CHAPTER 1.0: PURPOSE AND NEED

1.1 Introduction

The Federal Highway Administration (FHWA) proposes to provide safe and improved access between US 93 and the Miller Creek area in Missoula County, Montana (see **Figure 1-1**, **Figure 1-2**, and **Figure 1-3**). The Miller Creek area is generally bounded by Miller Creek Road/ Upper Miller Creek on the east and Lower Miller Creek on the west and south and extending to include areas to the south of the Miller Creek. Primary access to the Miller Creek area is currently provided by Miller Creek Road with an indirect access (primarily residential) provided by Gharrett Street. Miller Creek Road experiences heavy traffic use particularly during the AM and PM peak traffic periods with substantial delays occurring at its junction with US 93 and at the north "Y" intersection of Miller Creek Road with Lower and Upper Miller Creek Roads. The indirect access provided by Gharrett Street has limited capacity and effectiveness for moving traffic into and out of the Miller Creek area and directs traffic through a residential neighborhood. Projected increased traffic resulting from approved future development and traffic volumes on US 93 and Miller Creek Road will result in additional traffic delays and further exacerbate the problems experienced by users of Miller Creek Road. An issue of concern has been the limited access into and out of the area that presents a delay for both residents and emergency service providers in the event of an emergency.

1.1.1 Purpose

The original purpose and need statement was developed based in part on the language contained in the Congressional appropriation funding application. The original project purpose and need statement was:

> The primary purpose of the Miller Creek Road project is to provide a safe, multi-modal secondary access to US 93 from Lower Miller Creek Road

Initial scoping and screening of alternatives occurred based on this original purpose and need statement. This resulted in all initial build alternatives to include a new bridge over the Bitterroot River as a second access. A substantial amount of public comment was received at public meetings concerning the initial build alternatives. Members of the public and resource agencies questioned the range of alternatives and suggested analysis of improving existing access along Miller Creek Road.

The Council on Environmental Quality (CEQ) regulations stipulate the purpose and need statement for an EIS should not be so narrow as to limit the range of reasonable alternatives. Therefore, based on public and agency input, the original purpose and need statement was revisited and it was determined that the statement contained text that narrowly limited the range of alternatives to construction of a bridge. Based on that determination, the purpose and need statement was modified in June 2004 to be more consistent with CEQ regulations by eliminating language that contained a predetermined solution. It is not uncommon or inconsistent with the National Environmental Policy Act (NEPA) for a project's purpose and need to be refined or modified as a result of the NEPA process, when the project need is studied in greater detail and public input is gathered.

Based on scoping and public input, the project purpose and need was revised to:

The purpose of the Miller Creek Road project is to provide for safe and improved access between US 93 and the Miller Creek area.

Figure 1-1
Regional Vicinity Map

Figure 1-2
Greater Missoula Urban Area

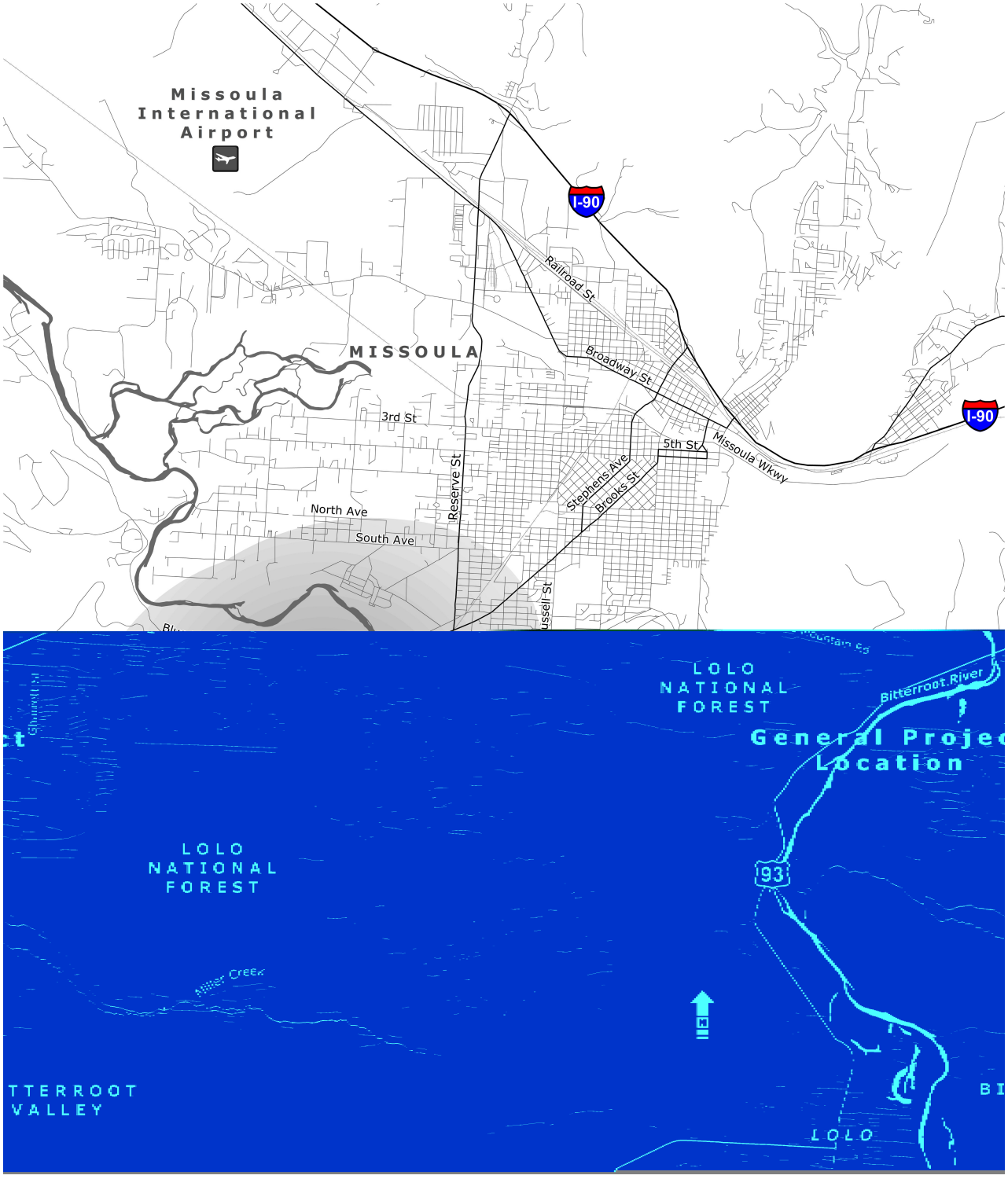
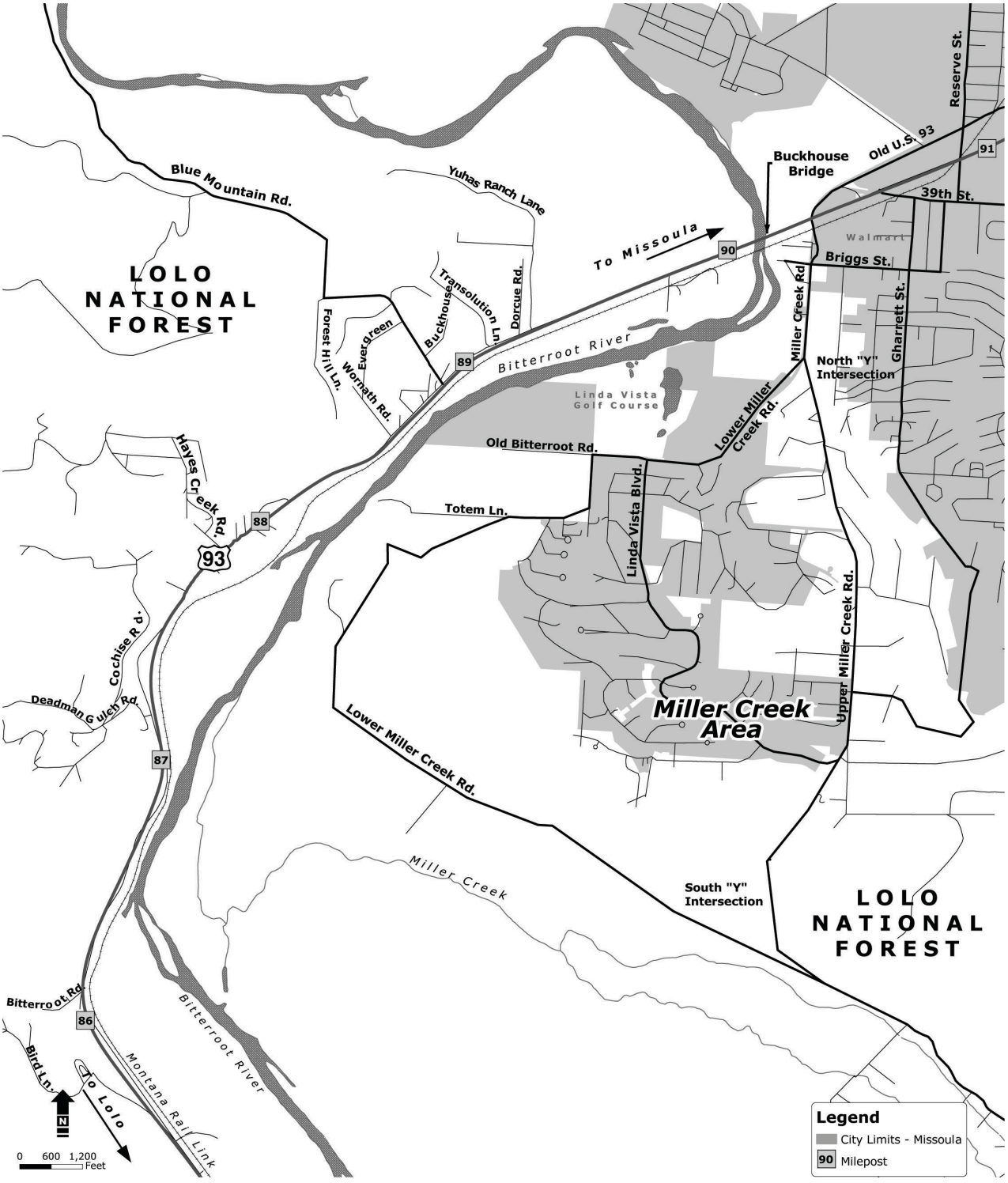


Figure 1-3
Project Area



This revised purpose and need resulted in a broader range of alternatives to be identified and fully assessed that met the purpose and need identified during the NEPA process. As the project planning progressed and the traffic assumptions were updated, it became clearer that a bridge alternative was not the best solution to the transportation problems in the study area. It was found that the solution to the transportation problem included improving the operations of US 93 east of Miller Creek Road and the resulting addition of the Old US 93 and adjacent intersection improvements.

1.1.2 Goals

Project opportunities and constraints were identified during project visioning as described in Section 5.3.4, page 5-5. The goals for the project are defined as:

- Provide a transportation solution for efficient and safe access between US 93 and the Miller Creek area, including access to US Forest Service System lands.
- Maintain or improve future operations of US 93.
- Create a transportation solution that is long term and consistent with area comprehensive and transportation plans and accommodates planned growth within the Miller Creek area.
- Design an economically and environmentally responsible project.
- Preserve and enhance the character of the neighborhood.

1.1.3 Needs

The project area is situated in one of the fastest growing areas in Missoula County. Population growth is expected to continue into the future; current development plans would result in approximately 3,000 dwelling units by 2025, thereby affecting the capacity, mobility, and safety of project area roads, including US 93 and Miller Creek Road. The existing primary roadway access to and from the project area is *at capacity,* and traffic volumes are expected to increase over the next 20 years with expected full build-out of the Miller Creek area. The following summarizes the needs for a safe and improved access between the Miller Creek area and US 93.

- Address high congestion levels at the Miller Creek Road/US 93 intersection.
- Address roadway deficiency and safety concerns at the Upper Miller Creek Road and Lower Miller Creek Road "Y" intersection, at the Miller Creek Road and US 93 intersection, and on US 93.
- Provide pedestrian and bicycle facilities and public transportation access.
- Improve access for emergency service providers.

1.2 Project Area Description

A portion of the Miller Creek Road Environmental Impact Statement (EIS) project area is within the City of Missoula; the remainder is within unincorporated Missoula County. Missoula County is in the northwest portion of the state, with Ravalli County to the south and Lake and Flathead Counties to the north (see **Figure 1-1**). The project area is located entirely within the City of Missoula's urban growth area (see **Figure 1-2**). The project area is shown on **Figure 1-3**, and the primary roadway system is shown on **Figure 3-5, page 3-20**.

1.3 Future Land Use and Economic Development

1.3.1 Historic and Future Land Use Trends

According to US Census Bureau data, Missoula County experienced a 22 percent increase in population between 1990 and 2000, which amounts to an average annual growth rate of 2.0 percent compared to the state's annual growth rate of 1.3 percent for the same period. Projected population, housing, and employment growth trends (estimated increases between 30 to 40 percent through 2025) indicate that Missoula County growth is not expected to slow in the near future. Increases in population correlate with growth in housing and employment and a need for community facilities and infrastructure.

Within Missoula County, the Miller Creek area is one of the fastest growing areas. Full build-out of the Miller Creek area is expected in approximately 20 years with the majority of the planned development being residential. It is anticipated that the City of Missoula will annex the majority of the Miller Creek area in the future. Neighborhoods within the project area experienced a 26 percent population increase between 1990 and 2000 (a change from 12,657 to 15,893 persons). New developments approved and planned in the Miller Creek area are predicted to increase the residential population to 7,250 and the residential dwelling units to approximately 3,000 by year 2025. This represents an increase of approximately 1,380 additional residential units if the projects are developed as proposed (*Maloney Ranch Transportation System Study*, 1996). An analysis of the *2004 Missoula Urban Transportation Plan Update*'s land use data shows the number of dwelling units in the Miller Creek area is expected to increase approximately 35 percent from 2000 to 2025. In addition, undeveloped or partially developed land that is located adjacent to or within areas directly served by US 93 south of Missoula is expected to experience continued development and redevelopment as residential and commercial uses increase.

Approximately 10 miles to the south of the project area, Ravalli County was the fastest growing county in Montana between 1990 and 2000, experiencing a 44 percent increase in population. This trend is expected to continue. As the population in Ravalli County grows, an increase in travel demand along US 93 between Ravalli County and Missoula is anticipated.

1.3.2 Relationship to Local and Regional Plans

The need for improved access to the Miller Creek area is discussed in several local and regional plans.

The *1997 Miller Creek Area Comprehensive Plan Amendment* (Amendment to *1990 Missoula Urban Comprehensive Plan*) identifies access to and from the project area as one of the top transportation issues. Planned development in the area will exceed the capacity of Miller Creek Road, the primary access to and from the area. The major concerns associated with transportation and access are availability of public transit to the Miller Creek area; provision of an alternate emergency route out of the area; increased traffic on the unpaved roads due to development, safety, and efficiency concerns regarding Miller Creek Road; and capacity of other roads in the area to handle the increased traffic as a result of development plans. The plan indicates that pedestrian and bicycle movement need to be carefully planned and provided for in new and existing developments. The Land Use Designations Map includes an arrow indicating a second access as part of the proposed roadway network.

The *2004 Missoula Urban Transportation Plan* update identified Miller Creek Road reconstruction from Brooks Street to the "Y" as a Recommended Transportation Plan Project with funding source identified as Developer/Assessments. The Recommended Plan Projects are "transportation system improvements that address an identified need within the 20-year planning period." The list is based on funding estimated to be available in the 20-year planning period. Construc-

tion of a bridge across the Bitterroot River to US 93 was analyzed using computer travel demand models developed as part of the *2004 Missoula Urban Transportation Plan Update*. The Plan lists the project as Miller Creek Road Bridge Across Bitterroot River. However, two locations were analyzed: a Linda Vista Bridge - Blue Mountain Road alignment and a Linda Vista Bridge - North/South alignment. While the Linda Vista Bridge - North/South alignment would remove more traffic from Lower Miller Creek Road and Miller Creek Road, it would have higher financial and environmental costs. The Missoula Urban Transportation Plan (LRTP) is in the process of being updated and is projected to be completed in 2008.

The Missoula Transportation Improvement Program (TIP) Federal Fiscal Years 2007-2011 no longer includes the Miller Creek Road EIS as a funded project. The project would need to be included in a fiscally-constrained long-range transportation plan (LRTP) (and currently it is not) prior to inclusion in the TIP. The preferred alternative is not considered to be of regional significance to the area. However, it would be in the mix of projects used to evaluate conformity during the current transportation plan process if the alternative proceeds successfully through the local transportation planning process. In addition, at least one subsequent phase (e.g., preliminary engineering, final design, right-of-way, utility relocation, or construction) of the project has to be included in the approved Transportation Improvement Plan (TIP) (and it currently is not) before FHWA can sign the Record of Decision (ROD). See Section ES.7, page ES-9, for definitions of these planning terms.

1.4 Existing and Future Traffic Issues

Current and forecasted transportation conditions of the Miller Creek area are the primary basis of the need for the Miller Creek Road EIS. The transportation conditions are the result of many factors, including land use and infrastructure policies (such as sewer and water extension) and resulting development patterns, population growth, increased employment opportunities, and public infrastructure funding availability.

Miller Creek Road is the only direct access between the existing and planned development in the Miller Creek area and US 93, the primary route between this area and the City of Missoula. It also is used by recreation and commercial vehicles for access to USFS land south and east of the project area. A second, indirect access is provided by Gharrett Street, which is a longer, more circuitous route than Miller Creek Road. Furthermore, the transportation system is oriented almost entirely toward accommodating automobile traffic, without a connective network of safe and convenient pedestrian and bicycle facilities, and with limited public transportation service. Nearly all trips in and out of the Miller Creek area are made by single occupancy vehicles (SOVs).

US 93 is the primary north/south highway through the area connecting the Bitterroot and Missoula Valleys. It is a "highway of national significance" and a major corridor for interstate, regional, and local commerce. US 93 is the only arterial for commuter traffic traveling between Missoula, Lolo, and the Bitterroot Valley in Ravalli County south of Lolo. Between 1990 and 2000, vehicular travel between Missoula and Lolo increased from 14,500 to 21,600 vehicles per day (vpd). This represents an increase of over 7,000 trips per day, a 49 percent increase over this 10-year period. During this same period, daily traffic on US 93 south of Lolo increased from 8,040 to 11,700 vpd, an increase of nearly 3,700 trips or 46 percent. As the population continues to increase in the Bitterroot Valley, Lolo, and Missoula, and as residential and commercial development served by US 93 grows, traffic volumes on US 93 will increase, causing a deterioration in traffic operations. Given the importance of the highway as a primary statewide travel corridor for commercial, commuter, and recreation travel, Montana Department of Transportation (MDT) is considering making US 93 a limited access management corridor to maintain acceptable operating and safety conditions.

The transportation analysis in Section 3.4 includes an inventory of existing roadway facilities, traffic volumes, and analysis of existing traffic operating conditions for the major roadway net-

work that serves the Miller Creek area. US 93 curves through the project area from a predominantly north/south alignment to an east/west orientation generally parallel to the Bitterroot River. Directional references to US 93 contained in this document are presented as northbound/eastbound or southbound/westbound to convey both the primary direction of the highway through the western part of Montana and the general direction of the highway through the project area.

1.4.1 Roadway Deficiencies

Five primary roads within the project area have features that contribute to deficient conditions for existing and projected future travel (see **Figure 1-3**). These features include closely spaced driveways and minor roadway approaches with full-directional access to US 93 and inadequate shoulder width and insufficient sight distance on Upper and Lower Miller Creek Roads. In addition, travel demand on some of these roads will exceed capacity by 2020 or sooner. Roadways with specific deficiencies include:

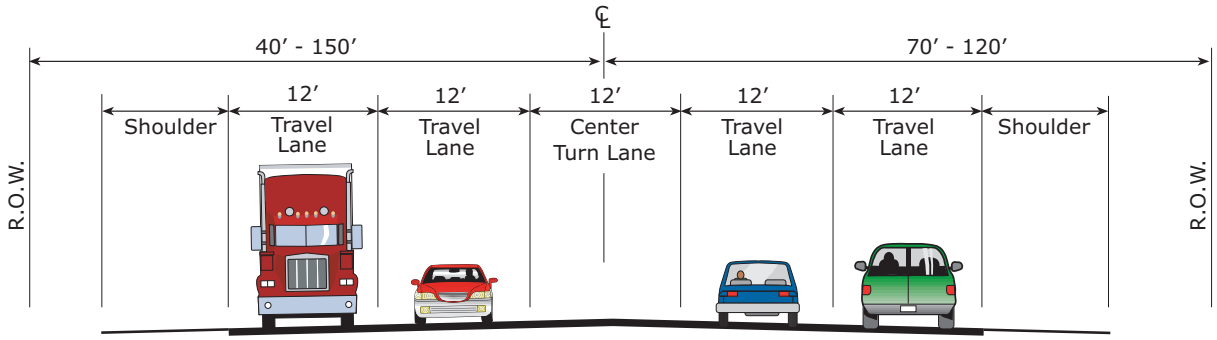
- **US 93—**south of Buckhouse Bridge typically operates as a four-lane principal arterial that primarily serves statewide, regional, and intercity traffic traveling at average speeds of 65 miles per hour. The highway also serves an increasing amount of local access, which has increased traffic flows and reduced the operating capacity of the highway due to increased numbers of vehicles making turns onto and off of US 93 at intersecting roads and driveways. Existing and planned development adjacent to segments of the highway between Lolo and Buckhouse Bridge is resulting in a continued trend toward a suburban development pattern along US 93 through the project area. MDT recognizes the need to manage access on US 93, including the section through the project area. Without improvements, safety problems will continue or worsen as the traffic volumes on the highway and highway approaches increase as expected.

  The need for improved traffic flow on the section of the US 93/Old US 93 corridor between Miller Creek Road and Reserve Street is based on year 2025 forecasts of substantial traffic growth on the major roadways serving this area, including US 93, Reserve Street, Old US 93, and Miller Creek Road, and the limited capacity of the current roadway system to accommodate the forecasted traffic.

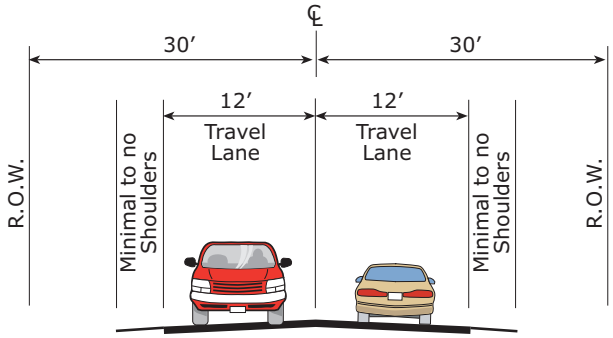
  The intersections of Reserve Street/Old US 93, Reserve Street/US 93 (Brooks Street), and US 93/ Miller Creek Road are in close proximity to one another, creating intersection queuing and delays.

- **Miller Creek Road—**is a two- to three-lane urban collector roadway with sidewalks on one side of the roadway from US 93 to Briggs Street. South of Briggs Street to the north "Y" intersection, it is a narrow, two-lane roadway without shoulders or other facilities to accommodate pedestrians and bicyclists (see **Figure 1-4**). Non-motorized travelers are forced to utilize the roadway edge adjacent to vehicular traffic. The north "Y" intersection has severely impaired sight distance for northbound drivers entering the intersection from Lower Miller Creek Road. The approach to this intersection from Lower Miller Creek Road is on an uphill grade with a relatively constrained level area for stopping a vehicle, which is particularly problematic during icy conditions. The northbound Upper Miller Creek Road approach to the north "Y" intersection is on a downhill grade with limited stopping distance to the intersection and limited sight distances. According to testimony received during public scoping meetings for the Miller Creek Road EIS, vehicles have slid off of the roadway embankment on the east side of the intersection on multiple occasions.
- **Upper Miller Creek Road—**between the north and south "Y" intersections is a two-lane urban collector with no shoulders or accommodations for non-motorized travel. It inter-

Figure 1-4
Existing Typical Sections

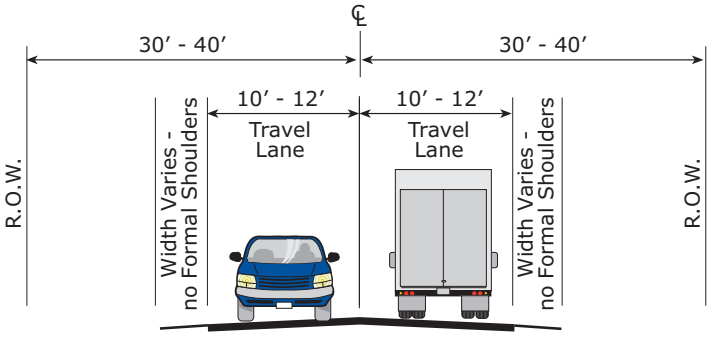


US 93



Miller Creek Road
South of Briggs

**North of Briggs on east side has curb and gutter with sidewalk*



Old US 93

**Some portions have curb and gutter with sidewalk*

sects Linda Vista Boulevard and Gharrett Street, plus minor roads and residential driveways.

- **Lower Miller Creek Road—**is a two-lane, urban collector with narrow shoulders and no sidewalks from the north "Y" intersection to a point approximately 0.2 mile west of its intersection with Linda Vista Boulevard. From this location to the south "Y" intersection, Lower Miller Creek Road is a narrow, unpaved rural road.
- Old US 93—is a two-lane urban collector with no accommodations for pedestrians and no accommodations for roadway drainage. It is key to solving the future traffic problems of surrounding deficient roadways.

1.4.2 Traffic Operations

Traffic conditions are expressed in terms of level of service (LOS) using a letter grading system ranging from A for highly efficient operations to F for extremely poor conditions. LOS A represents the free-flow condition when there is no slowing or interference to the traffic flow. LOS F represents heavily congested and unstable flow with travel demand exceeding roadway capacity and, in some extreme cases, a complete breakdown or stop condition (traffic jam). A graphical representation of LOS for roadway segments and intersections is shown in **Figure 3-8, page 3-30** and **Figure 3-9, page 3-31**. For road segments and intersections within the Missoula urbanized area, including the majority of the Miller Creek area, LOS D is identified in the *2004 Missoula Urban Transportation Plan Update* to be the minimum acceptable LOS. LOS C is considered to be the minimum acceptable operating condition in rural areas. Based on these minimum acceptable LOS, the existing roads in the project area are operating at or near an unacceptable level of service.

US 93 operating conditions influence traffic operations along Miller Creek Road. The majority of vehicular trips through the project area occur on US 93, with the heaviest concentration of traffic occurring in the northbound direction during the weekday AM peak period. Miller Creek Road, which collects mostly commuter traffic generated within the Miller Creek area, also experiences highest traffic flows and most severe congestion in the northbound direction approaching US 93 during weekday AM periods. Traffic signals at the US 93 intersections at Brooks and Reserve Streets, Miller Creek Road, and, to a lesser extent, Blue Mountain Road, regulate traffic flow along major routes through the project area. US 93 operations through the project area are regulated by traffic signals at the highway intersections at Reserve Street and Miller Creek Road, and, to a lesser extent, at Blue Mountain Road where US 93 traffic is stopped for less than 30 seconds to allow for traffic queued on Blue Mountain Road to safely enter the highway. Miller Creek Road experiences highest traffic flows in the southbound direction during weekday PM periods.

An LOS analysis was conducted at 10 project area intersections in the Miller Creek area (see Section 3.4.2.2, page 3-32). The analysis reveals that the signalized intersection of US 93 and Miller Creek Road/Old US 93 operates at an overall LOS E in the AM peak hour. During the AM peak hour, the critical US 93 eastbound through movement operates at LOS E, and the critical northbound Miller Creek Road to eastbound US 93 right-turn movement operates at LOS D. During the PM peak hour, this intersection operates at a more acceptable level, LOS C, for the overall intersection and LOS B and LOS C for the critical westbound US 93 to southbound Miller Creek Road left-turn movement.

The unsignalized north "Y" intersection operates at LOS F in the AM peak hour and LOS C in the PM peak hour, primarily due to the difficult eastbound to northbound left turn from Lower Miller Creek Road to Miller Creek Road at this location. The westbound approach at the intersection of Miller Creek Road and Briggs Street operates at LOS D during the AM peak period and LOS F during the PM peak hour. The sections of US 93 from Lolo to just south of the Reserve Street intersection, Upper Miller Creek Road between the north and south "Y" intersections, and Gharrett

Street between US 93 and 55th Street are also approaching capacity on the basis of average daily traffic volumes and LOS D conditions.

By 2025, reduced LOS during the AM and PM peak periods for overall intersection operations or for critical turn movements is anticipated at the intersections of Reserve Street/Old US 93, Brooks/Reserve Streets, US 93/Miller Creek Road/Old US 93, and US 93/Blue Mountain Road. During the AM, the intersection of US 93/Miller Creek Road/Old US 93 is estimated to operate at an overall LOS E, with the eastbound through/right-turn movement operating at LOS F. The north "Y" intersection would operate at near capacity conditions with the forecasted increase in traffic volumes, but the signal would enable the intersection to operate at LOS B. The LOS at other intersections in the area also would continue to degrade as traffic increases.

1.5 Safety

Analysis of crash data, roadway conditions, and emergency service provider access for the Miller Creek area indicates the need for improvements to address safety issues.

Crash data was studied for a five-year period (1999 to 2003) as provided by MDT for the arterial and collector roadways in the Miller Creek area, including US 93, Miller Creek Road, Upper Miller Creek Road, Lower Miller Creek Road, Blue Mountain Road, Big Flat Road, and South Avenue (west of Reserve Street) (see Section 3.4.3, page 3-35 for crash analysis). To evaluate crash data, a crash rate and severity index are used. A crash rate is defined as crashes per million vehicle miles traveled. The severity index accounts for the different degree of severity among accidents involving fatalities, injuries, and property damage. Two segments of US 93 experience relatively high crash rates that exceed the statewide average severity index for similar roadway classifications. These segments are between Miller Creek Road and Reserve Street, and between Miller Creek Road and Blue Mountain Road. While the number does not exceed statewide average severity index or rate measures, 66 crashes (rate of 1.14 crashes per million entering vehicles) were recorded at the intersection of US 93/Miller Creek Road.

The US 93 alignment is relatively straight and flat between Miller Creek Road and Blue Mountain Road. Just south of Blue Mountain Road, the alignment becomes curvilinear with steep grades as the terrain changes from level to rolling. Near the Hayes Creek Road junction, the alignment again becomes straight and flat. Travel speeds on US 93 west of Buckhouse Bridge through the project area typically exceed 60 mph. Motorists traveling southbound (westbound) on US 93 west of Buckhouse Bridge typically accelerate to rural highway speeds, and some of these drivers may not be prepared to come to a stop at the Blue Mountain Road intersection. At this signalized intersection, multiple tire skid marks on the US 93 pavement indicate that abrupt stopping movements are regular occurrences at this location. During project scoping, multiple property owners located adjacent to US 93 in the project area noted that the traffic signal at Blue Mountain Road facilitates vehicular ingress/egress at their properties because of the gaps in traffic it creates.

The crash data (five crashes during five-year period) and corresponding crash rate (0.23 crashes per million entering vehicles) at the north "Y" intersection do not indicate a safety deficiency at this location, but this intersection is perceived as hazardous by residents of the Miller Creek area who drive through it frequently. The geometric configuration of this intersection, described in Section 1.4.1, contributes to the perceived hazard at this location. According to area residents, the majority of collisions at the north "Y" intersection are not reported. Therefore, these incidents do not appear as accident statistics.

1.6 Non-Motorized Pedestrian and Bicycle Travel

The Miller Creek area is predominantly characterized by low-density residential development largely served by rural roads that are not designed to safely accommodate non-motorized travel. Miller Creek Road and Upper Miller Creek Road, the primary and most convenient access route in and out of the Miller Creek area, lack provisions for non-motorized travel, such as roadway shoulders, sidewalks or detached pathways. This lack of non-motorized facilities discourages walking or bicycling as viable means of travel between the Miller Creek area and US 93. Non-motorized travel is generally limited to internal circulation on the local roadway network serving the Miller Creek area, and nearly all trips in and out of the Miller Creek area are made by motorized vehicles. Existing and planned bicycle and pedestrian facilities in the project area are discussed in Section 3.4.4, page 3-40 and Section 3.18, page 3-88 and shown on **Figure 3-13, page 3-41.**

1.7 Public Transportation Opportunities

Public transportation in the Missoula urban area is provided by the Missoula Urban Transportation District (MUTD), also known as the "Mountain Line." The Miller Creek area is situated outside of the MUTD, and Montana state law requires a 51 percent vote of registered landowners in an area to be added in the district. The trend for MUTD is for areas to remain within the district once they are included. Three Mountain Line bus routes operate near the Miller Creek area, but none provide direct service (see Section 3.4.3 on page 3-35, Public Transportation).

In the Miller Creek area, the current development density (approximately two dwelling units per acre) is not sufficient to support cost-effective and efficient transit service. Efficient transit typically requires a large number of people within walking or bicycling distance of transit stop locations. Additionally, the existing design deficiencies (lack of shoulders) of Miller Creek Road, Upper Miller Creek Road, and the north "Y" intersection of Upper and Lower Miller Creek Roads make the facilities unacceptable for bus service operation and restrict pedestrians and bicyclists from traveling safely and conveniently between the Miller Creek area and the nearest bus stops.

1.8 Emergency Service Provider Access

A need for additional access in and out of the Miller Creek area for emergency service providers was identified in the project scoping process (see letter from City of Missoula Fire Department in **Appendix A**). According to a representative from the City of Missoula Fire Department, emergency vehicle drivers generally try to avoid the US 93/Miller Creek Road intersection. Access in and out of the project area is hampered by a frequent bottleneck condition at the US 93/Miller Creek Road intersection. Congestion at the intersection can create delays and increase response times, especially during peak traffic periods. An improved Miller Creek Road or a second access between US 93 and the Miller Creek area would reduce emergency response time for calls to the Miller Creek area and provide another route for residents needing to leave the area in case of an emergency. The new fire station within the Miller Creek area greatly enhances fire and emergency response capability within the Miller Creek area.