funds, with an SID paying for materials.

State Funding

In addition to state fuel tax funds apportioned to the City of Helena as discussed above, the Recreational Trails Program (RTP) provides matching funds to develop and maintain recreational trails and trail-related facilities in Montana. The program is administered by Montana State Parks, with program funding from the Federal Highway Trust Fund based on the motor fuel excise tax collected from fuel used for off-highway recreation by snowmobiles, all-terrain vehicles, off-highway motorcycles, and off-highway light trucks. Eligible projects include construction and maintenance of trails including vehicle control, features to assist individuals with disabilities, and signs and other traffic control devices related to trail use.

Federal Funding

Federal transportation revenues are generated from gasoline and diesel fuel taxes and apportioned to states according to specific transportation programs, eligible fund uses, and required state participation (or match percentage), which is determined based on population and miles of federal highway within each state. Most federal transportation expenditures in Montana require approximately 13 percent state matching funds, with approximately 87 percent of project costs covered by federal dollars. Improvements to on-system routes within the study area may be eligible for funding through the following federal programs administered by MDT:

- **The National Highway Performance Program (NH)** provides funding for projects to rehabilitate, restore, resurface, and reconstruct NHS routes. Activities eligible for NH funding include construction, reconstruction, resurfacing, restoration, and rehabilitation of segments of the NHS roadway to address highway operations and safety. Bike facilities and pedestrian walkways on NHS routes may also qualify for NH funding. The Transportation Commission establishes priorities for the use of NH funds, and projects are let through a competitive bidding process.

- **Funds from the Surface Transportation Program - Urban Highway System (STPU)** are used to finance transportation projects on Montana’s Urban Highway System, as per Montana Code Annotated 60-3-211. STPU allocations are based on a per capita distribution and are recalculated each decade following the census. STPU funds are primarily used for resurfacing, rehabilitation or reconstruction of existing facilities, traffic operations improvements; bicycle facilities; pedestrian walkways and carpool projects. Priorities for the use of Urban funds are established at the local level through local planning processes with final approval by the Transportation Commission.

- **The Transportation Alternatives Program (TA)** provides funding for smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, and safe routes to schools. Awards are granted to projects through a competitive process.

- **The Highway Safety Improvement Program (HSIP)** provides funding for highway safety improvement projects on public roads and bicycle/pedestrian facilities that address a hazardous location or feature or address a safety problem. Project applications from local governments are prioritized by MDT and approved by the Montana Transportation Commission.

- **Congestion Mitigation and Air Quality Improvement Program (CMAQ)** funds are used to finance transportation projects and programs to help improve air quality and meet the requirements of the Clean Air Act. In communities at risk for air quality violations, flexible discretionary funds from this program may be used for projects that reduce vehicular congestion such as intersection improvements and signal synchronization.

- **Discretionary Grant Funding** is available through the Better Utilizing Investments to Leverage Development (BUILD) program administered by the U.S. Department of Transportation. The program awards funds through a competitive process for projects that have a significant local or regional impact. Past awards have included multimodal, multi-jurisdictional projects addressing safety, connectivity, access, and economic revitalization.

Private Support

The private sector has recognized that better access and improved transportation facilities can be beneficial due to increased land values and customer attraction and commercial development possibilities. Improvements within the study area could be partially supported through various forms of private assistance, such as right-of-way donations or easements, cash contributions, cost-sharing for operating and/or capital costs, impact fees, and improvement districts.

On-system routes, such as Highway 12 (Lyndale Avenue and Montana Avenue), are MDT maintained roads and may be eligible for federal funds.
6.2. PROJECT DEVELOPMENT

Following completion of this traffic study, additional development of improvement projects would be required prior to construction. The level of project development would vary depending on the type and scale of project. In some cases, the City may be able to use City Funds and maintenance personnel to implement small-scale projects such as signing and striping improvements. For larger projects, the following steps would be needed:

- Identify and secure funding source(s) and project sponsor(s).
- For projects led by the City of Helena, follow the City’s project development process including approval by elected officials, completion of appropriate environmental documentation and permits, and public/stakeholder/landowner outreach and appropriate collaboration processes.
- For MDT-led projects, follow MDT guidelines for project nomination and development, including a public involvement process, environmental documentation, and permitting.
- For projects that are developed by the City that may impact MDT routes, coordinate with MDT via the Systems Impact Action Process.
- Comply with all applicable local, state, and federal regulations and requirements.

**PLANNING**

Step 1

- Identify/Secure Funding
- Applicable City/State Processes
- Permitting
- Outreach & Collaboration
- Design

**PROJECT DEVELOPMENT**

Step 2

**CONSTRUCTION**

Step 3

Public Involvement (Ongoing throughout all stages)
REFERENCES

2. City of Helena, Parks, Recreation and Open Space Plan, Adopted October 2010.
3. DOWL HKM, Prepared for City of Helena, Helena Gateway Intersection Concept Study: Neill Avenue, Last Chance Gulch, Helena Avenue & Cruse Avenue, September 2012.
11. WGM Group, Helena Downtown Urban Renewal Plan, Adopted by Helena City Commission October 29, 2019 per Ordinance No. 3242.