Custer Avenue/Henderson Street Draft Corridor Study

Custer's Last Chance Transportation Team

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Disclaimer

This document was developed to meet a degree requirement for the Transportation Policy, Operations, and Logistics Master's Degree Program at George Mason University. The opinions and recommendations in this document are the responsibility of the members of the study team and do not represent the positions of the Montana Department of Transportation, Federal Highway Administration, or George Mason University.
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EXECUTIVE SUMMARY

The Custer Avenue/Henderson Street Corridor is a critical link in Helena’s transportation system that will need additional capacity improvements to address future traffic demands.

This study examines current and future corridor conditions, analyzes several alternatives for addressing existing and future capacity needs, reviews potential funding sources, and makes recommendations for improving the study corridor. The study team completed this effort as a requirement for Masters Degree course work and the resulting document represents the professional judgment and expertise of the contributors, rather than that of any public agency.

Based on the analysis for this study and the Draft Greater Helena Area Transportation Plan 2004 Update, traffic volumes on Custer Avenue between North Montana Avenue and Benton Avenue will increase to nearly 26,000 vehicles per day by 2025 under existing conditions. These volumes will increase to over 30,000 per day with a new Interstate 15 Custer Avenue Interchange. In both cases, Custer Avenue will exceed capacity for a two-lane configuration well before 2025. Although most of the remainder of the study corridor will continue to function adequately through 2025, Custer Avenue between Benton Avenue and Green Meadow Drive will also exceed capacity although not to the same extent as the North Montana Avenue to Benton Avenue segment.

Efforts to expand capacity on the study corridor to address future traffic needs face challenging right-of-way, utility relocation, environmental, and funding issues.

Although existing right-of-way widths will generally allow for some widening throughout the study corridor, the most limited right-of-way widths occur on Custer Avenue between National Avenue and Benton Avenue where the capacity-expansion needs are greatest. Bill Roberts Municipal Golf Course, a protected property under section 6(f) of the Federal Land and Water Conservation Funds Act of 1965, is the primary constraint on this segment.

Custer Avenue is also a major utility corridor including overhead power lines, a natural gas pipeline, sewer lines, a high-pressure petroleum pipeline, underground telephone, and water
lines. This study estimates it will cost $3.2 million to relocate these utilities in preparation for either a four-lane or five-lane expansion project.

The most significant environmental issues on the study corridor are the Section 106 historic properties; Federal Section 4(f) and Section 6(f) properties including Bill Roberts Municipal Golf Course and the Lewis & Clark County Fairgrounds; the wetlands near the Custer Avenue/Henderson Street intersection; and the two State Superfund sites west of Henderson Street. If Federal funds are anticipated as a future funding source for construction, project sponsors will have to take Federal and State environmental laws and regulations associated with these properties into account in corridor preservation to maximize funding options. The proposed extension of Custer Avenue to Joslyn Street involves the most extensive environmental considerations.

Sponsors of future capacity expansion projects will also face significant funding challenges. With a recommended build-out alternative cost of an estimated $12.8 million, project sponsors will have to find additional Federal, State, or local funding sources beyond the $843,000 in Federal and State funds Helena and Lewis & Clark County receive annually through the Urban Highway Program. This study summarizes potential funding sources and suggests ways to maximize the use of limited funding.

Based on a technical analysis of existing and future corridor conditions, this study makes a number of general recommendations regarding the study corridor, recommends a build-out alternative, and suggests a number of next steps.

**General Recommendations**

1. Concentrate investments on improvements to Custer Avenue between National Avenue and Green Meadow Drive.
2. Complete currently planned projects.
3. Install protected pedestrian crosswalks at remaining intersections.
4. Restrict selected movements to improve the operational efficiency of the corridor:
   - Eliminate left-turns onto National Avenue and Villard Avenue from Custer Avenue.
   - Restrict left-turns from Villard Avenue onto Custer Avenue.
5. Look for opportunities to combine and eliminate current accesses and develop an access management plan for the corridor.

6. Move primary Four Georgians Elementary School access from Custer Avenue to McHugh Lane.

7. Provide a dedicated right-turn from Henderson Street to US Highway 12 with a radius that will accommodate school buses at the intersection of Henderson Street and US Highway 12. In addition, provide left-turn bays for the northbound and southbound legs.

8. Avoid additional commercial development with associated accesses.

9. Take advantage of opportunities to secure additional right-of-way in the corridor in preparation for future capacity expansion.

10. Explore ways to reduce traffic associated with events at the Lewis & Clark County Fairgrounds.

11. Perpetuate and enhance the heavily used separated bicycle and pedestrian path that is adjacent to most of the study corridor.

12. Determine the location of utilities in the study corridor due to their influence on future corridor improvement decisions.

13. The transportation demand management recommendations in the *Draft Greater Helena Area Transportation Plan 2004 Update* adequately address TDM issues related to the study corridor.

**Build-out Alternative**

This study analyzed the following three major build-out alternatives based on criteria including future performance, utility impacts, right-of-way needs, and public acceptability.

1. Five-lane on Custer Avenue between National Avenue and Green Meadow Drive with remaining corridor remaining as two-lane,

2. Four-lane on Custer Avenue between National Avenue and Green Meadow Drive with roundabouts at Benton Avenue, Green Meadow Drive and Henderson Street,

3. Three-lane enhanced Custer Avenue Streetscape between National Avenue and Henderson Street
Based on its analysis, the study team recommends Alternative 1 as the build-out option that will best address future capacity needs on the study corridor and meet other comparative criteria. In addition, depending on available funding, the study team suggests the following project phases:

1. Construct left-turn lanes at the Villard Avenue and Cooney Drive intersections and improve the intersection of Custer Avenue and Benton Avenue.
2. Add third lane and curb, gutter, and sidewalk on north side of Custer Avenue.
3. Construct remaining two lanes with curb, gutter and sidewalks on both sides of Custer Avenue.

The study team does not recommend an extension of Custer Avenue to Joslyn Street due to the numerous associated environmental issues, negligible benefit to the traffic patterns of northwest Helena, and the negative impacts the extension would have on the capacity of Custer Avenue between Green Meadow Drive and Henderson Street. If pursued, the extension should follow improvements between National Avenue and Green Meadow Drive.

Next Steps
In addition to the above recommendations, the study suggests the following next steps:

1. Develop a long-range funding plan for Custer Avenue improvements that fully considers the Federal and State requirements that would be tied to the use of these funding sources.
2. Preserve and acquire right-of-way necessary for future Custer Avenue expansion and new north-south corridors between the Helena Valley and Helena.
3. Perform a cultural resources inventory to determine whether any of the historic properties on Custer Avenue are significant.
4. Coordinate changes in Section 6(f) boundaries as part of the Lewis & Clark County Fairground improvements.
5. Perform an in depth utility survey to determine location and ownership of utilities along Custer Avenue and consider strategies to reduce relocation costs.
6. As soon as practicable, develop a wetland mitigation plan that will satisfy the US Army Corps of Engineers and convert property within the Lewis & Clark County Fairgrounds to
wetlands equal to or greater than acreage lost to future projects in the area of the Custer Avenue/Henderson Street intersection.

7. Strive to reduce future project-level environmental analysis requirements by building public consensus at the planning level and obtaining proactive agreements with regulatory agencies.

8. Coordinate the planned extension of Benton Avenue with MDT to ensure the extension does not further degrade capacity of Custer Avenue.

9. Take advantage of the upcoming completion of the Greater Helena Area Transportation Plan 2004 Update to involve the public in a discussion regarding options for raising additional funding necessary for improvements to the study corridor and to address other Helena-area transportation system needs identified in the plan.

**************
INTRODUCTION

The Custer Avenue/Henderson Street Corridor in northern Helena, Montana serves several important educational, recreational, commercial, and residential areas. The corridor also serves arterial traffic traveling between rapidly growing commercial areas in northern Helena and residential and commercial areas in western Helena. Traffic on this mostly two-lane corridor increased by 24% between 1995 and 2003 with increasing growth expected due to continued residential development north of Custer Avenue, planned improvements to the Lewis & Clark County Fairgrounds, and construction of a new Interstate 15 Custer Avenue Interchange at the east end of the corridor.

As the only east-west arterial corridor in northern Helena, the Custer Avenue/Henderson Street Corridor is critically important to Helena’s efforts to respond to the rapidly growing infrastructure needs of an increasing population and expanding economy.

Although the Helena area has not experienced the explosive double-digit growth of other Montana areas such as Bozeman and the Flathead and Bitterroot Valleys, the population of Montana’s capital city increased by nearly 5% between 1990 and 2000. Lewis & Clark County’s population increased by over 17% during the same period with much of the growth occurring in Helena and the North Helena Valley.

As shown on Map 1, the Custer Avenue/Henderson Street Corridor begins at an intersection with North Montana Avenue and extends to the west along Custer Avenue for approximately 1.5 miles to an intersection with Henderson Street near the main entrance to the Lewis & Clark County Fairgrounds. The corridor then continues along Henderson Street for approximately one mile to an intersection with Euclid Avenue (U.S. Highway 12). Both routes are functionally classified as urban minor arterials and are on Montana’s Urban Highway System. Although the entire corridor is within Helena’s city limits, several segments border areas under the jurisdiction of Lewis & Clark County. The Montana Department of Transportation (MDT) owns and maintains Custer Avenue between Montana Avenue and Green Meadow Drive and the City of Helena owns and maintains Henderson Street and the remainder of Custer Avenue.
In addition to serving the rapidly growing commercial area on North Montana Avenue north of Custer Avenue, the study corridor also serves one of Helena’s two high schools, a municipal golf course, an elementary school, a softball complex, a middle school, and the Lewis & Clark County Fairgrounds. East of North Montana Avenue, Custer Avenue serves several large retail developments and the Helena Regional Airport. These facilities create major traffic fluctuations and related congestion issues on the corridor especially at the beginning and end of school days, on weekends, and during special events at the Fairgrounds. Due to the lack of continuous north-south arterials in northern Helena, Custer Avenue also carries north-south through traffic moving east or west to access north-south arterial streets.

The study corridor also includes a railroad underpass on Henderson Street under the Montana Rail Link (MRL) railroad line. This underpass has limited height and width clearances that restrict commercial truck and emergency services movements along the corridor. In addition, Custer Avenue is a major utility corridor for natural gas and electrical lines and borders wetlands near the intersection with Henderson Street.

The purpose of this study is to:

- Analyze current and future conditions along the Custer Avenue/Henderson Street Corridor,
- Identify potential environmental issues that could impact future improvements,
- Consider corridor enhancements such as the Custer Avenue extension to Joslyn Street,
- Recommend short and long-term initiatives to maintain an adequate Level of Service along the corridor for both motorized and non-motorized travel, and
- Identify potential funding mechanisms and funding options for recommended initiatives.

To avoid duplication of efforts, the study incorporates information from other planning efforts including the Draft Greater Helena Area Transportation Plan 2004 Update, the Helena Interstate 15 Environmental Impact Statement, and the Draft Lewis & Clark County Fairgrounds Master Plan. However, because this study involves a more intensive examination of corridor issues, the study recommendations are not necessarily consistent with the recommendations of other efforts.
CORRIDOR DESCRIPTION
Following is a review of the infrastructure, demographic, and environmental conditions along the study corridor with estimates of future operational conditions without major improvements.

Infrastructure
Street Classification and Jurisdiction
The entire Custer Avenue/Henderson Street Corridor is functionally classified as an urban minor arterial and is on the State-designated Urban Highway System. MDT owns and maintains Custer Avenue between North Montana Avenue and Green Meadow Drive and the City of Helena owns and maintains Henderson Street and the remainder of Custer Avenue.

US Highway 12 (Euclid Avenue), at the west end of the study corridor, is on the National Highway System and maintained by MDT. North Montana Avenue at the east end of the corridor is on the Urban Highway System and also maintained by MDT.

Street Configuration
As shown in Figure 1 and on Map 2, Custer Avenue between North Montana Avenue and Henderson Street is primarily a narrow roadway with two twelve-foot wide driving lanes, gravel shoulders, and two parallel drainage ditches. This aging design represents most of Custer Avenue with the exception of the four-lane segment between North Montana Avenue and National Avenue.
Although the majority of the Custer Avenue corridor was last reconstructed during the 1950’s, State and local agencies have made several local spot improvements along the corridor since then. These improvements included improved approaches and geometrics for signalized intersections, a three-lane segment between the McHugh Lane intersection and the Four Georgians Elementary School approach, and a four-lane segment with curb, gutter, and sidewalks between the intersections of North Montana Avenue and National Avenue.

Henderson Street is similar to Custer Avenue in width and design. Originally constructed in 1971, Henderson Street consists of two fourteen-foot wide through lanes (See Figure 2). The segment between the intersection with Custer Avenue and the MRL underpass continues the original design of a rural section with no shoulders and a roadside ditch for drainage. The segment south of the underpass to the intersection with Highway 12 is an improved design with additional width for paved shoulders and curb and gutter. The Henderson Street and US Highway 12 intersection geometrics were not modified when the roadway was last widened.
FIGURE 2  Henderson Street southbound at MRL underpass

The Custer Avenue segment of the study corridor has several turn lanes including center left-turn lanes at signalized intersections, at the Four Georgian Elementary School approaches, and for the segment between National Avenue and North Montana Avenue.

There are no turn lanes on Henderson Street.

The Cooney Drive traffic control signal, which was installed as a safety project to provide a protected pedestrian crossing between residential subdivisions north of Custer Avenue and the Four Georgians Elementary School, does not include center left-turn lanes. There are a number of traffic signal controlled intersections along Custer Avenue at the following locations.

- North Montana Avenue
- McHugh Lane
- Cooney Drive
- Benton Avenue
- Green Meadow Drive

With the exception of Cooney Drive, these intersections and approach transitions are constructed to modern design standards. All signalized intersections have been constructed with interconnect capabilities for signal coordination, though no coordination plan is in use.
As noted, the Cooney Drive intersection is not a modern design. This traffic control signal was installed as a safety project to provide a protected pedestrian crossing between residential subdivisions north of Custer Avenue and the Four Georgians Elementary School, and does not include center left-turn lanes or improved geometrics.

The only traffic signal controlled intersection on Henderson Street is at US Highway 12. However, the MRL underpass has an advanced warning signal system to warn approaching vehicles that exceed the 12-foot underpass height restriction.

Operational Characteristics
Table 1 shows the posted and actual speeds on the corridor by segment. Speed limits range from 25 miles per hour (mph) to 45 mph. Additionally, the segment of Custer Avenue adjacent to the Four Georgians Elementary School is posted at 25 mph from 7:30 am to 4:30 pm during the school year, and at 35 mph at other times and when school is not in session. The posted speed limit changes with a time based variable speed limit sign.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>Corridor Speed Limits &amp; Speeds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin Intersection</td>
<td>End Intersection</td>
</tr>
<tr>
<td>Custer Avenue</td>
<td>Montana Avenue</td>
</tr>
<tr>
<td></td>
<td>McHugh Lane</td>
</tr>
<tr>
<td>McHugh Lane</td>
<td>Cooney Drive</td>
</tr>
<tr>
<td>Cooney Drive</td>
<td>Benton Avenue</td>
</tr>
<tr>
<td>Benton Avenue</td>
<td>Henderson Street</td>
</tr>
<tr>
<td>Henderson Street</td>
<td>Custer Avenue</td>
</tr>
<tr>
<td></td>
<td>Hudson Avenue</td>
</tr>
<tr>
<td>Hudson Avenue</td>
<td>US Highway 12</td>
</tr>
</tbody>
</table>

*Peck and Associates, Draft Greater Helena Area Transportation Plan 2004 Update, Figure 3-10
Intra-urban movements dominate traffic on the Custer Avenue/Henderson Street Corridor. Commercial movements on the corridor are limited to origins and destinations adjacent to the corridor. Regional commercial movements are limited by the lack of access to Interstate 15 and the limited clearance of the MRL underpass on Henderson Street.

With the exception of the US Highway 12 corridor, the study corridor provides the longest east-west travel opportunity in the Helena Urban Area. The existing and future ability of the corridor to provide an adequate Level of Service is highly dependant on the number and nature of intersecting routes. Table 2 describes the principal intersecting routes along Custer Avenue.

**TABLE 2**

<table>
<thead>
<tr>
<th>Crossroad</th>
<th>Functional Class</th>
<th>Serves</th>
<th>Signal?</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Villard Avenue</td>
<td>Collector</td>
<td>Residential areas to south and junction to Cedar Street and US Highway 12. No access north of Custer Avenue.</td>
<td>No</td>
<td>Relatively light traffic currently. May attract south moving traffic as an alternate to Montana Avenue, which could cause left-turn conflicts on Custer Avenue.</td>
</tr>
<tr>
<td>McHugh Lane</td>
<td>Collector</td>
<td>Rapidly growing residential area to north. No long through movements south of Custer Avenue.</td>
<td>Yes</td>
<td>No through movement south of Custer Avenue. Traffic loads east &amp; west onto Custer Avenue.</td>
</tr>
<tr>
<td>Cooney Drive</td>
<td>Local</td>
<td>Growing residential area to north. No access south of Custer Avenue.</td>
<td>Yes</td>
<td>No through movement to south. Traffic loads east &amp; west onto Custer Avenue.</td>
</tr>
<tr>
<td>Benton Avenue</td>
<td>Minor Arterial</td>
<td>Best access from northwestern quadrant of Helena to Central Business District. Good access to US Highway 12. Access to Carroll College events, recreational facilities, and developed residential area.</td>
<td>Yes</td>
<td>City plans Benton Avenue extension north of Custer Avenue to serve residential development. This will reduce green time for signal.</td>
</tr>
<tr>
<td>Green Meadow Drive/Valley Drive</td>
<td>Minor Arterial-Major Collector</td>
<td>Serves high-speed north-south rural collector for access to growing residential area. Access south of Custer Avenue to Capital High School via Valley Drive.</td>
<td>Yes</td>
<td>No through movement to south. Traffic loads east &amp; west onto Custer Avenue.</td>
</tr>
<tr>
<td>Henderson Street</td>
<td>Minor Arterial</td>
<td>Connects to the south and west with US Highway 12. Also provides access to recreational areas, Fairgrounds, and residential areas.</td>
<td>No</td>
<td>Through movements to the south access commercial, and residential development. Some regional movements via US Highway 12.</td>
</tr>
</tbody>
</table>

PAGE 17
Table 3 describes the principal intersecting routes along Henderson Street.

### TABLE 3
**Major Street Intersections on Henderson Street**

<table>
<thead>
<tr>
<th>Crossroad</th>
<th>Functional Class</th>
<th>Serves</th>
<th>Signal</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brady Street/Valley Drive</td>
<td>Collector</td>
<td>Capital High School (CHS) to the east and residential area to west</td>
<td>No</td>
<td>Has seen increased traffic use by those moving from west Helena to Custer Corridor or CHS due to recent paving project</td>
</tr>
<tr>
<td>Peosta Avenue</td>
<td>Collector (east)/ Local street (west)</td>
<td>Established residential area both west and east of Henderson St.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Euclid Ave/US Highway 12</td>
<td>Principal Arterial</td>
<td>Serves regional through movements along with access to commercial areas along US Highway 12</td>
<td>Yes</td>
<td>Primary east-west route through town, gateway for traffic entering Helena from the west</td>
</tr>
</tbody>
</table>

As shown in Table 4 and on Map 3, the greatest traffic loading along the study corridor occurs at North Montana Avenue at the east end of the corridor. However, other traffic loads continuously throughout the corridor as travel on segments of Custer Avenue is necessary to complete longer trips between origins and destinations north and south of the corridor. The reliance on Custer Avenue to complete north or south movements is clearly seen on Map 4 for origins or destinations west of North Montana Avenue. Benton Avenue provides the greatest attraction for traffic entering and leaving Custer Avenue from the south.
TABLE 4
Average Daily Traffic for the Custer-Henderson Corridor, 1995 - 2003

<table>
<thead>
<tr>
<th>Traffic Count Location</th>
<th>1995</th>
<th>1997</th>
<th>1999</th>
<th>2001</th>
<th>2003</th>
<th>'95 – ‘03 % change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custer Avenue west of North Montana Ave</td>
<td>15,200</td>
<td>14,300</td>
<td>14,500</td>
<td>17,000</td>
<td>18,300</td>
<td>20%</td>
</tr>
<tr>
<td>Custer Avenue between McHugh Lane &amp; Benton Avenue</td>
<td>13,000</td>
<td>13,600</td>
<td>14,700</td>
<td>15,700</td>
<td>15,200</td>
<td>17%</td>
</tr>
<tr>
<td>Custer Avenue between Benton Avenue &amp; Green Meadow Drive</td>
<td>8,600</td>
<td>10,000</td>
<td>10,000</td>
<td>10,600</td>
<td>10,500</td>
<td>22%</td>
</tr>
<tr>
<td>Custer Avenue between Green Meadow Drive &amp; Henderson Street</td>
<td>5,300</td>
<td>6,600</td>
<td>5,600</td>
<td>7,500</td>
<td>7,100</td>
<td>34%</td>
</tr>
<tr>
<td>Henderson Street between Brady Street and Peosta Avenue</td>
<td>6,400</td>
<td>5,700</td>
<td>5,400</td>
<td>6,600</td>
<td>7,600</td>
<td>18%</td>
</tr>
<tr>
<td>Henderson Street South of Custer Avenue</td>
<td>5,100</td>
<td>6,000</td>
<td>6,300</td>
<td>6,800</td>
<td>6,700</td>
<td>30%</td>
</tr>
</tbody>
</table>

Although the 17% average growth in traffic over an eight-year period implies significant future growth, linear extrapolation to project future traffic is not useful in urban areas because urban traffic is dependent on many future socio-economic factors. Future traffic projections are best made with travel demand models. The travel demand model developed for the Draft Greater Helena Area Transportation Plan 2004 Update includes traffic estimates that are useful in understanding future pressure on the corridor. There is no financial plan in place for the construction of the proposed Interstate 15 Custer Avenue Interchange. However, the following summarizes 2025 traffic projections for the study corridor with and without the interchange.

**2025 Traffic Without Interstate 15 Custer Avenue Interchange:** As shown on Map 3, the existing plus committed network for the Draft Greater Helena Area Transportation Plan 2004 Update predicts a total daily traffic volume on Custer Avenue west of North Montana Avenue of 25,800\(^1\), which would make it the third busiest corridor in the Helena area trailing only Interstate 15 and North Montana Avenue. Volumes drop to 15,600 between
Benton Avenue and Green Meadow Drive and 11,300 between Green Meadow Drive and Henderson Street. Henderson Street volumes range from 11,000 near the Fairgrounds to 9,900 near US Highway 12.

2025 Traffic With Interstate 15 Custer Avenue Interchange: With the addition of a Custer Avenue Interchange, traffic volumes just west of North Montana Avenue increase about 4,500 ADT or over 17% than without an interchange and about 11% or over 2,000 between National Avenue and Green Meadow Drive. Traffic volumes in 2025 are about 30,300 west of North Montana Avenue, decreasing to 17,350 just west of Benton and 11,700 near the Fairgrounds. Henderson Street daily traffic volumes range from 11,500 near the fairgrounds to 3,400 near US Highway 12 and are relatively the same with and without and interchange.

Planners can quickly evaluate corridor capacity by comparing existing and estimated future traffic volumes to recommended capacity thresholds based on a corridor’s geometric configuration. The Draft Greater Helena Area Transportation Plan 2004 Update identifies roadway capacity thresholds as follows:

<table>
<thead>
<tr>
<th>Geometric Configuration</th>
<th>Corridor Volume&lt;sup&gt;1&lt;/sup&gt; (vehicles/day)</th>
<th>Corridor Volume&lt;sup&gt;2&lt;/sup&gt; (vehicles/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-Lane</td>
<td>&lt; 12,000</td>
<td>Up to 15,000</td>
</tr>
<tr>
<td>Three-Lane</td>
<td>Up to 18,000</td>
<td>Up to 22,500</td>
</tr>
<tr>
<td>Four-Lane</td>
<td>Up to 24,000</td>
<td>Up to 30,000</td>
</tr>
<tr>
<td>Five- Lane</td>
<td>Up to 36,000</td>
<td>Up to 43,750</td>
</tr>
</tbody>
</table>

*Historical Management Conditions  
*Ideal Management Conditions  
*Additional volumes may be obtained in some locations with adequate road design, access control, and other capacity enhancing methods

Congestion occurs and mobility along a corridor suffers when traffic demand exceeds available capacity. In addition to insufficient capacity, ineffective management of existing capacity such as poor signal timing can contribute to congestion. Local governments should develop plans to improve the corridor before the traffic volumes approach capacity thresholds. Table 5 provides capacity thresholds for both historical and ideal management conditions. A facility can handle
volumes beyond the historical management conditions if properly designed with capacity enhancing features such as coordinated signals or access control.

Planners use volume to capacity calculations to correlate existing traffic volumes to Level of Service or the ability of a road segment to accommodate traffic volumes based on geometric conditions. Level of Service ranges from A to F with LOS A indicating little traffic delay and ideal operating conditions, while LOS F indicates significant delay and traffic congestion. Table 6 shows how volume to capacity ratios relate to corridor Level of Service.

**TABLE 6**  
**V/C Ratios & LOS Designations**

<table>
<thead>
<tr>
<th>V/C Ratio</th>
<th>Description</th>
<th>Corridor LOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;0.59</td>
<td>Well under capacity</td>
<td>A and B</td>
</tr>
<tr>
<td>0.60 – 0.79</td>
<td>Under capacity</td>
<td>C</td>
</tr>
<tr>
<td>0.80 – 0.99</td>
<td>Nearing capacity</td>
<td>D</td>
</tr>
<tr>
<td>1.00 – 1.19</td>
<td>At capacity</td>
<td>E</td>
</tr>
<tr>
<td>&gt; 1.20</td>
<td>Over Capacity</td>
<td>F</td>
</tr>
</tbody>
</table>

Based on these capacity threshold parameters, the following summarizes existing and future capacity issues with the three primary study corridor segments.

*North Montana Avenue to Benton Avenue*: Traffic on this segment operates at a LOS E under existing conditions and will degrade to an LOS F (v/c ratio of 1.41 to 1.72) by 2025. Short-term improvements to accommodate more traffic under existing conditions would help this situation. The planned construction of the Interstate 15 Custer Avenue Interchange will further degrade the operation of this segment by adding an estimated additional 4,500 vehicles per day, which is 12% more than without the interchange.

*Benton Avenue to Green Meadow Drive*: This segment of the study corridor primarily serves Capital High School, the Lewis & Clark County Fairgrounds, the Ryan Fields
complex, and northwest Helena Valley residents traveling to and from downtown Helena. The segment is nearing capacity with a volume to capacity ratio of 0.70 or LOS C and will slightly exceed capacity by 2025 with a volume to capacity ratio of 1.04 or LOS E. This indicates a need for major improvements to this segment before 2025.

**Green Meadow Drive to US Highway 12:** Current and estimated future daily traffic volumes along the remainder of the study corridor fall within the recommended corridor capacity threshold for a two-lane facility. Existing and future volume to capacity ratios are below 1.0. Average traffic volumes of about 7,000 along the corridor result in an LOS A or B under existing conditions, while future volumes provide an LOS D for the remainder of the corridor.

Average 2003 daily traffic volumes on Joslyn Street ranged from 1,600 near the MRL railroad crossing to 3,800 near US Highway 12. A predicted 2.5-3.0% average annual growth rate will result in the corridor maintaining an LOS B through year 2025 both with and without a new Interstate 15 Custer Avenue Interchange. This analysis indicates the corridor can accommodate projected traffic growth with no major improvements.

Weekend events at Ryan Fields and the Lewis & Clark Fairgrounds during the spring and summer have a significant impact on traffic volumes on this segment of the study corridor. Special April, 2005 traffic counts for this study found that, although Sunday traffic volumes between North Montana Avenue and Green Meadow Drive averaged 18% less than on Thursday, Sunday traffic volumes increased by 8% west of Green Meadow Drive compared to Thursday volumes. The weekend change in traffic volumes was most dramatic west of Henderson Street on the Ryan Fields access road where volumes were approximately 450% higher on Sunday than on Thursday.

On urban corridors, travel delay is most heavily influenced by movement through intersections and delays caused by vehicles turning into property adjacent to the corridor. As previously noted, the five traffic signals along the study corridor are not synchronized. That means each signal responds independently to queues of vehicles entering its control. If the signals were
synchronized, then once a traveler joined a queue he could travel at a consistent rate of speed through all the signals, thus decreasing travel time.

Signal synchronization can reduce congestion, improve air quality, and improve Level of Service. However, if there is too much disruption of the queue due to traffic disruptions from turning movements into adjacent property, then the benefits of signal synchronization are significantly diminished. Since Custer Avenue is essentially a two-lane street, speed reductions or stops for turns into adjacent property disrupts traffic flows.

The Draft Greater Helena Area Transportation Plan 2004 Update \textsuperscript{iv} uses stopped delay per vehicle in seconds at intersections as a measure of Level of Service.

\textbf{TABLE 7}

\textbf{Intersection Criteria for Level of Service}

<table>
<thead>
<tr>
<th>Level of Service</th>
<th>Seconds of Stopped Delay per Vehicle (Signalized Intersection)</th>
<th>Seconds of Stopped Delay per Vehicle (Unsignalized Intersections)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt;10</td>
<td>&lt;10</td>
</tr>
<tr>
<td>B</td>
<td>10 to 20</td>
<td>10 to 15</td>
</tr>
<tr>
<td>C</td>
<td>21 to 35</td>
<td>16 to 25</td>
</tr>
<tr>
<td>D</td>
<td>36 to 50</td>
<td>26 to 35</td>
</tr>
<tr>
<td>E</td>
<td>51 to 80</td>
<td>36 to 50</td>
</tr>
<tr>
<td>F</td>
<td>&gt;80</td>
<td>&gt;50</td>
</tr>
</tbody>
</table>

Based on these criteria, Table 8 shows the corridor’s major intersections and their 2004 Levels of Service.
### TABLE 8
Intersection Level of Service for 2004 AM and PM Peak Travel

<table>
<thead>
<tr>
<th>Intersection of Custer Avenue and:</th>
<th>2004 Level of Service for AM/PM Peak</th>
<th>Worst Directional AM/PM Peak</th>
<th>2025 Level of Service for AM/PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana Avenue (S)</td>
<td>E/D</td>
<td>SB/NB = F</td>
<td>F/E</td>
</tr>
<tr>
<td>Villard Avenue (U)</td>
<td>D/F</td>
<td></td>
<td>F/F</td>
</tr>
<tr>
<td>McHugh Lane (S)</td>
<td>B/C</td>
<td>All at B/C - EB&amp;WB</td>
<td>E/F</td>
</tr>
<tr>
<td>Cooney Drive (S)</td>
<td>B/C</td>
<td>All at B/C -WB</td>
<td>F/F</td>
</tr>
<tr>
<td>Benton Avenue (S)</td>
<td>D/D</td>
<td>EB/EB = E</td>
<td>F/F</td>
</tr>
<tr>
<td>Green Meadow Drive (S)</td>
<td>B/B</td>
<td>SB = C/All at B</td>
<td>D/E</td>
</tr>
<tr>
<td>Henderson Street (U)</td>
<td>D/D</td>
<td></td>
<td>F/F</td>
</tr>
<tr>
<td>Henderson Street and US12 (S)</td>
<td>C/B</td>
<td>SB = D/EB &amp; SB = C</td>
<td>E/C</td>
</tr>
</tbody>
</table>


In summary, all six signalized intersections will experience a Level of Service of D, E, or F by 2025. In addition, the unsignalized intersections on Custer Avenue at Villard Avenue and Henderson Street also have a projected 2025 LOS of F.

The volume and type of commercial truck traffic is an important consideration in analyzing future capacity issues. During the development of the Greater Helena Area Transportation Plan 2004 Update, Robert Peccia & Associates interviewed several area businesses that use trucking services to determine transportation constraints and primary travel routes. Although these businesses identified few physical constraints in the Helena area, the majority of the businesses mentioned the height and weight restrictions at the MRL underpass on Henderson Street as an issue. However, the businesses also noted they use the US Highway 12/Last Chance Gulch Corridor as their primary route for east-west movements through Helena.

In addition to the Robert Peccia & Associates survey data, this study also incorporates the results of an expanded survey that examined existing and future trucking operations related to the Custer Avenue/Henderson Street Corridor with and without the planned Interstate 15 Custer Avenue Interchange.
The survey included the following questions:

- Are the majority of your truck trips in Helena considered local movements or through movements? East-West or North-South?
- Do you consider the Custer Avenue/Henderson Street Corridor from North Montana Avenue to US Highway 12 a primary travel route for your business? If not, why?
- With the addition of a Custer Avenue Interchange do you anticipate an increase in your truck movements along the Custer Avenue corridor west of North Montana Avenue?
- Would an extension of Custer Avenue to Joslyn Street increase your truck movements along the Custer Avenue corridor?

Based on this survey, it appears the Custer Avenue/Henderson Street Corridor is of limited importance for the movement of freight through the Helena area by truck. This is due to the origins and destinations of the shipments, the additional time necessary to travel the route, the physical constraint of the MRL underpass, and the existence of a reasonable alternative route. The survey results also indicate a new Interstate 15 Custer Avenue Interchange and/or a west extension of Custer Avenue would not change this situation.

Accident Analysis

The Draft Greater Helena Area Transportation Plan 2004 Update includes an accident analysis based on MDT Traffic and Safety Bureau crash information. Based on this information, which covered a three-year period from October 1, 2000 to September 30, 2003, intersections throughout the study corridor were ranked by three different crash characteristics: 1) number of crashes, 2) severity, and 3) crash rates. Table 9 lists the results of this analysis for intersections along the Custer Avenue/Henderson Street Corridor.
### TABLE 9
Intersection Crash Analysis

<table>
<thead>
<tr>
<th>Intersection</th>
<th># of Crashes</th>
<th>Injury</th>
<th>Severity a (Safety Index)</th>
<th>Volume (AADT)</th>
<th>Crash Rate b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Montana Avenue &amp; Custer Avenue</td>
<td>87</td>
<td>71</td>
<td>1.37</td>
<td>34,190</td>
<td>2.32</td>
</tr>
<tr>
<td>Dredge Drive &amp; Custer Avenue</td>
<td>13</td>
<td>11</td>
<td>1.31</td>
<td>17,000</td>
<td>0.70</td>
</tr>
<tr>
<td>Villard Avenue &amp; Custer Avenue</td>
<td>16</td>
<td>11</td>
<td>1.63</td>
<td>17,770</td>
<td>0.82</td>
</tr>
<tr>
<td>Green Meadow Drive &amp; Custer Avenue</td>
<td>19</td>
<td>12</td>
<td>1.74</td>
<td>14,360</td>
<td>1.21</td>
</tr>
<tr>
<td>Benton Avenue &amp; Custer Avenue</td>
<td>31</td>
<td>22</td>
<td>1.58</td>
<td>17,980</td>
<td>1.57</td>
</tr>
<tr>
<td>Euclid Avenue &amp; Henderson Street</td>
<td>34</td>
<td>27</td>
<td>1.41</td>
<td>24,350</td>
<td>1.28</td>
</tr>
</tbody>
</table>

Source: MDT Traffic and Safety Bureau crash data, October 1, 2000 to September 30, 2003

a) Severity based on number of crashes in three categories 1) property damage only, 2) injury crash, 3) fatality crash, then applying a rate to each factor (1), (3), and (8) respectively, and dividing by the number of crashes in the three-year period (no fatalities recorded)
b) Crash Rate based on the number of crashes at the intersection in relation to its AADT and is expressed in crashes per million entering vehicles (MEV)

The analysis then used a composite rating score to identify intersections warranting additional study. The composite rating was applied to intersections with a crash rate of at least 1.0 crashes per million entering vehicles (MEV), twelve or more crashes over the three-year period, and in the top ten of one of the three crash characteristic’s analyzed. The North Montana Avenue/Custer Avenue and Euclid Avenue/Henderson Street intersections were the only intersections along the Custer Avenue/Henderson Street Corridor meeting the composite rating criteria as both were on the top ten intersections list for number of crashes. The North Montana Avenue/Custer Avenue intersection had the highest number of accidents in the greater Helena Area, while the Euclid Avenue/Henderson Street intersection was ranked ninth.

**Emergency Services**

The [*Draft Greater Helena Area Transportation Plan 2004 Update*](#) also identifies “Emergency Services Areas of Concern” based on discussions with the community’s emergency services providers. These providers identified the following emergency services issues on the Custer Avenue/Henderson Street Corridor:

- **Custer Avenue Corridor:** Heavily congested with no shoulders for drivers to pull off to during a call.
**Custer Avenue/Villard Avenue:** Difficult to get onto Custer Avenue from Villard Avenue.

**Custer Avenue/Green Meadow Drive:** Fairgrounds events cause congestion. No shoulders to move through intersection.

**Custer Avenue/Henderson Street Intersection:** Difficult maneuvers. No shoulder for vehicles to get out of the way of trucks. Inadequate lighting. Fairgrounds events that back traffic out onto Custer Avenue and parking problems at Ryan Fields create safety issues.

**Henderson Street Railroad Underpass:** Largest fire trucks cannot use due to lack of vertical and horizontal clearance.

**Right-of-Way**

The width of the right-of-way along the study corridor is an essential factor in the consideration of the type and scope of future corridor improvement projects.

**Custer Avenue:** Right-of-way (R/W) width varies from a minimum of 80-feet at the intersection with North Montana Avenue to a maximum of 160-feet near the intersection with Henderson Street. For the majority of the corridor, the R/W width is 100-feet with 50-feet on either side of the Custer Avenue centerline. However, there are a number of locations along the corridor where the R/W is less than 50-feet from the centerline.

As shown on Map 5, R/W widths for Custer Avenue, beginning at the intersection with North Montana Avenue and traveling west, are as follows:

- Between Station 84+48.2 at the intersection of North Montana Avenue and Station 77+63 (National Avenue), the R/W extends 50-feet north of centerline and 30-feet south of centerline for a total R/W width of 80-feet.

- Beginning at Station 77+63 (National Avenue) and extending west to Station 71+77.5 (Villard Avenue), the R/W north of the centerline remains at 50-feet and the R/W south of centerline increased to 50-feet for a total R/W width of 100-feet.
Beginning at Station 71+77.5 near Villard Avenue and extending west to Station 69+77.5, the R/W north of centerline is 35-feet while the R/W south of centerline remains at 50-feet for a total R/W width of 85-feet. The reduction in R/W to the north is necessary to accommodate a NorthWestern Energy gas pipeline valve station.

From Station 69+77.5 to Station 40+00 (Cooney Drive), the R/W north of centerline increases to 50-feet while the R/W south of centerline remains at 50-feet for a total R/W width of 100-feet.

From Station 40+00 (Cooney Drive) to Station 33+76 (Benton Avenue), the R/W north of centerline remains at 50-feet while R/W south of centerline decreases to 30 feet for a total R/W width of 80-feet. The reduction of R/W to the south accommodates the Bill Roberts Municipal Golf Course, which has several tee boxes very close to the R/W boundary.

From Station 33+76 (Benton Avenue) to Station 9+64.2 just east of the Fairgrounds, the R/W is 50-feet on both sides of centerline for a total R/W width of 100-feet.

From Station 9+64.2 to Station 8+74.2, the R/W north of centerline decreases to 44-feet while the R/W south of centerline remains at 50-feet for a total R/W width of 94-feet. The reduction in R/W to the north accommodates a residence that is relatively close to the existing R/W boundary.

From Station 8+74.2 to Station 6+92.7, the R/W north of centerline increases to 80-feet while the R/W south of centerline remains at 50-feet for a total R/W width of 130-feet.

From Station 6+92.7 to the intersection with Henderson Street, the R/W is 80-feet on both sides of centerline for a total R/W width of 160-feet.
**Henderson Street:** The right of way width on Henderson Street is a consistent 120-feet from the intersection with Custer Avenue to the intersection with US Highway 12. However, the Henderson Street centerline is only 25-feet to the east of the west R/W boundary with the exception of a jog to the east near the intersection with US Highway 12. Although the R/W plans indicate the full 120- feet R/W width continues to the intersection, any significant widening project would impact Far Post Sports, which is located very close to the existing edge of the roadway.

Henderson Street has an additional right-of-way constraint at the Montana Rail Link underpass, which crosses Henderson at an angle with very little clearance to the east or west of the roadway.

**Accesses**
The number and type of accesses on a road has a direct impact on its safety and capacity. Commercial accesses with large traffic volumes and unrestricted turning movements are especially problematic. Fortunately, the Custer Avenue/Henderson Street Corridor has few commercial accesses that detract from the corridor’s function as a minor arterial. Custer Avenue in particular benefits from having much of its south right-of-way adjacent to public facilities such as the Bill Roberts Municipal Golf Course and Capital High School. See Appendix A for a list of specific access locations and types.

**Utilities**
As with most urban corridors, the number, type and size of utilities in the study corridor will have a major influence on decisions regarding future improvements to the corridor.

**Custer Avenue:** The Custer Avenue portion of the study corridor is a major utility corridor. In addition to the roadway, the corridor also conveys the following public and private facilities:
- Underground Telephone
- Fiber Optic Cable
- Natural Gas
- City Water/Sewer
- Major Overhead Power
- Overhead Power Distribution
- Cable
- High Pressure Petroleum Pipeline (Yellowstone Pipeline)
- City Storm Water

The utilities are generally located near the right of way limits on both the north and south sides of the roadway. However, there are areas where the alignments of the utilities shift in the right of way, and in some areas the utilities may run under the existing paved surface.

Reconstruction of the Custer Avenue segment of the study corridor will require extensive utility relocations including the NorthWestern Energy valve station shown in Figure 3. It is difficult to quantify the level of utility conflicts without design level construction plans. However, based on historic costs associated with utility relocations at the signalized intersections and other projects with similar characteristics, any four or five lane-widening project will involve significant utility relocation costs. A three-lane widening project may avoid most of these utilities, however.

FIGURE 3 NorthWestern Energy valve station at Custer Avenue/Villard Avenue intersection
In addition to the actual physical utility relocation costs, project sponsors may also have to acquire additional right-of-way along corridor to accommodate the utilities. The preferred method of perpetuating utility corridors is to acquire additional right of way so the utilities are outside the paved surface. In the case of the Yellowstone Pipeline, 49 CFR Part 192, which establishes special monitoring requirements on pipelines in areas of “high consequence”, may force project sponsors to ensure the pipeline is not covered by a paved surface.

Based on reconstruction projects in similar utility corridors, the estimated utility relocation costs for a four or five-lane widening project on Custer Avenue is approximately $3.2 million.

**Henderson Street:** Like the Custer Avenue segment, Henderson Street is also a major utility corridor. Known utilities include:

- Underground Telephone
- City Storm Water
- City Sewer
- Major Overhead Power
- Overhead Power Distribution

Though the Henderson Street segment of the study corridor has a number of utilities, relocation is less of an issue than with the Custer Avenue segment. The right-of-way width of 120 feet along the entire Henderson Street segment provides considerable room for roadway expansion without requiring additional right-of-way to perpetuate the utility corridor. However, the City storm water facilities and major overhead power transmission lines, which are near the existing roadway, will require significant relocation costs if the City ever widens Henderson Street.
Planned Improvements
MDT and the City of Helena are planning several projects to address safety and pavement preservation needs on the study corridor.

Due to increasing traffic associated with Capital High School, MDT has programmed a project to provide protected left-turn movements on Custer Avenue between Benton Avenue and Green Meadow Drive/Valley Drive. In addition, the City of Helena is planning to reconstruct Henderson Street to an improved two-lane configuration between Hudson Street and Custer Avenue and extend Benton Avenue north of Custer Avenue.

Bicycle/Pedestrian Facilities
The south side of Custer Avenue between North Montana Avenue and National Avenue includes a boulevard sidewalk. The north side of Custer Avenue has a similar sidewalk intermittently between North Montana Avenue and McHugh Lane. The remainder of study corridor has a well used separated asphalt surfaced bicyclist and pedestrian path. This path, which is separated by three to twenty feet from the edge of the pavement, begins at the intersection with National Avenue and then extends west on Custer Avenue and south on Henderson Street to US Highway 12.

Each signalized intersection includes protected crosswalks with push button controls for pedestrians. In addition, there are pedestrian crosswalks on Henderson Street at Peosta and Hollins Avenues.

The Draft Greater Helena Area Transportation Plan 2004 Update and the Helena Non-Motorized Plan identify the study corridor as an important element of the community’s non-motorized network. The plans specifically identify the need for share-the-road facilities along Custer Avenue and on Henderson Street from Peosta Avenue south to US Highway 12. In addition, the plans recommend that any future reconstruction of Custer Avenue should include sidewalks and striped bicycle lanes.
Rail
Montana Rail Link (MRL), a Class II railroad that interchanges with BNSF Railway in Sandpoint, Idaho and Huntley, Montana, provides rail service to Helena. As noted previously, the MRL line crosses the study corridor on Henderson Street via a structure that limits the width and height of vehicles on Henderson Street. The MRL line also crosses Joslyn Street to the west of the study corridor at a signalized at-grade crossing. This crossing is an important factor in the consideration of an extension of Custer Avenue since the equivalent of approximately 13 trains a day \(^\text{vii}\) that travel through this area would constrain travel on the extension.

BNSF Railway, a Class I railroad, also serves Helena via the rail line between Great Falls and Helena. However, this line has been out-of-service for several years due to slides along the Missouri River near Ulm and Cascade.

Transit
The Helena Area Transit System (HATS) provides demand response service to the Helena area including the study corridor. In addition, HATS provides checkpoint route service to the Shopko and Target retail area on North Montana at the east end of the study corridor. Future expansion of the HATS checkpoint service to other routes will depend on funding and demand. \(^\text{viii}\)

Demographics and Land Use
The demographics and land use in the Helena City, Helena Valley West Central Census Designated Place (CDP), and Helena Valley Northwest CDP have the most influence on the Custer Avenue/Henderson Street Corridor. Following is a summary of the existing and future demographic and land use conditions in these areas.

Population
As shown in Table 10, Lewis & Clark County’s population growth outpaced growth in Helena between 1970 and 2000. Helena’s population accounted for approximately 72% of the county’s population in 1960, compared to just 46% in 2000.
This trend is a good indicator of continued increased pressure on the study corridor in accommodating north-south trips. With limited vacant land within the city limits, and future development pressure throughout the Helena valley, the function of the corridor as a critical link for north-south travel between the Helena Valley and Helena will continue to grow.

Most recently, as shown in Table 11, US Census Bureau estimates indicate Lewis & Clark County experienced a 2.6% population change between 2000 and 2003 and ranks eighth out of eighteen Montana counties experiencing positive population growth. Helena’s population grew 3.6% during the same period, which is a more rapid rate of growth than that experienced over the last 20 years. This is likely due to recent and planned annexations in the north valley and southeast Helena. Table 11 also shows projected population estimates that indicate this trend will continue through 2025.
Land use

The Custer Avenue/Henderson Street Corridor serves many community resources including Capital High School, C.R. Anderson Middle School, Four Georgians Elementary School, Bill Roberts Municipal Golf Course, the Lewis & Clark County Fairgrounds, and Ryan Baseball Fields. The route also provides access to the North Montana Avenue and US Highway 12 commercial areas and the Helena Regional Airport. The majority of the land use along the corridor is residential with the next predominant use consisting of public lands and institutions and some open space.

The Lewis & Clark County Fairgrounds Board is developing a master plan that will create a multi-user facility for the community to increase the number and size of functions at the Fairgrounds. The Draft Lewis & Clark County Fairgrounds Master Plan proposes relocating the grandstand, arena and exhibition hall slightly north and to the center of the fairgrounds property; revamping the parking area to the northwest to include additional parking northeast of the relocated grandstand; and including internal circulation roads within the Fairgrounds boundaries. Primary access to the Fairgrounds will continue off of Custer Avenue at Henderson Street with an additional, improved access off Green Meadow Drive via Silsbee Avenue. Using $5.8 million from a voter-approved bond levy, the County plans to make the Fairgrounds improvements incrementally to minimize disruptions to annual events such as the Last Chance Stampede. The

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Table 11

Estimated Population Change

<table>
<thead>
<tr>
<th>Year</th>
<th>Lewis &amp; Clark County Change</th>
<th>Year</th>
<th>City of Helena Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>55,716</td>
<td>2000</td>
<td>25,780</td>
</tr>
<tr>
<td>2003</td>
<td>57,137</td>
<td>2003</td>
<td>26,718</td>
</tr>
<tr>
<td>2005</td>
<td>58,760</td>
<td>2005</td>
<td>28,720</td>
</tr>
<tr>
<td>2015</td>
<td>68,780</td>
<td>2015</td>
<td>28,720</td>
</tr>
<tr>
<td>2025</td>
<td>79,360</td>
<td>2025</td>
<td>30,720</td>
</tr>
</tbody>
</table>

Source: US Bureau of the Census; Decennial Censuses of Population
2003 Regional Economic Projections Series, NPA Data Services, Inc. Arlington, VA
draft plan estimates a new seating capacity for events of up to 5,000 with 3,000 covered seats in the new grandstand. Once the Board adopts the plan, it can begin internal road improvements immediately with completion of the arena relocation estimated in 2007. The internal road improvements will help alleviate traffic backing up onto the Custer Avenue/Henderson Street Corridor during events, as cars will no longer have to stop for ticket purchases at the Custer Avenue entrance.

The Helena School District is also developing a plan to revamp the parking area and street access at Four Georgians Elementary School, which is just east of the Bill Roberts Municipal Golf Course. Access is currently via a circular driveway directly off Custer Avenue. School buses load and unload children directly onto Custer Avenue, which raises safety concerns. The District’s original plan was to relocate the playground to the east side of the building so all parking and bus drop-offs would occur on the west side of the school with access to Custer Avenue via the signal at Cooney Drive. This plan would require additional land from the golf course and also raises concerns with left turning traffic backing up into the other Custer Avenue signalized intersections. Therefore, the City of Helena and MDT prefer a plan that would relocate the parking area to the east side of the school with the main access directly to McHugh Lane and retain one of the existing Custer Avenue approaches for right-in/right-out access only. This plan would require additional right-of-way.

Other developing areas that will influence demand on the study corridor include various residential developments north of Custer Avenue, along with the Shatz Ranch development and the continued developments at Fort Harrison, which is two miles west of the study corridor. Fort Harrison, which includes a Veteran’s Administration hospital and National Guard facility, is undergoing significant expansion, and the Shatz Ranch development involves 67 new parcels in the same vicinity. Traffic associated with these developments moving between this area and the North Montana Avenue commercial area will likely influence the study corridor.
Employment

As shown in Figure 4, State and federal governments account for more than 60% of the economic base in Lewis & Clark County. The services industry is the next highest contributor at 18%.

In 2000, employment in Lewis & Clark County consisted of 30,348 workers over the age of 16. Of these workers, 88.1% were residents of the county, 7.3% commuted from Jefferson County, and the remaining workers were from other Montana counties or other states. In addition, Lewis & Clark County is unique in that it is the only Montana county that employs more than 40% of a neighboring county's workers with over 46% of Jefferson County workers commuting to jobs in Lewis & Clark County.
TABLE 12
Census 2000 Economic Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Lewis &amp; Clark Montana</th>
<th>Helena County</th>
<th>Helena Valley</th>
<th>Helena NW CDP</th>
<th>W. Central</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment Status - In labor force</td>
<td>458,306</td>
<td>30,348</td>
<td>14,164</td>
<td>1,184</td>
<td>3,786</td>
</tr>
<tr>
<td>Percent Unemployed</td>
<td>4.1%</td>
<td>3.9%</td>
<td>3.9%</td>
<td>2.5%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$33,024</td>
<td>$37,360</td>
<td>$34,416</td>
<td>$43,881</td>
<td>$45,385</td>
</tr>
<tr>
<td>Percent people below poverty level</td>
<td>14.6%</td>
<td>10.9%</td>
<td>14.5%</td>
<td>8.2%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Vehicles per Household</td>
<td>2.0</td>
<td>1.8</td>
<td>1.6</td>
<td>2.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Commute to work - drive alone</td>
<td>73.9%</td>
<td>75.9%</td>
<td>74.2%</td>
<td>77.3%</td>
<td>81.0%</td>
</tr>
<tr>
<td>Commute to work - car pool</td>
<td>11.9%</td>
<td>12.1%</td>
<td>10.4%</td>
<td>19.0%</td>
<td>11.3%</td>
</tr>
<tr>
<td>Average commute time (minutes)</td>
<td>17.7</td>
<td>16.7</td>
<td>12.6</td>
<td>23.8</td>
<td>16.9</td>
</tr>
</tbody>
</table>

Sources: US Bureau of the Census, Census 2000

Approximately 55% of the employees within Lewis & Clark County are in the Helena City, Helena Valley West Central CDP, and Helena Valley Northwest CDP. The predominant travel mode for commuting to work is the automobile. Unemployment within this area is less than the county and statewide average. In addition, the median household income is greater than the state average even though the percent of people below the poverty level is higher within the Helena city limits than in the Helena Valley.

Future Development
Population and employment drive transportation demand. As part of the Draft Greater Helena Area Transportation Plan 2004 Update, future housing and employment within the Helena area were projected by a land use advisory committee consisting of representatives knowledgeable about growth in the Helena area. Taking into account recent land use trends, land use and availability, development capabilities and planned public improvements or development proposals, the committee allocated growth over the next twenty years within the transportation plan study area. Table 13 shows the resulting households and employment forecasts for the Helena area.
Future residential growth is anticipated to occur primarily immediately north of Custer Avenue. Southeast Helena near the proposed South Helena Interchange, the northeast Helena Valley, and the area around Fort Harrison will experience intensive residential development.

Existing and future commercial activity along the Custer Avenue/Henderson Street Corridor is limited. Helena area commercial uses are concentrated along the major arterials including US Highway 12, Prospect and 11th Avenue, Montana Avenue, Cedar Street, Lyndale Avenue, and Euclid Avenue. Warehousing and transportation activities are concentrated on Helena’s east side. Future commercial growth is expected to occur east of Interstate 15 both north and south of Canyon Ferry Road, along the North Montana Avenue corridor (north of Custer Avenue), and in the vicinity of the proposed South Helena Interchange. Some commercial development is also anticipated along US Highway 12 (Euclid Avenue) west of Helena.

Industrial and commercial sites along US Highway 12 East and near the airport include warehouses, distribution centers, and some small-scale, light manufacturing activity. Additional growth is expected to occur in this area.

Environmental and Cultural Conditions

The Custer Avenue/Henderson Street Corridor serves transportation needs integral to the greater Helena community. While transportation is essential to Helena, transportation is only one thread in the fabric of the community. MDT’s mission is to: “Serve the public by providing a transportation system and services that emphasize quality, safety, cost effectiveness, economic development and sensitivity to the environment.” In its role of developing transportation facilities for Montana, MDT must act as a developer and obtain permits from Federal and State resource

---

**TABLE 13**

<table>
<thead>
<tr>
<th>Type of Development</th>
<th>2000</th>
<th>2025*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Households</td>
<td>23,100</td>
<td>33,100</td>
</tr>
<tr>
<td>Retail Employment</td>
<td>8,500</td>
<td>12,150</td>
</tr>
<tr>
<td>Non-Retail Employment</td>
<td>36,150</td>
<td>48,600</td>
</tr>
</tbody>
</table>

Source: Helena Area Travel Demand Model

*Numbers shown are rounded based on an interpolation of growth in population from the US Census Bureau between 2020 and 2030. Employment projections are based on the ratio of population to employment for 2000 applied to the projected population for 2025.
agencies responsible for protecting environmental and cultural resources. As a State agency that uses primarily Federal funds for roadway infrastructure, MDT commits to preserving, protecting and enhancing Montana’s natural and cultural resources. Equivalent protections do not always apply to projects undertaken with local funds. However, because the study corridor is on the Urban Highway System, improvements to the corridor will require Montana Transportation Commission action. Consequently, planned projects should incorporate environmentally responsible processes and design elements regardless of funding sources.

Regardless of formal environmental review processes, neither the City of Helena nor Lewis & Clark County want transportation mobility improved at the expense of protected environmental and cultural features. Consequently, plans for the future improvement of the corridor must necessarily understand and take into consideration environmental and cultural constraints along its length. The following summarizes features protected under Federal and State environmental laws, guidance, or regulation. Restrictions vary based on the type of funding used for a particular improvement with generally greater restrictions apply for any phase of overall development that uses Federal funds. To the extent possible, the summary includes explanations about the differences in requirements associated with the various funding sources.

The following information was gathered using several sources and techniques:

- Literature search of current descriptive material
- Mapping from aerial photographs
- Communication with Federal resource management agencies
- Formal communication from State resource management experts, and
- Site visits to obtain information and photo documentation.

The summary describes protected environmental and cultural locations from east to west by topic with preliminary information regarding potential approaches to mitigation. The information is also shown on Map 6 with supporting information in Appendix B, (Environmental Conditions).

**Threatened or Endangered Species**

In a letter dated April 14, 2005 (See Appendix C) the U.S. Fish and Wildlife Service (USFWS) advised that the only threatened or endangered species that may be present within the study
The Custer Avenue/Henderson Street Corridor Study corridor is the bald eagle. However, USFWS further stated it would anticipate no adverse impacts to the bald eagle or any critical habitat from improvements in the area. Finally, USFWS concluded that no further review under Section 7 of the Endangered Species Act of 1973 and the Fish and Wildlife Coordination Act is needed. This determination of no adverse impacts is important, as the presence of threatened or endangered species would require a biological assessment, which would normally identify constraints and necessary mitigations. Examples could include limitations on when construction could occur, protection of habitat, or the inclusion of features to limit wildlife mortality and increase habitat connectivity.

4(f) Properties
Section 4(f) of the US Department of Transportation Act of 1966 (49 USC, 303) applies to projects that may impact publicly owned park, recreation area, wildlife, waterfowl refuge, or historic sites. Section 4(f) declares it is a national policy to preserve these features from encroachment by a transportation project using Federal funds.

Under Section 4(f), the Federal Highway Administration (FHWA) cannot approve the use of land from a publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site, unless:

- There is no feasible and prudent alternative to using the property; and
- The proposed action includes all possible planning to minimize harm to the property resulting from such use.

Before approval of the use these lands for a transportation project, a project sponsor must demonstrate that alternatives that would avoid these lands would create unique problems such as extraordinary environmental impacts or community disruptions.

The 4(f) requirements are often onerous for major improvements to transportation corridors. On Custer Avenue, however, depending on the proposed improvements, a Nationwide 4(f) Programmatic Permit may be sufficient. A nationwide permit would apply if only a minor amount of 4(f) protected lands is used to improve an existing facility. If applicable, a nationwide permit
would satisfy all 4(f) permitting requirements. See “Nationwide 4(f) Programmatic Evaluations” in Appendix B for more information. Project sponsors should consider these guidelines carefully as they can assist in avoiding onerous mitigations.

For example, if the improvements are substantially on the existing alignment and use an acre or less of 4(f) property, and the improvements do not degrade the integrity of the protected property, it is likely a Nationwide 4(f) Programmatic Permit will suffice. This situation would likely apply if the study corridor were reconstructed substantially on its present alignment, even with additional capacity, provided the right-of-way take falls within these parameters.

On the other hand, it is probably not possible to obtain a Nationwide 4(f) Programmatic Permit for an extension of Custer Avenue to Joslyn Street because, as shown on Map 6, nearly the entire length of the extension would cross property protected under 4(f). The project would also clearly require more than an acre of protected property. In addition, the higher level of analysis needed to prove necessity in taking 4(f) property would likely require a full environmental assessment. While the U.S. Fish and Wildlife Service stated in its April 14 letter that there are no 4(f) properties in the corridor related to wildlife, the corridor includes other protected properties as shown below. xxi

<table>
<thead>
<tr>
<th>TABLE 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>4(f) Properties</td>
</tr>
<tr>
<td>1. Bill Roberts Municipal Golf Course on the south side of Custer Avenue, from Cooney Drive to Benton Avenue, and immediately behind Four Georgians School,</td>
</tr>
<tr>
<td>2. Capital High School on the south side of Custer Avenue,</td>
</tr>
<tr>
<td>3. Wetlands and historic Jewish cemetery on the south side of Custer Avenue, west from Capital High School to Henderson Street,</td>
</tr>
<tr>
<td>4. Ryan Fields west of Henderson Street from Custer Avenue to Brady Street,</td>
</tr>
<tr>
<td>5. Lewis &amp; Clark County Fairgrounds,</td>
</tr>
<tr>
<td>6. Old county/state shops between Lewis &amp; Clark County Fairgrounds and Ryan Fields.</td>
</tr>
</tbody>
</table>

Section 4(f) requirements do not apply if the funds used for the improvement are non-Federal. If the City extends Custer Avenue to Joslyn Street, the project will involve a significant amount of 4(f) property, create a new transportation link, and likely degrade protected parkland. Consequently, the City should consider a non-Federal funding source if it decides to pursue this project.
**Historic Properties**

Section 106 of the National Historic Preservation Act of 1966 requires the determination of potential impacts to historic property from a proposed project if the project includes Federal funds. An agency must also “take into account the effect of the undertaking” on the historic properties including their surroundings. Specifically, if a historic register property or property eligible for designation will experience an adverse effect from the project, then the project sponsor must disclose the impacts and solicit and consider comments from the Advisory Council on Historic Preservation and the State Historic Preservation Office (SHPO). However, Section 106 and 4(f) are linked in the Federal-aid Highway Program, and ultimately sponsors must consider any impacts to historical properties. At the least, if the project includes Federal funds, the sponsor must perform a cultural resource inventory to determine whether any of the properties in the corridor are on the National Register of Historic Places or eligible for inclusion. If they are, the sponsor will have to execute a Memorandum of Agreement (MOA) with the Advisory Council and SHPO before it prepares the final environmental document. The MOA must include measures to avoid, mitigate, or accept the adverse effects on the resource.

Any future Federally-funded construction project will include a detailed cultural resource inventory in its environmental review. However, a preliminary scan indicates there are at least 19 historic properties within the Custer Avenue/Henderson Street Corridor. MDT’s Historian performed this scan by identifying historic structures and features that are at least 50 years old and immediately adjacent to the corridor. He did not advise on the significance or uniqueness of these properties. Table 15 summarizes the historic properties in the study corridor. Appendix B includes the street addresses of the sites and photographs of each property.
In summary, most of the historic features in the study corridor are along Henderson Street. Future widening projects may affect some of these features. However, the study team does not recommend major improvements to Henderson Street due to the relatively high Level of Service on this route.

Except for Bill Roberts Municipal Golf Course, the historic properties along Custer Avenue are on the north side of the corridor. Given the environmental constraints on the south side of the corridor, including Sections 4(f) and 6(f) protected properties, wetlands, and probable environmental justice concerns, it may prove easier to deal with the historic features on the north side of Custer Avenue. However, if SHPO and the Advisory Council determine these properties are significant, Section 4(f) would apply to them as well. Consequently, one of recommendation of this study is to perform a cultural resource inventory to determine the significance of these properties.
Section 6(f) of the Land and Water Conservation Funds Act applies to projects that may take property developed with grants from the federal Land and Water Conservation Funds Act. This 1965 act created a matching assistance program that pays up to half of the cost of developing outdoor recreation sites. Section 6(f) of the act prohibits the conversion of these properties with Federal funding without the approval of the National Park Service (NPS). In order to obtain approval, project sponsors must assure NPS that replacement lands of equal value, location and usefulness are in place in advance of the land conversions. Therefore, if the improvements along the study corridor take any 6(f) land, sponsors must provide replacement land and verify that NPS has approved the substitution. In Montana, the Montana Department of Fish, Wildlife and Parks maintains the listing and mapping of 6(f) properties.

It is not unusual to have some properties that are both 4(f) and 6(f). Table 16 confirms this is the case along Custer Avenue.
Table 16
6(f) Properties xxv

1. Bill Roberts Municipal Golf Course from Cooney Drive to Benton Avenue, and immediately behind Four Georgians Elementary School (also 4(f)), and
2. Lewis & Clark County Fairgrounds (also 4(f)).

Improvements to the study corridor will likely include 4(f) and 6(f) property at the Custer Avenue/Benton Avenue and Custer Avenue/Henderson Street intersections at a minimum.

6(f) property within the Lewis & Clark County Fairgrounds: Several years ago, Lewis & Clark County obtained a $59,823 grant of Land and Water Conservation Funds to develop a small camping area in the northwest corner of the Fairgrounds. While these funds were used within a discrete area of the Fairgrounds, 6(f) protection may extend to the entire Fairgrounds site. The Montana Department of Fish, Wildlife and Parks website xxvi describes how the extent of protection is defined.

According to LWCF rules and regulations, the project area within the Section 6(f) (3) boundary will become encumbered as an outdoor recreational site in perpetuity. This means that it must be managed for outdoor recreation forever.

Where should the lines be drawn? At a minimum, the area must be available as a public outdoor recreation area capable of being self-sustaining without reliance upon adjoining or additional areas not identified in the scope of the project. Usually, the boundary should be drawn around the entire park.

Do not include facilities or grounds not dedicated to outdoor recreation, such as office buildings, firehouses, helipads, cell towers, etc., as these things also become encumbered in perpetuity. The sponsor may then face a lengthy and costly “conversion” process whenever modifications to such encumbered facilities are proposed.

The study team understands Lewis & Clark County disagrees with the encumbrance of the entire Fairgrounds as 6(f) property. However, if a smaller area in the northwest corner of the Fairgrounds is defined successfully as self-sustaining, it may enhance future
opportunities to encumber additional adjacent property in the Fairgrounds to off-set the potential loss of 6(f) property within Bill Roberts Municipal Golf Course if additional right-of-way is needed to widen Custer Avenue. This “take” of 6(f) property is likely in this area because there is a total of only 80 feet of right-of-way on Custer Avenue in the area adjacent to the golf course (30 feet from centerline to the south, and 50 feet from centerline to the north).

In summary, protected 6(f) properties may present problems with the future expansion of Custer Avenue, as project sponsors must replace these properties with properties of comparable recreational value in terms of location and usefulness. The planned improvements to the Lewis & Clark County Fairgrounds may provide an opportunity to address these problems. This is especially true depending on how the 6(f) property is currently mapped at the Fairgrounds. However, agencies should not acquire any property without concurrence in the acceptability of the property from the National Park Service through the Montana Department of Fish, Wildlife and Parks. If the County purchases additional land as part of the Fairgrounds improvements, or if boundaries of protected land change, sponsors should investigate the sequencing of this acquisition so that it will serve to address 6(f) land acquisition requirements for future Custer Avenue improvements.

Wetlands

The US Department of Transportation and MDT are committed to a goal of no net loss of wetlands. Strict protocols exist regarding the avoidance of wetlands within highway construction projects. The preferable approach is to avoid all wetlands impacts, or where avoidance is not practicable, minimize impacts to the greatest extend possible. Avoidance of high quality wetlands is especially encouraged. If sponsors cannot avoid wetland impacts, they must offset the impacts with new wetlands managed in perpetuity to retain comparable wetland characteristics.

Custer Avenue developed historically over a marshy area of intermittent wetlands. Both Custer Avenue and the berms on which the rail lines sit south of Custer Avenue were built on wetlands. In addition, wetland filling continued with the construction of residential areas north and east of the Fairgrounds. These developments fragmented historic wetland areas by blocking southwest to northeast surface water flows and interrupting or retarding subsurface groundwater flows.
The most important wetlands survive on the south side of Custer Avenue between Capital High School and Henderson Street. These wetlands flow to the north through a four-foot culvert into an area adjacent to the Fairgrounds.

The US Army Corps of Engineers (COE), the Federal agency responsible for administering Federal wetland protection laws, considers these wetlands as jurisdictional and subject to protection. Regardless of the funding source for future corridor projects, the COE has an interest in regionally important wetlands. If wetlands disappear due to corridor improvements, sponsors must mitigate the losses by replacement within the drainage.

The Fairgrounds property may also provide an opportunity for wetlands banking. If wetland losses are anticipated, a 1:1 ratio of lost to created wetlands is possible if project sponsors reach an agreement with the COE in advance of the taking. It should be expected that higher ratios are required if the wetlands are mitigated at the time of the construction project. In addition, design work for the road improvements should take hydric soils into account in the area, as water continues to move below the surface from the southwest to the northeast.

In summary, if the project sponsors intent to disturb these jurisdictional wetlands with a widening project or with the proposed extension of Custer Avenue to Joslyn Street, they should create bankable wetlands within the Lewis & Clark County Fairgrounds in anticipation of the need to
offset the loss of wetlands with the projects. Local government may be in the best position to accomplish this.

Air Quality
Neither Helena nor Lewis & Clark County are non-attainment areas for national ambient air quality standards. However, the Montana Department of Environmental Quality has identified Helena as high-risk for both carbon monoxide (CO) and PM$_{10}$ (particulate matter with a diameter of 10 microns or less) for the purpose of Montana Air & Congestion Initiative (MACI) funding distributions through MDT. Through the MACI program, MDT and local governments reduce PM$_{10}$ with highway maintenance strategies including use of liquid de-icer and increased sweeping and flushing to eliminate entrained road dust. MDT has also incorporated dust control practices into its maintenance of Custer Avenue between North Montana Avenue and Green Meadow Drive.

Congestion and delay are major contributing factors to increased carbon monoxide emissions. There are no carbon monoxide transportation control strategies in Montana’s State Implementation Plan for Helena. However, efforts to reduce congestion and delay within the busy Custer Avenue/Henderson Street Corridor will support efforts to improve Helena’s air quality and avoid designation as a non-attainment area.

Underground Fuel Storage Tanks
The Montana Department of Environmental Quality maintains an inventory of underground storage tanks, including information on whether the tanks are leaking. Leaking underground storage tanks, which are usually artifacts of abandoned gas stations, can contaminate groundwater or leak fumes that may explode. The most common strategy is to avoid these sites during highway construction. However, project sponsors may have to mitigate a site if a contamination plume exists under the footprint of the existing or acquired right-of-way. Based on a preliminary survey using Montana Department of Environmental Quality inventory data, the study corridor includes underground fuel storage tanks at the locations shown in Table 17. Although project sponsors would have to do additional testing to determine the exact location of the tanks and nature and extent of any leakages, agencies should consider the location of the tanks when analyzing corridor improvement alternatives.
TABLE 17
Underground Fuel Storage Tanks

<table>
<thead>
<tr>
<th>Site Description</th>
<th>Street Number if Available</th>
<th>Leaking?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kum and Go Cenex Station</td>
<td>Corner of Custer Avenue and Montana Avenue</td>
<td>NO</td>
</tr>
<tr>
<td>Montana Fish, Wildlife and Parks complex</td>
<td>830 West Custer Avenue</td>
<td>NO</td>
</tr>
<tr>
<td>Lee Reynolds Shop (a.k.a. Waddell Construction)</td>
<td>606 West Custer Avenue</td>
<td>NO</td>
</tr>
<tr>
<td>Old Toppers Market</td>
<td>607 West Custer Avenue</td>
<td>YES</td>
</tr>
<tr>
<td>Fairgrounds Maintenance Shop</td>
<td>Corner of Custer Avenue and Henderson Street</td>
<td>YES</td>
</tr>
</tbody>
</table>

Superfund Sites

In addition to the underground fuel storage tanks, the study corridor includes two State Superfund sites that could affect plans for future corridor improvements. If highway projects encounter these sites, there may be concerns about long-term impacts on an agency’s funding because ownership of the right-of-way above the hazardous materials could imply future agency responsibility for mitigation if all owners of the property are implicated in the costs to mitigate future problems. xxxii, xxxiii

**Fairgrounds Maintenance Shop:** The water at this complex of shop buildings contains arsenic levels that are above drinking water standards. This location does not appear to have a point source for this contamination. Rather, the arsenic appears to have leached out of mine tailings in the area. Although the shop area is probably beyond the construction limits of future corridor improvements, this situation may complicate plans to improve the Fairgrounds.

**Joslyn Tailings:** This area near the western border of Ryan Fields is a high priority State Superfund site. xxxiv This area was the historic location of a metal ore mill that operated from 1935 to 1938. xxxv The contaminants of concern include arsenic and lead, with impacts to both groundwater and soils. If the City develops a project to extend Custer Avenue past Ryan Fields, there is a possibility the project will impact this site. Although the mapped edge of the site is slightly to the west of the conceptual alignment of the proposed extension, this mapping probably underreports the extent of the site. According
to Montana Department of Environmental Quality personnel, original sampling delineated an area of tailings within and adjacent to the MRL tracks. However, subsequent sampling indicated the area of impacted soils has not been adequately defined and may extend well beyond the mapped tailings. To date, local and state agencies have not found any contamination within the boundaries of Ryan Fields. In addition, the State and BNSF Railway disagree about how to handle the problems as this site.

The study team strongly recommends that project sponsors avoid this site in any planned future improvements to the study corridor due to the many unresolved issues.

Archaeological Resources
Because the study corridor is in an area disturbed by mining, agriculture, and other development activities for over a century, this study does not include a detailed archaeological resource inventory. Future project-level environmental reviews should consider archaeological resources at the appropriate level.

Environmental Justice
The 1994 Executive Order on Environmental Justice states that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

In practice this means that the identified populations should not have to bear a disproportionate burden from a transportation improvement and, equally important, the identified populations should have equal access to the benefits of transportation investments. FHWA uses a significant amount of judgment in determining its responsibilities under the Executive Order. This becomes even more problematic since census tract information does not provide detailed income information because of confidentiality concerns. However, the study team identified four locations within the study corridor with potential environmental justice issues.

**McHugh Mobile Home Park:** The residents of this park have good access onto both Custer Avenue and Villard Avenue. Planned improvements to Custer Avenue should
perpetuate this access. Improvements should also strive to avoid the many large trees and other mature landscaping in the park. More importantly, the residents of the park heavily use the separated bicyclist and pedestrian path adjacent to Custer Avenue along the north boundary of the park. This study includes a discussion about the importance of maintaining this separated path along the entire corridor for a variety of reasons. However, for the purpose of environmental justice, Federal agencies may consider the loss of this facility as a disproportionate impact on the residents of the mobile home park since it is a positive attribute to their existing environment.

Joslyn Mobile Home Park: The section of this report that describes operational characteristics on the study corridor concludes a Custer Avenue extension to Joslyn Street will probably not result in significantly increased traffic on Joslyn Street would not access it via Brady Street. However, if the City constructs the Custer Avenue extension, the residents along Joslyn Street may believe the project will have a disproportionate impact on their neighborhood. In the highly unquantifiable area of environmental justice, perception has a stronger role than in other environmental considerations. If agencies use Federal funds for the extension, the project sponsor may have to consider mitigation measures.

Broadwater Village: This low-income housing complex is west of Henderson Street and south of the MRL line. Although this study does not recommend any major improvements to Henderson Street, project-level environmental reviews for future Federally funded projects in this area should address environmental justice issues associated with the residents of this complex.

Mobile Homes at Intersection of Custer Avenue and Green Meadow Drive: Although relatively small compared to the other properties with potential environmental justice issues, environmental reviews for future Federally funded projects in this area should address environmental justice issues.
Linking Transportation Planning and NEPA – An Opportunity to Plan For

In February 2005, FHWA released guidance and a legal analysis on the issue of moving products of transportation planning into the National Environmental Protection Act (NEPA) process. 

Previously, environmental review under NEPA required project analysis and the consideration of alternatives to start over “carte blanche” once a project moved from the planning stages into the environmental review stages. While this FHWA guidance is fairly new, and agencies will not fully understand its usefulness for several years, the guidance offers significant promise. For example, if agencies narrow alternatives or develop purpose and need for improvements through a rigorous transportation planning process, the guidance allows these planning products to “graduate” into the NEPA review process, which will clearly save time and money. However, the rigor of the planning process will have to be sufficient in areas such as: currency, extent of public involvement, involvement of resource agencies, and accessibility of the planning documents.

Ultimately, FHWA will have the final say on what transportation planning processes are acceptable to have their decision-products incorporated into NEPA without additional review. However, the Federal guidance suggests a minimum requirement for a rigorous and early coordination process with all concerned parties that fully considers alternatives; rigorous technical analysis; and in-depth documentation of the planning decisions that will advance to the NEPA process.

The new FHWA guidance may allow sponsors of future projects in the study corridor to combine information from this study with other products of the Helena Urban transportation planning process to formulate required purpose and need statements or eliminate alternatives at the planning level without additional expensive and time-consuming analysis during the NEPA process. However, it appears additional public involvement – especially of stakeholders living along the study corridor – is necessary to avoid “going back to the beginning” in the NEPA process.
ALTERNATIVES ANALYSIS

Based on the preceding technical analysis of the study corridor, the study team developed and analyzed several alternatives for long-term improvements to the corridor. Following is a description of the process used to develop the alternatives, a review of the alternatives including estimated costs and technical analysis, and a summary of the alternatives ranking process.

Alternatives Development and Screening Process

In developing alternatives for this analysis, the study team focused on improvements that will provide a Level of Service C in 2025 since this is the standard MDT uses for major Urban Highway reconstruction projects. The alternatives also include significant amenities for bicyclists and pedestrians due to the schools in the area and the heavily used existing facilities.

After developing the alternatives the study team conducted a technical analysis of each alternative using information from the Draft Greater Helena Area Transportation Plan 2004 Update, the Helena Area Traffic Forecasting Model, and other sources. The study team then rated the alternatives based on seven criteria.

Alternatives

The “Recommendations” section of this report includes general recommendations for the study corridor as well as a list of measures agencies could take to address short-term safety and capacity needs. The following alternatives, which are consistent with MDT Urban Highway Design Standards summarized in Appendix D, would address long-term capacity needs on the study corridor. Wherever possible, the analysis suggests logical phasing options. See Appendix F for detailed results of the traffic modeling analysis for the alternatives.

Alternative 1: Five-Lane

As shown in Figure 7, this alternative would provide four travel lanes and a center left-turn lane on Custer Avenue between National Avenue and Green Meadow Drive. The remainder of Custer Avenue and Henderson Street would remain two-lane. The alternative would include sidewalks on both sides of the improved segment with a separated bicycle and pedestrian path on the south side if right-of-way is available.
Based on a traffic modeling analysis that assumes an Interstate 15 Custer Avenue Interchange, this alternative would increase Custer Avenue traffic volumes between National Avenue and Green Meadow Drive by approximately 27% in 2025 compared to the no-build scenario. However, the additional roadway capacity provided by the additional travel lanes would allow this segment of Custer Avenue to operate at an LOS C or better under ideal management conditions through 2025. The remainder of Custer Avenue would operate at an LOS C until 2023 and Henderson Street would be at capacity.

Estimated costs:

- Environmental: $1,000,000
- Utilities: $3,200,000
- ROW: $4,000,000
- Construction: $3,900,000
- Design: $700,000
- Total: $12,800,000

Although the ultimate goal of this alternative is a five-lane configuration, agencies could phase the construction of this alternative as follows based on funding availability.

**Phase 1:** Construct left-turn lanes on Custer Avenue at the Villard Avenue and Cooney Drive intersections and improve the intersection of Custer Avenue and Benton Avenue.
Villard Avenue: The *Draft Greater Helena Area Transportation Plan 2004 Update* concludes this intersection is operating at a Level of Service of D and F, respectively, during the AM and PM peak hours. A traffic signal warrant analysis for the plan indicates the intersection meets peak hour, coordinated signal system, and crash experience traffic warrants. However, a signal at this intersection would face significant utility conflicts due to the NorthWestern Energy valve station on the north side of the intersection. These conflicts would make a signal at this location cost-prohibitive in the short-term. This phase would add a westbound left-turn lane on Custer Avenue as a short-term project to improve the safety and operation of this intersection. Elimination of left turns onto Custer Avenue would also reduce conflicts.

Cooney Drive: Although this signalized intersection operates at a Level of Service of B or C during the AM and PM peak hours, eastbound traffic on Custer Avenue often backs up to the Benton Avenue intersection due to the lack of a dedicated left-turn lane at Cooney Drive. An eastbound left-turn bay would separate left turning traffic from through movements and improve the safety and operation of this intersection.

Benton Avenue: Under existing conditions, right-turning traffic approaching this intersection from the west on Custer Avenue gets backed up and delayed by through traffic at the signal. A right-turn bay for eastbound traffic on Custer Avenue would separate through and turning traffic and improve the safety and operation of this intersection.

**Phase 2:** Construct three lanes on Custer Avenue between National Avenue and Green Meadow Drive. Maintain the separated bicycle and pedestrian path on the south side and construct a new sidewalk on the north side. By adding the additional lane and sidewalk on the north side of the existing roadway, this project would maintain a consistent centerline with the existing centerline between North Montana Avenue and National Avenue so these improvements can remain as additional phases are implemented. Modeling analysis for this study indicates this configuration would have a useful life of less than ten years, which raises questions about whether the benefits of this configuration outweigh the considerable costs.
**Phase 3:** Construct remaining two lanes on Custer Avenue between National Avenue and Green Meadow Drive to create a five-lane configuration with curb, gutter and sidewalk on both sides. Right-of-way needs for this configuration may require the substitution of sidewalks for the separated bicycle and pedestrian path.

**Phase 4:** Following completion of Phase 3, construct three or five-lane configuration between Green Meadow Drive and Henderson Street and construct two-lane Custer Avenue extension to Joslyn Street, if desired.

The modeling analysis for the this study indicates the Custer Avenue extension would have little additional impact on traffic volumes on Custer Avenue between North Montana Avenue and Green Meadow Drive that are already expected to increase by 27% with the five-lane configuration compared to the no-build scenario. This would result in a Level of Service C through 2025.

The extension would have the greatest impact on Custer Avenue traffic on the segment between Green Meadow Drive and Henderson Street as traffic volumes increase over the no-build scenario as travelers use the new extension to access the North Helena Valley via Green Meadow Drive. This would result in a Level of Service D in 2015 and a Level of Service F by 2025 for the existing two-lane compared to a Level of Service of B or D for a three or five-lane configuration. Reconstructing this segment to a three-lane would result in additional estimated costs of:

**Estimated costs:**

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>$ 200,000</td>
</tr>
<tr>
<td>Utilities</td>
<td>$1,500,000</td>
</tr>
<tr>
<td>ROW</td>
<td>$ 100,000</td>
</tr>
<tr>
<td>Construction</td>
<td>$1,800,000</td>
</tr>
<tr>
<td>Design</td>
<td>$ 300,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$3,900,000</strong></td>
</tr>
</tbody>
</table>
Traffic volumes on Henderson Street between Custer Avenue and Brady Street would decrease by approximately 49% over the no-build scenario due to the traffic shift from this segment of Henderson Street to the new extension. The remainder of Henderson Street would experience minimal change from the no-build alternative, operating at a Level of Service C.

The modeling analysis also estimates a 25% increase in Joslyn Street traffic with the Custer Avenue extension. However, Joslyn Street would continue to operate at a Level of Service B through 2025.

The extension would also reduce traffic on Brady Street to under 500 AADT as traffic shifts from the Brady Street to the new extension.

The Custer Avenue extension would add the following costs to the costs of the other improvements:

<table>
<thead>
<tr>
<th>Estimated costs:</th>
<th>$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>500,000</td>
</tr>
<tr>
<td>Utilities</td>
<td>200,000</td>
</tr>
<tr>
<td>ROW</td>
<td>100,000</td>
</tr>
<tr>
<td>Construction</td>
<td>1,300,000</td>
</tr>
<tr>
<td>Design</td>
<td>230,000</td>
</tr>
<tr>
<td>Total</td>
<td>2,330,000</td>
</tr>
</tbody>
</table>

**Alternative 2: Four-Lane with Roundabouts**

Instead of constructing a center left-turn lane on Custer Avenue, this alternative as shown in Figure 8 would provide four lanes between National Avenue and Green Meadow Drive with roundabouts at Benton Avenue, Green Meadow Drive, and Henderson Street. A raised median on Custer Avenue would limit access onto Custer Avenue to right in and right out in each direction and restrict left-turns between major intersections. The roundabouts would provide drivers with a way to easily change travel direction. The benefits of roundabouts are lower speeds, fewer conflicts at intersections, and fewer conflicts along the corridor due to the
control of access and the elimination of signalized intersections. The roundabouts would include special design features to ensure the safety of pedestrians and bicyclists. See Figure 9 and Appendix E for more information about roundabouts. This alternative would also allow for preservation of the separated bicycle and pedestrian path.

**FIGURE 8**

Example 4-lane Section with separated path

Based on technical analysis, this alternative improves operations along Custer Avenue to a slightly lesser extent than the five-lane configuration, while impacts to Henderson Street are relatively the same. Custer Avenue would operate at a Level of Service C through 2017, and a Level of Service D through 2025. Henderson Street operates at an LOS D or E through 2025 with this alternative.

The primary difference between this alternative and Alternative 1 is the use of roundabouts in lieu of signalized intersections. In general, the capacity of roundabouts is greater than signalized intersections because there is no yellow or red delay and stop times. According to the FHWA publication *Roundabouts: An Informational Guide* (Appendix E), the average vehicle delay at a roundabout is less than the average vehicle delay at a signalized intersection. Hence, the study team anticipates that roundabouts will likely lessen the delay experienced by Custer Avenue traffic compared to the situation with signalized intersections. However, the experience of multiple roundabouts in a single corridor is limited and the effect on performance would require additional evaluation. In addition, if the demand for left turns from Custer Avenue to adjacent properties (particularly east of Benton Avenue) is high, roundabouts could actually increase traffic in the through lanes because of the drivers who would have to reverse direction in the roundabouts to access properties on the other side of the street. This situation warrants further
analysis to better assess level of service issues as does the option of substituting center left turn lane for a raised median to accommodate mid-block left turns.

Estimated costs:

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Utilities</td>
<td>$3,100,000</td>
</tr>
<tr>
<td>ROW</td>
<td>$4,000,000</td>
</tr>
<tr>
<td>Construction</td>
<td>$3,900,000</td>
</tr>
<tr>
<td>Design</td>
<td>$700,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$12,700,000</strong></td>
</tr>
</tbody>
</table>

As with Alternative 1, agencies could construct this alternative in phases based on funding availability.

**Phase 1:** Construct single-lane roundabouts on Custer Avenue at Benton Avenue, Green Meadow Drive, and Henderson Street and retain existing lane configuration elsewhere on Custer Avenue. Agencies could take advantage of construction opportunities such as the planned extension of Benton Avenue to construct roundabouts with special design features for bicyclists and pedestrians. Construction of the first roundabout at Benton Avenue would give motorists, bicyclists, and pedestrians an opportunity to become familiar with this configuration before agencies add other roundabouts at Green Meadow Drive and Henderson Street. If the initial roundabouts are successful, agencies could consider roundabouts at McHugh Lane and Cooney Drive.

**Phase II:** Retain existing two-lane configuration but restrict left-turns by installing a positive barrier in the median. A positive median separation would likely require continuous roadway lighting. If corridor users oppose a raised median, agencies could substitute a center left turn lane to accommodate mid-block left turns. This would require transition sections entering and exiting the roundabouts, however.
General: Modern roundabouts, which are small, efficient, and attractive, have the following basic characteristics:

- Roundabouts are designed for vehicle speeds of 15 to 18 mph.
- Vehicles entering a roundabout yield to vehicles already in the roundabout.
- Crosswalks are located approximately one vehicle length behind the yield lines, enabling pedestrians to cross in front of drivers that are looking straight ahead, rather than to the left for gaps in traffic.
- While traditional four leg intersections have 32 potential vehicle/vehicle conflict points and 24 vehicle/pedestrian conflict points, a single lane roundabout has only 8 vehicle/vehicle conflict points and 8 vehicle/pedestrian conflict points.

Roundabout Safety: The performance of single-lane roundabouts throughout the world proves they are safer than traditional signalized or signed intersections. Because all vehicles travel in the same direction, the number of conflict points in a roundabout is much lower. The likelihood of crashes is further reduced because vehicles approach and move through the roundabout at lower speeds, providing motorists more time to avoid conflicts.

Pedestrians at Roundabouts: Evidence from single-lane roundabouts throughout the world demonstrates they are safer for pedestrians because the number of conflict points is much lower than signalized or stop-controlled intersections; non-attentive driving is eliminated; and pedestrian exposure to traffic is reduced because crossings are shorter due to the “splitter” islands.

Roundabouts in school zones: Brown County, Wisconsin installed two roundabouts on a county highway in front of a middle school and high school and near an elementary school. The County’s experience suggests that roundabouts in a school zone are beneficial for pedestrians because slower speeds and fewer conflict points give drivers more time to avoid vehicle/pedestrian crashes. School guards also found it easier to help children cross busy streets with roundabouts.

Bicyclists at Roundabouts: Bicyclists have two options at roundabouts. Bicyclists who are comfortable traveling in the traffic stream can enter the roundabout like any other vehicle and follow the traffic flow. Less experienced bicyclists or children on bicycles can use sidewalks or independent bike paths and cross the street at designated crosswalks. Although experience with roundabouts elsewhere does not indicate as substantial a reduction in vehicle/bicycle crashes as with vehicle/pedestrian and vehicle/vehicle crashes, the severity of vehicle/bicyclist crashes is significantly reduced with roundabouts.

Traffic Capacity: Roundabouts are more efficient than signalized intersections, particularly as left turning traffic increases at an intersection. The capacity is greater because there are no yellow and red delay or stop times. A vehicle does not need to stop unless another vehicle is approaching from the left in the roundabout. In addition, drivers need smaller gaps to merge because traffic is moving slower.

Emergency Vehicles, School Buses and Other Large Vehicles: Roundabouts can be designed to safely accommodate semi-trailer trucks, school buses, dump trucks, emergency vehicles and other large vehicles. Truck aprons provide extra space if necessary.

Phase III: Add two additional lanes for through movements and retain positive median barrier elsewhere on the corridor. Modify roundabouts as necessary to accommodate the additional lanes.

Alternative 3: Three-Lane Enhanced Custer Avenue Streetscape

As shown in Figure 10, this alternative would change the current Custer Avenue configuration between National Avenue and Henderson Street to a three-lane configuration with a circuitous, shifting centerline to avoid sensitive environmental areas and challenging utility and right-of-way issues. Henderson Street and the remainder of Custer Avenue between Green Meadow Drive and Henderson Street would remain two-lane. Streetscape features would include a raised median with landscaping and breaks for access. The configuration would also include a separated bicycle and pedestrian path on the south side and a sidewalk on the north side. If possible, the separated bicycle and pedestrian path would cross over the wetlands near Henderson Street to improve its separation from traffic. This alternative could include either signals or roundabouts at major intersections.

FIGURE 10

Example 3-lane Section with separated path

Based on a technical analysis that did not include a new Interstate 15 Custer Avenue Interchange, this alternative would increase 2025 traffic volume on Custer Avenue between North Montana Avenue and Green Meadow Drive by an average of 6.5% over the no-build scenario. This alternative maintains a Level of Service D through 2015 between National Avenue and Benton Avenue and a Level of Service C through 2025 between Benton Avenue and Green
Meadow Drive. Traffic volumes on the remainder of Custer Avenue and all of Henderson Street would remain relatively unchanged through 2025 with a Level of Service of C or better.

Estimated costs:

- Environmental $500,000
- Utilities $2,600,000
- ROW $1,500,000
- Construction $3,500,000
- Design $700,000
- Total $8,800,000

Transportation Demand Management: In addition to the above capacity expansion alternatives, this study also reviewed the Greater Helena Area Transportation Plan 2004 Update for transportation demand management (TDM) strategies that would have a significant impact on future travel demands on the study corridor. TDM strategies attempt to increase mobility and operations of the system by managing demand with strategies such as alternative work schedules, flexible work schedules, car pool incentives, or strategies that encourage use of other transportation modes. The plan identifies seven TDM strategies that could succeed in the Helena area.

1. Alternate work schedules
2. Compressed work week
3. Flextime
4. Identifying routes for emergencies or special events
5. Linked trips
6. Park and ride lots
7. Traffic calming

Based on the analysis conducted for this study, the study team believes none of these strategies, if implemented, would have a significant impact on traffic volumes on the study corridor. However, the City and County should consider strategies such as park and ride lots in the North Helena Valley in future planning efforts.
Alternatives Evaluation & Scoring

Based on the above alternative descriptions, technical analysis, and cost estimates, the study team evaluated and scored the alternatives using the matrix shown in Table 18.

TABLE 18
Alternative Evaluation Criteria and Scoring

**Ranking Methodology:**
- An alternative must provide an acceptable level of performance for the design period (15 years) to be advanced as recommended.
- Subject to the above performance requirement, all criteria carry equal weight.
- Scoring is as follows: 1 – very negative  2 – slightly negative  3—neutral  4 – slightly positive  5 – very positive  NA – not an issue or not applicable

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Five-Lane</th>
<th>Five-Lane With Custer Avenue Extension</th>
<th>Four-Lane With Roundabouts</th>
<th>Three-Lane Enhanced Streetscape</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance¹</td>
<td>1</td>
<td>5</td>
<td>4⁴</td>
<td>4</td>
<td>2³</td>
</tr>
<tr>
<td>Environmental Impacts²</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Support Business Community Goals</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Support Community Values/ Public Acceptability</td>
<td>1</td>
<td>4³</td>
<td>4³</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Utility Impacts</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>3⁴</td>
</tr>
<tr>
<td>Right of Way Needs (including utilities)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3⁴</td>
</tr>
<tr>
<td>Cost</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>20</td>
<td>17</td>
<td>17</td>
<td><strong>Not Advanced</strong></td>
<td></td>
</tr>
</tbody>
</table>

Assumptions & Notes:

1. The performance of Custer Avenue between North Montana Avenue and Green Meadow Drive is the most critical in the Study Corridor.
   a. The alternative with the Custer Avenue extension to Joslyn Street is ranked lower than the traditional five-lane because it degrades the LOS of the Green Meadow Drive/Henderson Street segment.
   b. The three-lane enhanced streetscape alternative will fall to an LOS D or F by 2017.
2. Evaluated assuming completion of all processes necessary if Federal funds are used.
3. If the separated bicycle and pedestrian path is retained, the traditional five-lane and five-lane with Custer Avenue extension to Joslyn Street will rank higher.
4. Evaluated assuming that some utility impacts and right-of-way acquisition will be necessary, but minimal as compared with other build alternatives.
Alternative 1, the five-lane configuration without the extension to Custer Avenue, ranks highest in this analysis. However, the five-lane alternative with the Custer Avenue extension and the four-lane with roundabouts alternative both meet the capacity needs for the design year. Each of these alternatives has advantages and disadvantages and the range of scores is relatively small. The alternative with the Custer Avenue extension ranks lower than Alternative 1 due to the additional environmental impacts likely with the extension versus the probable minimal improvements to traffic patterns in northwest Helena especially on Custer Avenue between Green Meadow Drive and Henderson Street. In addition, the study team believes addressing the capacity needs on Custer Avenue between North Montana Avenue and Green Meadow Drive should have a higher priority than the Custer Avenue extension due to the current and future traffic pressures on this segment of the corridor. This is especially true since technical analysis for this study demonstrates that the existing Henderson Street/Brady Street connection to Joslyn Street can adequately handle traffic demand through the design year.

As for the four-lane alternative with roundabouts, this report has previously noted the advantages and disadvantages of roundabouts. In addition, the multilane roundabout configuration would need additional engineering analysis as regards bicycle and pedestrian movements. Project sponsors would also have to conduct additional public involvement to determine public acceptability of other associated design elements including: raised medians, right-in/right-out constraints, and the need for multiple consecutive roundabouts in the corridor to maximize capacity.
FUNDING SOURCES AND CONSIDERATIONS

Custer Avenue and Henderson Street are Urban Highways and therefore eligible for Federal and State funds allocated through the Urban Highway Program by the Montana Transportation Commission. In addition, there are other Federal and State funding sources that could partially fund improvements on the study corridor, although these sources offer less potential than the Urban Highway Program. Following is a summary of potential funding sources for improvements to the study corridor.

Federal and State Funding

Montana Urban Highway Program – Federal Surface Transportation Program (STP) Funds With State Match

MDT distributes Federal STP and State funds to Montana’s fifteen Urban Areas in accordance with a Montana statutory formula based on each area’s Urban Area population compared to the total population in all Urban Areas. Of the total distributed, 86.58% is Federal and 13.42% is State match from the State Special Revenue Account (for highway projects). The total annual allocation of Urban Highway Program funds for Helena projects is $843,000. This is the principal Federal and State funding source for major projects on Helena’s 29.1 miles of Urban Highways.

Although Urban Areas direct Urban Highway Program funds primarily to major street construction, reconstruction, and traffic operation projects, any project eligible for STP funding under Title 23, USC is also eligible for funding through Montana’s Urban Highway Program. The Helena Transportation Coordinating Committee, which includes representatives from the City of Helena, Lewis & Clark County, and MDT, establishes project priorities for the Helena Urban Area. However, the Montana Transportation Commission has the final authority for project prioritization and funding distribution.

Helena’s Federal Fiscal Year (FFY) 2005 Urban funding balance is in a deficit of $1,380,000 due to the recent construction of North Main Street Project. However, Transportation Commission Policy allows Urban Areas to borrow up to five years allocation as long as no more than 50% of the overall Urban Highway Program is in borrow status at the time. If the Transportation Commission allows Helena to borrow additional funding to assist with the financing of the South
Helena Interchange, it is probable it will not have a positive Urban Highway Program balance to apply to its next major construction project until 2010.

Community Transportation Enhancement Program (CTEP)
Unlike most other states, Montana allocates its entire Federal enhancement set-aside to local and tribal governments for community sponsored and selected projects. Federal funds available under this unique Montana program finance transportation projects that enhance the surface transportation system in accordance with the Federal requirement that each state must spend 10% of the Federal STP apportionment it receives on the project categories shown below. Following is a list of eligible CTEP project categories. Categories with potential application to improvements to the study corridor are shown in italics.

- Pedestrian and Bicycle facilities
  The only elements of roadways that are eligible for CTEP funding are curbs and gutters immediately adjacent to sidewalks. Curbs and gutters are not eligible if boulevard green strips separate the sidewalk from the roadway. Sidewalks are eligible in all cases.

- Acquisition of scenic easements and historic or scenic sites

- Scenic or historic highway programs

- Landscaping and other scenic beautification
  Landscaping in medians or roundabouts or landscaping for traffic calming is eligible for CTEP funding.

- Rehabilitation and operation of historic transportation buildings, structures or facilities (including railroads)

- Historic preservation

- Archaeological planning and research

- Mitigation of water pollution due to highway runoff

- Preservation of abandoned railway corridors (including the conversion and use for pedestrian or bicycle trails)

- Control and removal of outdoor advertising

- Safety education activities for pedestrians and bicyclists
  If future corridor improvements include roundabouts, the City could use CTEP funds to educate pedestrians and bicyclists on their proper use.
- Establishment of transportation museums
- Projects that reduce vehicle-caused wildlife mortality

In Montana, the Federal share for CTEP projects is 86.58% with a local match of 13.42%. Counties, cities, and tribal governments select CTEP projects. In FFY 2004, Lewis & Clark County and the City of Helena received approximately $129,000 and $117,500, respectively, in federal funding through CTEP. The City has a CTEP fund balance of $231,700 compared to $323,200 for the County. These balances represent funds not obligated towards a selected future project. However, the City and County may direct a portion of these balances to the CTEP-eligible elements of the frontage road that will serve the Interstate 15 South Helena Interchange.

**Transit**

The Helena Area Transit System (HATS) is a rural general public transit service provider supported with Federal Transit Administration Section 5311 funds distributed by MDT. Section 5311 funds are available through an annual application process for capital and operating assistance to eligible providers outside of Montana’s three urbanized areas (Billings, Great Falls, and Missoula). Local match requirements are 50% for operating assistance and 20% for capital assistance. The amount of operating and capital assistance each provider receives annually depends on overall funding availability and the number and level of requests.

The majority of the HATS service is demand responsive lifeline transportation service to Helena area residents with limited transportation options. Consequently, HATS will probably not play a significant role in efforts to improve traffic flows on the study corridor. However, HATS should consider the Custer Avenue/Henderson Street Corridor in any discussions of future new checkpoint routes.

**State Fuel Tax**

Montana assesses a $.27 per gallon tax on gasoline and diesel fuel used for transportation purposes. Each incorporated city and town receives a portion of the total tax funds allocated to cities and towns and each county receives a portion of the total tax funds allocated to the counties. The funding distribution formulas are based on population and street and highway
mileage for the cities; and population, street and highway mileage, and land area for the counties. xlvi

City and county governments must use fuel tax funds for the construction, reconstruction, maintenance, and repair of rural roads or city streets and alleys. Local governments establish funding priorities, which focus primarily on routine highway and street improvement and maintenance. However, local governments can direct fuel tax funds to elements of Federal and State funded projects.

In State Fiscal Year 2005, the City of Helena and Lewis & Clark County received $523,361 and $262,853, respectively, in state fuel tax funds. These funding levels vary slightly from year to year.

**GARVEE Bonding Authority-A New Opportunity for Urban Areas**
Governor Schweitzer signed House Bill (HB) 451 into law on April 21, 2005. xlviii HB 451 allows Montana’s fifteen urban areas to use the GARVEE (grant anticipation revenue vehicle) mechanism of the Federal-aid Highway Program to bond for the construction of Urban Highway projects. Urban Areas that choose to could bond for approved Urban Highway projects and then repay the bonds using a portion of the Urban Highway Program funds apportioned to them each year. Under the Federal-aid GARVEE mechanism, states and local governments can use Federal-aid apportionments to pay the principal and the interest on these bonds. An Urban Area that uses this bonding approach would have to commit its State and Federal-aid funding for the repayment, as the State would not participate in the debt, nor would the debt count against the Department of Transportation’s available bonding authority. The Montana Transportation Commission will develop policies and procedures before HB 451’s July 2006 implementation date. In the future, the Urban Highway GARVEE bonding process may offer Urban Areas an opportunity to develop projects that require more than the funding available by using the Transportation Commission’s five-year borrow policy.

**Local Funding Potential**
Some communities have taken proactive approaches to funding infrastructure with locally generated funding through the use of tools such as: Tax Increment Financing (which Helena has used effectively for downtown redevelopment), Special Improvement Districts, and Rural
Improvement Districts. When combined with local bonding authority, these revenue generation approaches have the potential to fund large infrastructure projects. The Montana Transportation Commission “Guidelines & Mechanisms for Transportation Partnerships” (Appendix G) includes more information on these and other approaches to revenue generation. In addition, the 59th Legislature passed three pieces of legislation that further expand the tool kit of Montana local governments interested in generating local funds for infrastructure investment. These are described below.

Local Option Fuel Taxes
Montana’s 59th Legislature recently passed Senate Bill (SB) 222 and forwarded it to the Governor for his signature. SB 222 transfers the responsibility for local option fuel tax collections from the state to the counties, which will collect the tax from retailers rather than distributors. Taken together, changing the points of responsibility and the points of collection will create a more workable approach to local option fuel taxes. If a county enacts an optional local fuel tax, local governments can only use it for construction, reconstruction, maintenance, and repair of public streets and roads. Additionally, the county would have to distribute a percentage of the revenue to the municipal governments within the county according to a mutually acceptable method. SB 222 provides local governments such as Helena and Lewis & Clark County with an additional tool to help fund improvements such as those necessary on the Custer Avenue/Henderson Street Corridor.

Impact Fees
Montana’s 59th Legislature passed and the Governor signed comprehensive legislation regarding impact fees. Senate Bill (SB) 185 authorizes cities and counties to impose impact fees on new development to fund all or a portion of the public facility capital improvements affected by the new development including street and roads. Impact fees in Montana have a long and controversial history. SB 185 requires the development of a process to determine proportionate share of the impact to facilities, and links the fee to the proportionate benefits that would accrue to the developer paying the fee. Because it is unclear if the development community will challenge the implementation of SB 185, local governments may consider waiting to see if the new law withstands challenges in other cities. However, the rapid
pace of development in northern Helena Valley and around the commercial center of Custer Avenue/Interstate 15/North Montana Avenue provides local governments with opportunities to generate revenue under this law. The local governments may lose these opportunities if they wait for a risk-free environment.

**Some Funds Go Further**

Although local governments could use Federal, State, or local funds to improve the study corridor, requirements associated with Federal or State funds are significantly greater than those that apply to local funds. While local governments in Montana are exempt from the Montana Environmental Policy Act, MDT is not. This local government exemption applies even if local governments use their share of state fuel tax funds for a project. In contrast, MDT must develop State funded construction projects under requirements that closely parallel Federal processes regardless of how much State money is in the project funding mix.

For example, if an improvement project uses local resources, including state fuel tax allocations, the following issues are essentially off the table (or cost significantly less to address) compared to the situation if the funding package included either Federal or State funding sources:

- Section 4(f) requirements and Section 106 relative to historic properties
- Section 4(f) requirements relative to parklands, or wildlife areas
- Environmental Justice
- Utility moves

**Utility Relocation Costs – A Need for Special Consideration**

Utility relocation costs in the Custer Avenue corridor will be very high. Also, the estimate shown in this report is very preliminary and likely low given recent experience with utility relocation estimates in other Urban Areas. Under Montana law, MDT must pay 75% of all utility relocation, dismantling, and removal costs (100% of the costs in the case of 500 or fewer service connections), associated with construction projects on Federal-aid systems or on a “state highway”. Because Custer Avenue is on the Urban Highway System, MDT would charge utility costs to a Federal-aid project using funds from Helena’s Urban Highway Program balance. This situation would not occur, however, if Custer Avenue was not on the Urban Highway System or maintained by MDT. State maintenance is a factor because MCA 60-2-125 defines “state
highways” based on MDT maintenance responsibility. However, MCA 60-2-107 provides for maintenance exchanges between agencies. If such an exchange happens, and the Transportation Commission also removes Custer Avenue from the Urban Highway System, the construction project would not have to bear the costs of relocating the utilities.

*Fiscal Planning is Warranted*

The local governments should carefully consider a funding approach that is consistent with long-term goals for the corridor especially for Custer Avenue. For example, if the intent is to eventually use Federal funds for improvements, early right-of-way acquisition will have to conform to Federal requirements even if the City or County purchase the property with local funds. On the other hand, if the local governments intend to develop Custer Avenue with entirely local resources and save Urban Highway Program funding for another major investment, such as Custer Avenue east of North Montana Avenue, then the local governments could probably improve Custer Avenue west of North Montana Avenue for considerably less (see “Next Steps” for further discussion).

*Partnering*

Large highway construction projects often require multiple funding sources to complete a funding package. Federal agencies and the Montana Transportation Commission encourage partnering agreements regarding cost responsibility (Appendix G). The new and enhanced tools listed above that the Legislature recently approved should provide local governments with opportunities to generate local revenue streams that, combined with the Urban Highway Program, could help to fund improvements to the study corridor.
RECOMMENDATIONS AND NEXT STEPS

Recommendations
The study team recommends the following measures to address safety and capacity needs on the study corridor in both the long term and the short term.

General Recommendations:
1. Concentrate investments on improvements to Custer Avenue between National Avenue and Green Meadow Drive rather than on a Custer Avenue extension to Joslyn Street.
2. Complete currently planned projects, including the Henderson Street improvements, traffic signal synchronization on Custer Avenue, and construction of a protected left-turn onto Valley Drive.
3. Install protected pedestrian crosswalks at intersections where they do not now exist.
4. As a short-term improvement while local governments resolve the issue of funding for additional capacity, restrict selected movements to improve the operational efficiency of the corridor:
   a. Eliminate left-turns onto National Avenue and Villard Avenue from Custer Avenue.
   b. Restrict left-turns from Villard Avenue onto Custer Avenue.
5. Access Management will become increasingly important in this corridor to sustain existing and future operational efficiency. Therefore, agencies should look for opportunities to combine and eliminate current accesses and develop an access management plan for the corridor.
6. Address access issues at Four Georgians Elementary School by eliminating full access from Custer Avenue and replacing it with a new principal access off of McHugh Lane.
7. Provide a dedicated right turn from Henderson Street to US Highway 12 with a radius that will accommodate school buses at the intersection of Henderson Street and US Highway 12. In addition, provide left-turn bays for the northbound and southbound legs.
8. Land use planning is important to the efficient operation of Custer Avenue. Residential development is currently the predominant adjacent land use. Local governments should perpetuate this situation to avoid increased pressure on corridor capacity. Developers should share in the cost of adding capacity necessary for their commercial developments.
9. Take advantage of opportunities to secure additional right-of-way in the corridor in preparation for future capacity expansion.
10. The Draft Lewis & Clark County Fairgrounds Master Plan recommends moving the main Fairgrounds admission gates and parking to eliminate traffic problems on Custer Avenue during Fairgrounds events. However, high traffic volumes will continue to occur in the Fairgrounds area especially if the size and number of events increase as planned. Event planners should therefore consider using vehicles such as the HATS trolley or school buses to move event participants from other parking areas in Helena such as at Carroll College. This will keep cars off Custer Avenue, which would otherwise experience greater traffic during these events.

11. Perpetuate and enhance the heavily used separated bicycle and pedestrian path that is adjacent to most of the study corridor.

12. Determine the location of utilities in the study corridor due to their influence on future corridor improvement decisions.

13. The transportation demand management recommendations in the Draft Greater Helena Area Transportation Plan 2004 Update adequately address TDM issues related to the study corridor.

Build-out Alternative

Based on the extensive analysis documented in this report, the study team recommends the five-lane alternative (Alternative 1) for the build-out alternative for the study corridor. This alternative, which is consistent with the recommendation in the Draft Greater Helena Area Transportation Plan 2004 Update, will provide a safe and efficient transportation corridor for at least twenty years. Project sponsors can phase the implementation of this alternative based on available funding.

Next Steps

Agencies could take several steps to advance the development of the study corridor and also plan for long-term improvement to north-south traffic flow between the Helena Valley and Helena. The schedule for the planned construction of the Interstate 15 Custer Avenue Interchange will have the greatest influence on the urgency in moving forward with improvements to Custer Avenue. However, even if the interchange construction is many years in the future, the study corridor will continue to degrade in service because it is a critical link between the growing residential areas in the north Helena Valley and the employment centers in Helena. North Montana Avenue and the
Interstate 15 corridor are currently the only direct arterial routes that serve north-south movements possible without using some segment of Custer Avenue. Helena and Lewis & Clark County should therefore begin to plan for additional arterial routes between the Helena Valley and Helena.

**Determine Long-range Funding Sources for Custer Avenue Improvements**

As explained under “Funding Sources and Considerations,” if agencies expect to use Federal funds for improvements to Custer Avenue, the agencies must have a full appreciation of Federal requirements even if they use non-Federal money to obtain right-of-way for the future expansion projects. The same is true if right-of-way is reserved for future collectors or arterials in the north Helena Valley.

**Right-of-Way**

Potentially the most important next step in efforts to improve the study corridor is to acquire and preserve right-of-way sufficient to expand Custer Avenue to five-lanes including bike and pedestrian amenities as quickly as possible. It is also important for the local governments to preserve east-west and north-south corridors in the Helena Valley. Custer Avenue currently functions to complete north-south trips in and out of the Helena Valley. As the valley continues to expand, unless there are more jobs in the northern part of the valley, local governments should begin planning for improved north-south arterial movements. While not an immediate next step for the benefit of Custer Avenue, the local governments should identify future arterial corridors for protection through land use approvals.

**4(f)**

If there is any possibility that local governments will use Federal funds for corridor improvements, the local governments should anticipate Federal requirements even if they use local funds to acquire right-of-way. For example, right-of-way acquisition by itself does not create an impact or trigger Federal protection because it only transfers ownership from one entity to another. However, if the local governments acquire a Section 106 (historic) property, impacts wouldn’t occur until the local governments remove the historic property in anticipation of a construction project. At that time, if it is significant, the property would be subject to Section 4(f) requirements and the project sponsor would have to demonstrate that there is no feasible and
reasonable alternative to taking the property. The local government could not use Federal funds for the project if it clears the right-of-way of 4(f) protected properties before acquiring the approvals required under this provision.

*Suggested Next Step:* Perform a cultural resources inventory to determine whether any of the historic properties on Custer Avenue are significant. Note that there is no question about 4(f) protections on the public park and recreation lands of the Bill Roberts Municipal Golf Course, the Lewis & Clark County Fairgrounds and other locations listed in Table 14.

6(f)
It is possible that project sponsors will need property from the Bill Roberts Municipal Golf Course to construct the five-lane alternative. This property is protected under Section 4(f) as well as Section 6(f) of the Land and Water Conservation Act. If the widening project takes any of this land, project sponsors will have to acquire property of equal recreational value to address 6(f) requirements. One approach, already suggested, is to off-set any loss of 6(f) property in the golf course by adding or protecting additional 6(f) property within the Lewis & Clark County Fairgrounds. It may prove beneficial to develop an agreement in advance of the construction project that exchanges some of the golf course property for additional protected land within the Fairgrounds.

*Suggested Next Step:* Coordinate changes in 6(f) boundaries as part of the Lewis & Clark County Fairground improvements.

Utilities
This is another area that depends on the funding source the local governments intend to use to develop the study corridor. As described under the “Utilities” section of this report, there are significant utility relocation issues throughout the corridor, including the expectation that the Yellowstone Pipeline is buried under portions of Custer Avenue. As described under “Funding Sources and Considerations,” under Montana law, if the roadway is on a designated system, such as the Urban Highway System or state maintenance system, then MDT must bear at least 75% of the utility relocation costs. In practice, Helena’s share of Urban Highway Program funds would pay these costs. If the local governments choose to not use Federal funds on this project, they could take the following steps:
• Ask the Transportation Commission to take Custer Avenue west of North Montana Avenue off the Urban Highway System, and

• Work with MDT to exchange maintenance responsibilities for Custer Avenue between North Montana Avenue and Green Meadow Drive for maintenance responsibilities for a similar route in the Helena area.

Although such an approach would husband resources for construction, Benton Avenue would become a “stub” Urban Highway which is not desirable from a systems perspective.

Please note that the extent of the utility moves is not precisely known, as the investigations undertaken for this study were not able to locate good primary data and information.

**Suggested Next Step:** Perform an in depth utility survey to determine the location and ownership of all utilities along Custer Avenue. The final design will have to provide for the perpetuation of the utilities in the corridor, so if the local governments acquire right-of-way in advance of programming a Federal-aid project, the acquisition should include space for utilities.

**Wetlands**

The Army Corps of Engineers (COE) will require the creation of wetlands at a ratio that is higher than 1:1 if the project sponsor does not mitigate the lost wetlands in advance of construction. The COE has identified the wetlands in the area of the intersection of Custer Avenue and Henderson Street as jurisdictional wetlands that will require avoidance, minimization, or mitigation. This requirement will apply regardless of the funding source used for future projects. The improvements to the Lewis & Clark County Fairgrounds provide an opportunity to develop a mitigation plan for the wetlands lost due to future projects through this area.

**Suggested Next Step:** Develop a wetland mitigation plan that will satisfy the COE and convert property within the Fairgrounds to wetlands equal to or greater than acreage lost to the future project in the area of the Custer Avenue/Henderson Street intersection. This would bank acreage for the benefit of the future project.
Environmental Review Process

Project sponsors must complete an environmental review for projects that use Federal highway funds. The ideal is to reach a decision as to the scope of the project at the lowest possible environmental review level because this will save money and time. A Custer Avenue project of the magnitude of a five-lane design could expect to warrant an environmental impact statement. However, under the new FHWA guidance (see the “Linking Transportation Planning and NEPA” discussion under “Environmental and Cultural Conditions”), it is possible to advance planning products into the environmental process. This is preferable to current practice where everything including alternatives analysis and design concepts would have to start again at square one. The work of this study coupled with the products of Helena Urban transportation planning process should provide a good basis to advance planning products into the environmental process. However, in reviewing the new guidance, there are a couple of areas that will need additional attention. The following steps should assist in addressing these areas.

Suggested Next Steps: Local governments should pursue additional public involvement to gain support for a vision for the study corridor. The public involvement process for the Draft Greater Helena Area Transportation Plan 2004 Update is probably not sufficient to move recommendations for the study corridor into the environmental process. Although additional public involvement efforts should prioritize residents along the study corridor, the efforts should also include other areas of Helena and the Helena Valley due to the importance of this corridor as a north-south arterial. It is suggested that broader surveying tools such as telephone or mail surveys be used in association with localized public meetings. The study team also believes the following measures would greatly simplify the environmental review process:

- Relocate the entrance into Four Georgians Elementary School from Custer Avenue to McHugh Lane as soon as possible to address safety issues.
• Commit to the perpetuation of the separated bicycle and pedestrian path on the south side of Custer Avenue early in the process to minimize controversy over its potential loss.
  ◊ Many school children and residents of adjacent neighborhoods use the separated path.
  ◊ Also, based on experience in other communities where separated bicycle and pedestrian paths were threatened, the public would object to any project that eliminates this feature on Custer Avenue.

• Get agreements from as many Federal and State regulatory agencies as possible in advance of the beginning of the environmental process. Local governments should work with the following agencies to satisfy their issues proactively.
  ◊ Army Corps of Engineers relative to wetlands,
  ◊ Montana Fish, Wildlife and Parks and the National Park Service on 6(f), and
  ◊ State Historic Preservation Office on historic properties

Benton Avenue Intersection
The Custer Avenue/Benton Avenue intersection controls the capacity of the study corridor more than any other intersection other than the Custer Avenue/North Montana Avenue intersection. The City of Helena plans to extend Benton Avenue to the north this year, which will change the current three-legged intersection to a four-way intersection. This will require the re-allocation of signal green time from through traffic on Custer Avenue to left-turns from and to Benton Avenue. MDT has jurisdiction on Custer Avenue and will have to review and approve design plans for the Benton Avenue extension.

Suggested Next Step: The City should provide MDT with the expected traffic loadings onto Custer Avenue from Benton Avenue for both A.M. and P.M. peak traffic movements including all turning movements and the expected traffic from the north. The City should also propose how the city intends to mitigate this traffic by providing a design concept for review. \(^V\)
MDT will review these submittals in the context of the Department’s System Impact Analysis Process. Helena’s submission should also consider its long-term plans for the corridor including the possible use of roundabouts to address capacity and safety needs at the Custer Avenue/Benton Avenue intersection and other major intersections.

**Revenue Generation**

Even if Helena and Lewis & Clark County intend to ultimately use Federal funds to improve the study corridor, it will take many years to obtain sufficient Urban Highway Program funds. Consequently, Helena and Lewis & Clark County should develop a strategic approach to generating the necessary revenue.

**Suggested Next Steps:** The section entitled “Funding Sources and Considerations” includes information on recently passed State legislation regarding impact fees and local option fuel taxes. The City and County should explore these options at the earliest possible time by initiating a public dialogue that seeks a consensus on how to proceed to obtain the financial resources necessary to address unmet infrastructure needs in the area.

Similar Montana communities including Billings and Bozeman have obtained voter approval of local government bonds for transportation improvements. The upcoming completion of the *Greater Helena Area Transportation Plan 2004 Update* will provide local governments with an ideal opportunity to pursue similar funding.

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Custer Avenue/Henderson Street Corridor Study

1Peccia and Associates, Greater Helena Area Transportation Plan 2004 Update, Figure 3-10 DRAFT, 02/23/05
3Peccia, Page 4-5, Table 4-3, April 2005
7Howard Nash, Montana Rail Link, email
8Ed Robinson, Helena Area Transit System, Telephone
9Lewis & Clark County Fairgrounds: http://www.helenafairgrounds.com/plan.htm
11Source: U.S. Census Bureau, Population Division, Journey-to-Work & Migration Statistics Branch; Census 2000- Residence County to Workplace County Flows for Montana; Internet Released date, March 6, 2003
12Source: U.S. Census Bureau, Population Division, Journey-to-Work & Migration Statistics Branch; Census 2000-Residence County to Workplace County Flows for Montana; Internet Released date, March 6, 2003
13City of Helena, Growth Policy Plan-2001 Update, page 9-1
14Robert Peccia & Associates, Draft Greater Helena Area Transportation Plan 2004 Update, Chapter 3
16MCA 60-2-111 provides that the Montana Transportation Commission may delegate authority for a local government to award projects on state designated routes. Normally, this delegation of authority is premised on the local government meeting an acceptable design standard, and applying prevailing wage rates.
17If Federal-aid funding investment is anticipated within the study corridor, the best course is to assume full Federal interest in all aspects of review, permitting and right-of-way acquisition to ensure Federal participation.
18Mark Wilson, letter to Brown, April 14, 2005.
1916 USC. 1531 et. seq.
2016 USC. 661 et. seq.
21Mark Wilson, letter to Brown, April 14, 2005.
22Washington DOT information on 6(f) environmental compliance as of April, 2005:
http://www.wsdot.wa.gov/environment/compliance/Section6f_guidance.htm
23Tom Gocksch, P.E., Montana Department of Transportation Environmental Services Bureau, March 8, 2005, memo to Riley
24Jon Axline, Historian, Montana Department of Transportation Environmental Services Bureau, February 25, 2005, memo to Riley
25Washington DOT information on 6(f) boundaries as of April, 2005:
http://fwp.state.mt.us/parks/landw/boundarymapinfo.asp
27Jean Riley, Bureau Chief, Montana Department of Transportation Environmental Services, April 17, 2005, personal communication to Straehl
28Dick Turner, Multimodal Transportation Planning Bureau Chief, Montana Department of Transportation, April 2005, personal communication to Straehl
29Montana Department of Environmental Quality in formation on underground storage tanks as of April, 2005:
http://www.deq.state.mt.us/UST/index.asp
30Cora Helm, Professional Geologist, Montana Department of Transportation Environmental Services Bureau, March 7, 2005, memo to Riley
31Montana Department of Environmental Quality information on superfund sites as of April, 2005:
http://www.deq.state.mt.us/StateSuperfund/index.asp
32Cora Helm, Professional Geologist, Montana Department of Transportation Environmental Services Bureau, March 7, 2005 and March 17, 2005, memo to Riley
33Cora Helm, Professional Geologist, Montana Department of Transportation Environmental Services Bureau, March 17, 2005 memo to Riley
Aimee Reynolds, Montana Department of Environmental Quality, March 2005, communication to Cora Helm, Professional Geologist, Montana Department of Transportation, Environmental Services Bureau


Program guidance on linking the transportation planning and NEPA processes as of 05/05: http://nepa.fhwa.dot.gov/ReNepa/ReNepa.nsf/0/9fd918150ac2449685256fb10050726c?OpenDocument

1 42 USC 4231 et seq.


Montana Urban Highways are designated by the Montana Transportation Commission under the authority of Title 60-2-126 of Montana Code Annotated.

Each year, out of Federal funds available for construction purposes, the Commission allocates funds for projects located on designated Urban Highways under the authority of Title 60-2-127 of Montana Code Annotated.

The apportionment of funds to the Urban Highway System is based on the urban area’s population compared to the population of all urban areas (i.e. greater than 5,000 populations as defined by the census) as provided in Title 60-3-211 of Montana Code Annotated.

The Urban funding borrow policy as of May, 2005: http://www.mdt.state.mt.us/dir/net/external/commission/policies/06-urbanhighwayprogram.pdf

State fuel taxes are distributed to all 54 counties, 127 cities, and 2 consolidated city-county governments according to the formulas in Title 15-70-101 of Montana Code Annotated.

Text of HB 451 as enacted: http://data.opi.state.mt.us/bills/2005/bilhtml/HB0451.htm

Text of Senate Bill 222 as enrolled and sent to Governor, 4/21/05: http://data.opi.state.mt.us/bills/2005/bilhtml/SB0222.htm

Text of Senate Bill 185 as signed by Governor, 4/19/05: http://data.opi.state.mt.us/bills/2005/bilhtml/SB0185.htm

Please note that no one on the study team is a lawyer and a legal opinion of the referenced state statutes was not obtained regarding cost responsibility for utility relocations. However, the statutory references in this section are fairly straightforward. If the clients choose to pursue the strategy outlined, they should use their legal counsel to confirm the conclusions of this section.

MCA 60 part 4 describes the cost responsibilities for utility relocation on a federal-aid or “state highway.”

Cost responsibility for utility relocations is described in Title 60, part 4 of Montana Code.

23 C.F.R. 771.105(b) directs that “Alternative courses of action be evaluated and decisions be made in the best overall public interest based upon a balanced consideration of the need for safe and efficient transportation; of the social, economic and environmental impacts of the proposed transportation improvement; and of national, State and local environmental protection goals.”

Discussion of April, 2005 with MDT’s Traffic Engineer. NOTE: MDT STAFF WOULD BE WILLING TO HOST A MEETING ON THE PROPOSED EXTENSION.

MAP 2
Existing Lane Configuration & Signals

Legend
- Euclid Avenue (US 12)
- Non-Study Streets & Roadways
- Bike/Pedestrian Facilities
- Custer/Henderson Study Corridor
  - 2-lane
  - 3-Lane
  - 4-Lane
- Traffic Control Signals
### Current and Projected Traffic Volumes

<table>
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<tr>
<th>Location</th>
<th>2003 AADT</th>
<th>Projected 2025 AADT*</th>
<th>Projected 2025 AADT+</th>
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<td>Brady Street</td>
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<td>Capital High School</td>
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</tr>
<tr>
<td>Bill Roberts Golf Course</td>
<td>8,000</td>
<td>24,800</td>
<td>25,800</td>
</tr>
</tbody>
</table>

* 2025 volumes include committed projects including the Benton Avenue Extension and a Mill/Overlay Project as determination from the RR overpass to Custer.

**Legend**
- Euclid Avenue (US 12)
- Bike/Pedestrian Facilities
- Traffic Control Signal
- Planned Benton Ave. Extension
- Traffic Volumes
  - 2003 AADT
  - Projected 2025 AADT*
  - Projected 2025 AADT**

* *Volumes include differences in traffic and project assumptions.*
North/South Traffic in the Helena Valley relies on Custer Avenue to complete movements to community attractions.