1.0 EXISTING TRANSPORTATION CONDITIONS

This Part examines the existing transportation facilities and services in the study area. The discussion focuses on the existing road and street network in the corridor study area and its associated characteristics. The purposes the roadways are intended to serve, their physical conditions, current traffic volumes, the performance of intersections in the corridor, and the crash history of corridor roadways are described on the following pages. This section concludes with information about other types of transportation available in Whitefish including railroad facilities; bicycle and pedestrian facilities; and transit services. This summary of existing transportation conditions provides a base of knowledge that will inform future decisions about the corridor.

1.1 US 93 and Its Adjoining Road and Street Network

US 93 (shown on **Figure 1-1**) is located in the center of the Whitefish community and serves as the primary travel route through the City for both residents and visitors. The US 93 corridor within the City is comprised of US 93 south of 13th Street, Spokane Avenue from 13th Street to 2nd Street, and 2nd Street west of Spokane Avenue. MDT owns and maintains US 93 through the City.

US 93 functions as the "backbone" of a larger road and street network in Whitefish with notable intersecting roads and streets including: JP Road, West 18th Street/Greenwood Drive, 13th Street, the street network in the City's core area, and Karrow Avenue located west of downtown. Consequently, when congestion and poor service levels occur on US 93, the effects are not just confined to the state highway system. Poor performance on US 93 translates into delays and congestion on local cross streets, ultimately affecting the efficient movement of traffic on other important local collectors and arterials. This condition is made worse by the lack of alternate and continuous north-south or east-west routes in the community.

From south of the Montana Highway 40 intersection and extending to 13th Street, US 93 transitions from a five-lane rural highway with a painted center median/two-way left turn lane to a five-lane urban roadway consisting of two travel lanes in each direction and a center two-way left turn lane. This section of US 93 serves numerous highway-oriented businesses, restaurants and motels, and the Mountain Mall. North Valley Hospital and a large condominium development are located east of US 93 and north of Montana Highway 40.

North of 13th Street, the character of US 93 changes notably as the roadway transitions to a two-lane street. This section of US 93 serves highway-oriented businesses, professional offices, a traditional residential neighborhood, and a variety of uses in downtown Whitefish. This portion of US 93 has seen little work other than periodic maintenance since being reconstructed in the 1960s.

Baker Avenue, located two blocks west of Spokane Avenue, is a parallel north-south

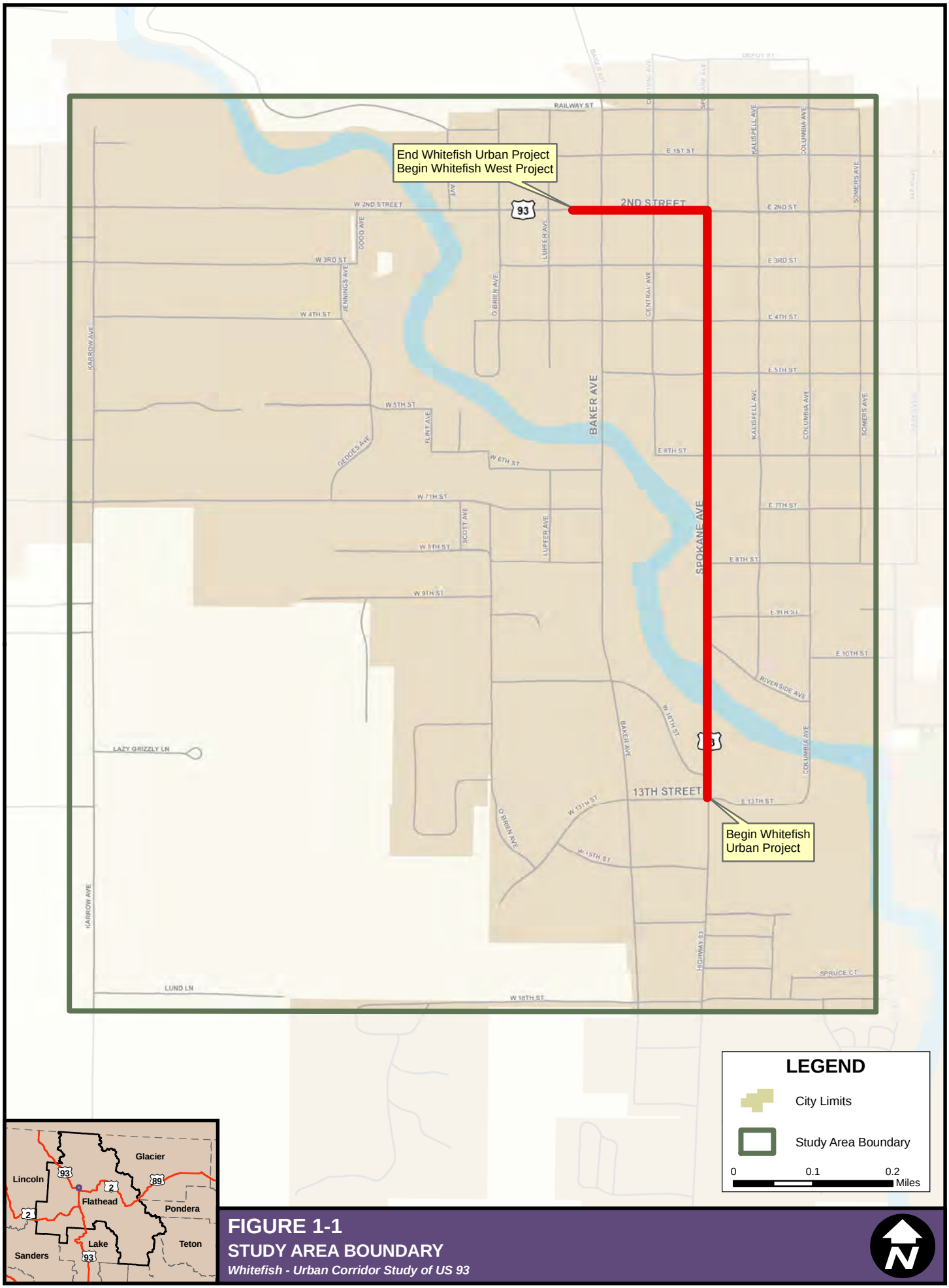


FIGURE 1-1

STUDY AREA BOUNDARY

Whitefish - Urban Corridor Study of US 93

street that extends from West 19th Street to Railway Street. Baker Avenue is of interest when considering potential configurations to accommodate US 93 traffic in downtown Whitefish because it is one of the few continuous north-to-south roadways that provides an alternate route to US 93. Baker Avenue also connects to the only grade-separated crossing of the BNSF Railway in Whitefish and links US 93 with Wisconsin Avenue, the principal route used to access Whitefish Mountain Resort.

Between 13th Street and 10th Street, Baker Avenue primarily serves commercial uses and professional offices. From 10th Street to the Whitefish River crossing, Baker Avenue serves a neighborhood consisting mostly of single family residences. North of the Whitefish River, Baker Avenue provides access to Riverside and Baker Parks and passes through the central business district before crossing over the BNSF Railway and transitioning to Wisconsin Avenue.

1.2 Functional Classification

US 93 is part of the Non-Interstate National Highway System (NHS) in Montana. The NHS consists of over 3,850 miles of the state's most important transportation routes including the Interstate highway system, other principal arterials, and other highways essential to the nation's strategic defense policy or that link military installations. US 93 links the Flathead Valley to I-90 west of Missoula and provides access to British Columbia, Canada via Eureka.

US 93 is functionally classified as a Principal Arterial. Baker Avenue is functionally classified as a Minor Arterial and portions of the route are on the state's Urban Highway System. Baker Avenue (between 2nd Street and Big Mountain Road) is designated as Urban Route U-12001. Baker Avenue between 2nd Street and 7th Street is designated as Urban Route U-12002. 13th Street is functionally classified as an Urban Collector.

Arterials provide the highest level of mobility, at the highest speed, for long uninterrupted travel. Arterials generally have higher design standards than other roads and many principal arterials have multiple lanes with some degree of access control. Principal arterials typically serve corridors with the highest traffic volume and those with the longest trip lengths. They carry most trips entering and leaving urban areas, and provide continuity for all rural arterials that intercept urban boundaries. Minor arterials provide connecting links to urban principal arterials.

Collectors provide a lower degree of mobility than arterials and are designed for travel at slower speeds and for shorter distances. In urban areas, the collector system provides traffic circulation within residential neighborhoods and commercial and industrial areas. Urban collectors also channel traffic from local roads onto the arterial system.

1.3 Existing Roadway Characteristics

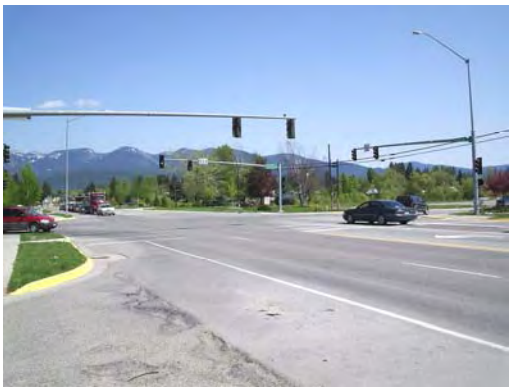
The following sections discuss the existing design configuration and other physical features of US 93 (Spokane Avenue and 2nd Street) and Baker Avenue within the corridor study area.

1.3.1 Lane Configurations and Typical Sections on US 93

South of 13th Street, US 93 has a 5-lane roadway design with curbs and gutters, four 12-foot wide through travel lanes, a 14-foot wide center two-way left turn lane, two 8-foot wide shoulders. A grassed buffer area and sidewalks parallel both sides of the highway in this area. MDT's *Montana Roadlog* shows that the roadway has a typical width of 81-feet in this area and narrows to 57 feet wide in the section where the roadway crosses the Whitefish River.

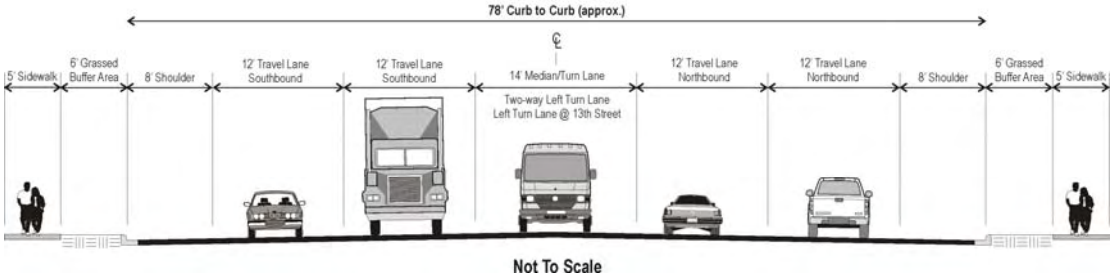
The design of this section of US 93 is illustrated in the following photograph and in **Figure 1-2**.

SPOKANE AVENUE (SOUTH OF 13TH STREET)



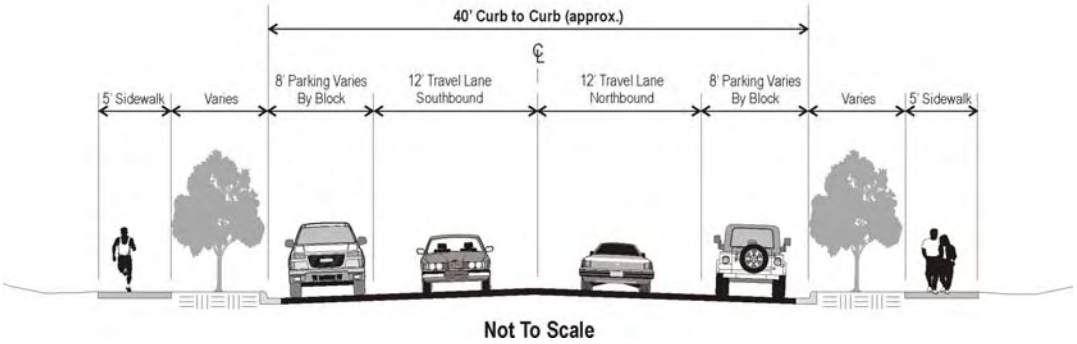
Looking north along Spokane Avenue at 13th Street

FIGURE 1-2: Typical Section - US 93 (South of 13th Street)



Spokane Avenue transitions from five-lanes to a two-lane street between 13th Street and the Whitefish River crossing. As shown in **Figure 1-3**, this section of Spokane Avenue is generally 40 feet wide and consists of two 12-foot wide driving lanes and two 8-foot wide shoulders or parking lanes. Between the Whitefish River crossing and 6th Street, a 5-foot wide sidewalk exists directly behind the curb along both sides of Spokane Avenue. Boulevards with mature trees and grass and 5-foot wide sidewalks are found along both sides of Spokane Avenue from 6th Street to 2nd Street. Bulb-outs have also been incorporated at 4th and 5th Streets to reduce crossing distances for pedestrians at these intersections.

FIGURE 1-3: Typical Section- Spokane Avenue (2nd to 6th Street)



SPOKANE AVENUE (13TH STREET TO 2ND STREET)

Looking south along Spokane Ave.near 6th Street

Looking north along Spokane Ave. at 4th Street

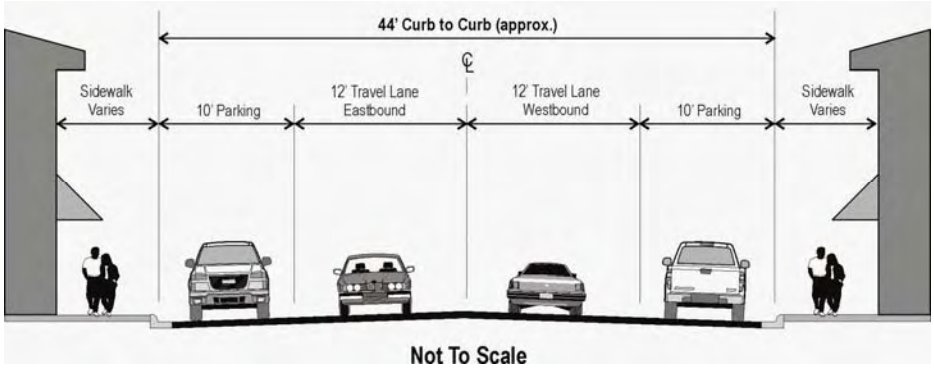
At 2nd Street, US 93 makes a 90-degree turn and continues west out of the City. West of Spokane Avenue, 2nd Street has an overall width of about 44 feet and consists of two 12-foot wide driving lanes, two 10-foot-wide parking lanes, and sidewalks directly behind the curb along each side of the street. **Figure 1-4** illustrates this design.

2ND STREET (WEST OF SPOKANE AVENUE)

Looking west from Central Avenue

Looking east near Spokane Avenue intersection

Figure 1-4: Typical Section-2nd Street (Spokane to Baker)



1.3.2 Lane Configurations and Typical Sections on Baker Avenue

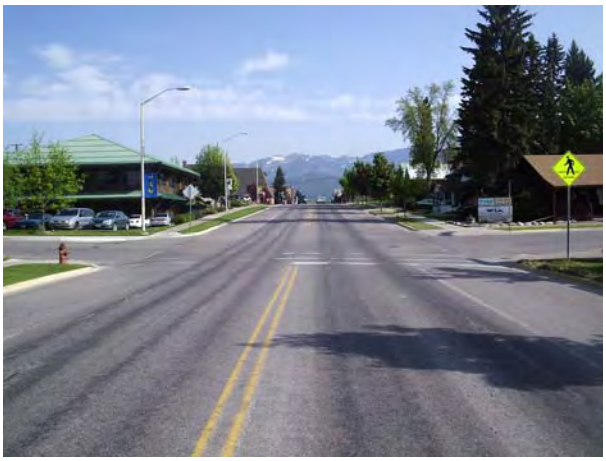
With the exception of the intersection at 2nd Street where a 12-foot wide left turn lane has been provided for northbound traffic, Baker Avenue has a two-lane configuration. The street is typically 44-feet wide (between curb faces) with two 12-foot wide travel lanes and two 10-foot wide parking lanes. A wide sidewalk immediately behind the curb has been installed along Baker Avenue between 2nd and 3rd Streets. Parking has been eliminated for a short distance on both sides of Baker Avenue south of 2nd Street to accommodate a 12-foot wide left turn lane. The north approach to the Baker Avenue and 2nd Street intersection has been configured with a 12-foot wide through-right lane for southbound traffic, a 12-foot wide left turn lane for southbound traffic, and a 12-foot wide through lane for northbound traffic. A 7.4-foot wide shoulder marked to prohibit parking exists along the west side of the street on the north approach and a 9-foot wide parking lane exists along the east side of the street.

BAKER AVENUE (SOUTH OF 2ND STREET)

Looking north along Baker Avenue from south of 2nd Street

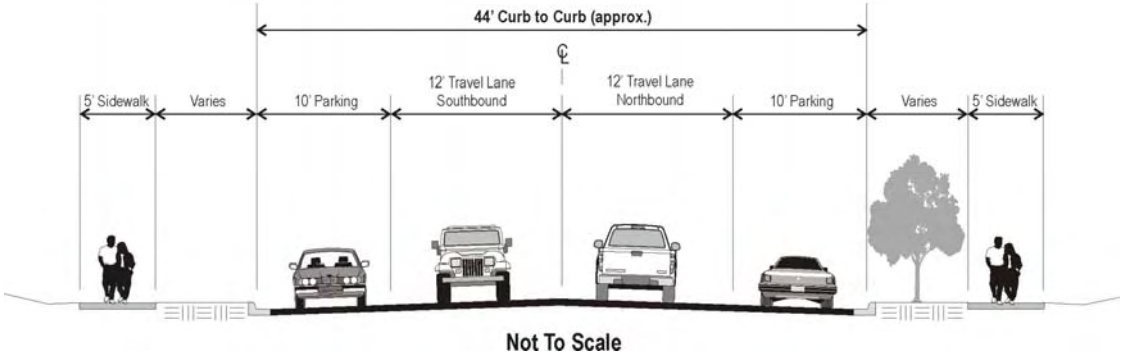
Between 3rd Street and the Whitefish River, the roadway is 44 feet wide with two 12-foot-wide driving lanes and 10-foot wide parking lanes. Landscaped buffer areas and sidewalks parallel Baker Avenue between 3rd Street and the Whitefish River. **Figure 1-5** illustrates the typical configuration of this section of Baker Avenue.

BAKER AVENUE (3RD STREET TO WHITEFISH RIVER)



Looking north on Baker Avenue near 4th Street

FIGURE 1-5: Typical Section-Baker Avenue (3rd Street to Whitefish River)



BAKER AVENUE (WHITEFISH RIVER TO 7TH STREET)

Baker Avenue narrows considerably at the bridge over the Whitefish River. Information from MDT's Bridge Management System shows the roadway on the existing bridge is only 29 feet wide. Sidewalks have been provided along both sides of the bridge to accommodate pedestrian travel and a barrier rail separates the sidewalk from the roadway. South of the bridge to 7th Street, Baker Avenue resumes a 44-foot-wide typical width but the configuration of the roadway changes. This portion of Baker Avenue has a 14-foot travel lane for southbound traffic, a 12-foot travel lane for northbound traffic, a 4-foot wide bike lane and 10-foot wide parking pullout along the east side of the street. A landscaped buffer and 5-foot wide sidewalk exists along the west side of the road and a 5-foot wide sidewalk exists immediately behind the curb on the east side of Baker in this area.

A typical section for this portion of Baker Avenue is shown in **Figure 1-6**.

Looking north on Baker Avenue at Whitefish River

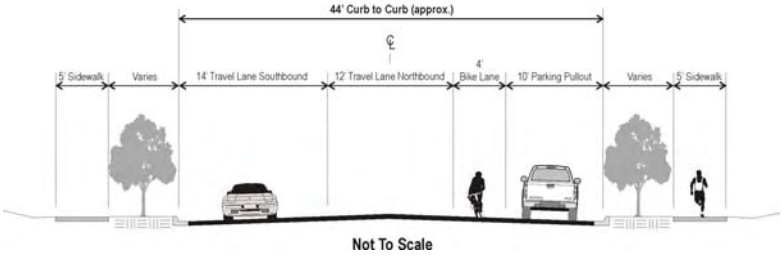
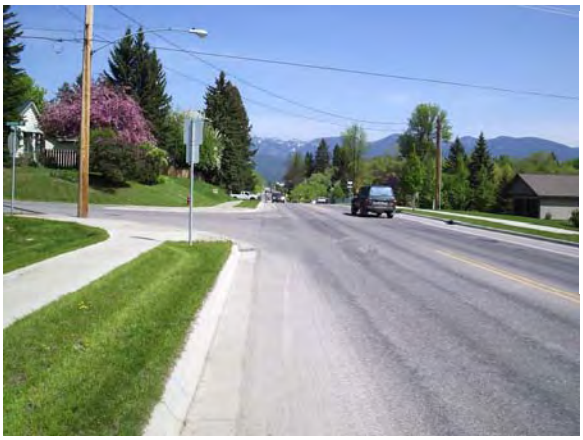


FIGURE 1-6: Typical Section-Baker Avenue (Whitefish River to 7th Street)

BAKER AVENUE (7TH TO 10TH STREET)

Between 7th Street and 10th Street, Baker Avenue is about 32 feet wide (between the curb faces) with two 12-foot wide travel lanes and 4-foot wide shoulders along both sides of the roadway. Landscaped buffers and 5-foot wide sidewalks exist along both sides of the street. On-street parking is prohibited along this section of Baker Avenue. This typical section is illustrated in **Figure 1-7**.



Looking north on Baker Avenue near 7th Street

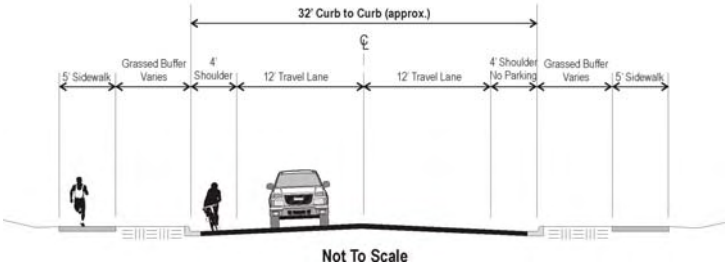
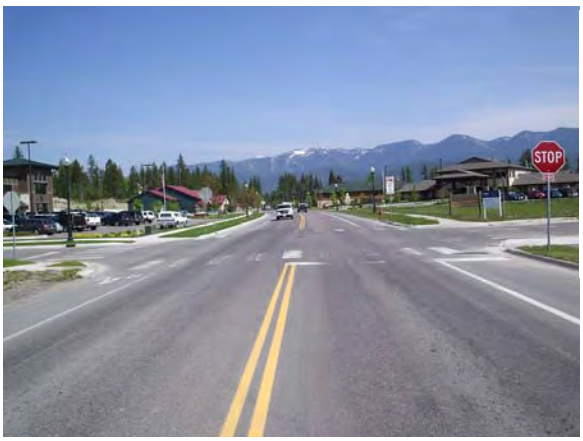


FIGURE 1-7: Typical Section-Baker Avenue (7th Street to 10th Street)

BAKER AVENUE (10TH TO 13TH STREET)

Between 10th Street and 13th Street, Baker Avenue is about 38 feet wide (between the curb faces) with two 12-foot wide travel lanes and 7-foot wide bike lanes along both sides of the roadway. Landscaped (grass) boulevards and 5-foot wide sidewalks exist along both sides of the street. On-street parking is prohibited along this section of Baker Avenue. **Figure 1-8** shows Baker Avenue's configuration in this area.



Looking north on Baker Avenue at 13th Street

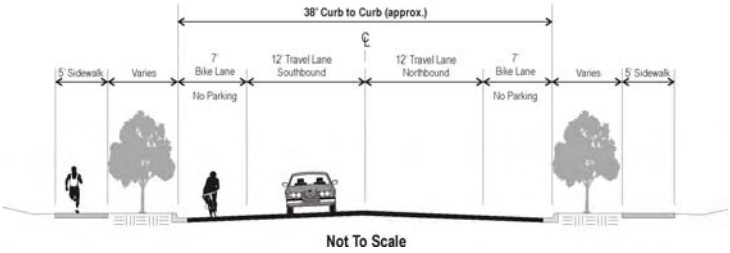


FIGURE 1-8: Typical Section-Baker Avenue (10th Street to 13th Street)

1.3.3 Posted Speeds

According to Section 6-1-5 Paragraph C.3 of the Whitefish City Code, the speed limit on all through streets and arterial highways is typically 35 miles per hour. However, this speed limit has been adjusted for US 93 through the city center. A speed limit of 25 miles per hour has been established for Spokane Avenue between 2nd Street and the south bank of the Whitefish River and on 2nd Street between Spokane Avenue and a point 100 feet west of the Whitefish River.

The posted speed limit on Baker Avenue is typically 25 miles per hour.

There are no designated school zones on US 93 or on Baker Avenue. However, a designated school zone with a 15 mph speed limit exists on 2nd Street adjacent to Central School (located east of Spokane Avenue).

1.3.4 Intersections/Roadway Geometry

Side streets joining Spokane Avenue, 2nd Street, and Baker Avenue within the corridor are typically perpendicular to the major roadways and form standard three-legged ("T") intersections or four-legged intersections. Riverside Avenue, located just north of the Whitefish River, joins Spokane Avenue in a skewed configuration.

Spokane Avenue and 2nd Street are located in level terrain and these streets have only minor variations in vertical alignment. A slight grade exists on Baker Avenue south of 3rd Street as the elevation of the roadway falls toward the Whitefish River. The gently rolling to level terrain along Baker Avenue between the Whitefish River and 13th Street West has resulted in minor variations in the vertical alignment of the roadway.

1.3.5 Traffic Controls and Turning Lanes

Currently, there are eight signalized intersections in the Whitefish area and four of the signals are located within the Whitefish Urban corridor at the following locations:

- Spokane Avenue and 13th Street
- Spokane Avenue and 2nd Street
- 2nd Street/Central Avenue
- 2nd Street/Baker Avenue

All of these traffic signals are owned and operated by MDT and are pre-timed—meaning they operate with fixed cycle lengths and assign rights-of-way to traffic movements according to a predetermined timing schedule for all or parts of the day. Pre-timed signals do not adjust to traffic flows and their operation sometimes leads to congestion if unusual traffic patterns develop or if there are major fluctuations in traffic demand on various approaches.

Other roads adjoining Spokane Avenue and Baker Avenue are controlled by stop signs. All-way stop control exists at the intersection of Baker Avenue and 13th Street. However, the City of Whitefish has identified this intersection as a likely location for a future traffic signal.

Few dedicated left or right turn lanes exist on Spokane Avenue, 2nd Street, and Baker Avenue within the corridor. The intersection of Spokane Avenue and 13th Street was reconstructed and improved to include designated left turn lanes on all four approaches.

A left turn lane exists on the east approach and a right turn lane has been installed on the north approach at the intersection of Spokane Avenue and 2nd Street. There are no other dedicated left or right turn lanes on 2nd Street within the corridor.

The intersection of Baker Avenue and 2nd Street has been modified to include a left turn lane and a shared through-right turn lane on the north approach.

1.3.6 Right-of-Way

The majority of the right-of-way for Spokane Avenue, 2nd Street, and Baker Avenue is 70 feet wide. The right-of-way corridor for Spokane Avenue south of 13th Street was expanded to accommodate road widening during previous reconstruction on US 93. In the vicinity of 13th Street, the right-of-way for Spokane Avenue ranges in width from 185 feet to 235 feet.

1.3.7 Bridges

There are no bridges on Spokane Avenue or 2nd Street within the Whitefish Urban study area corridor. Spokane Avenue crosses the Whitefish River between 13th Street and Riverside Avenue; however, this road crossing is accommodated in three large-diameter culverts. Bridges over the Whitefish River exist on 2nd Street west of the downtown area (in MDT's Whitefish-West project area) and on Baker Avenue between 5th and 6th Streets. The bridge on Baker Avenue (constructed in 1977) is a single span structure of about 100 feet in length and accommodates a 29 foot-wide roadway.

1.3.8 Corridor Street Lighting

Overhead street lighting exists along both Spokane Avenue and 2nd Street. Ornamental lighting fixtures have been added along the west side of Spokane Avenue between 4th and 3rd Streets. Ornamental lighting fixtures exist along Baker Avenue between the Whitefish River and 13th Street.

1.3.9 Corridor Utilities

Water and Sewer Infrastructure. City of Whitefish water and sewer infrastructure is extensive within the corridor study area. Municipal water and/or sewer lines exist beneath portions of Spokane Avenue, 2nd Street and Baker Avenue and cross these streets at numerous locations. Reconstruction along the existing US 93 corridor or Baker Street could conflict with municipal water or sewer lines at the following locations:

Spokane Avenue

- 6″ diameter water line (from south of 13th Street to Riverside Avenue)
- 8″/12″ diameter water line (from south of 13th Street to Riverside Avenue)
- 6″ diameter water line (from Riverside Avenue to 7th Street)
- 6″ diameter water line (from 7th Street to 2nd Street)
- 27″ diameter sewer outfall (parallels Spokane Avenue at 7th Street and crosses Spokane south of Riverside Avenue)
- Sewer line crossings at 13th Street, 5th Street, and between 3rd and 4th Streets

2nd Street

- 10″/12″ diameter water line (from Spokane Avenue to Lupfer Avenue)
- Sewer line crossings between Spokane and Central Avenues, between Central and Baker avenues, and at Lupfer Avenue

Baker Avenue

- 12″ diameter water line (from Spokane Avenue south of 13th Street)
- 27″ diameter sewer outfall crossing between 5th Street and Whitefish River
- 8″ diameter sewer line (from just south of Whitefish River to north of 10th Street)
- 8″ diameter sewer line (from 10th Street to south of 13th Street)
- Sewer line crossings at 4th Street, just south of Whitefish River, and at 13th Street

It is also likely that individual water or sewer service lines at numerous locations could be affected by highway reconstruction activities.

The City of Whitefish's *Capital Improvement Plan 2007/08 – 2011/12* has identified the need for upgrades to the gravity sewer system on Spokane Avenue north of 13th Street and on 2nd Street west of Spokane Avenue. The City could upgrade the sewer lines in conjunction with future improvements to US 93.

Storm Drainage Facilities. Curbs and gutters and storm drainage facilities exist along Spokane Avenue, 2nd Street, and Baker Avenue.

Other Utilities. Overhead power lines, overhead and underground telephone cables and fiber optic lines, and underground natural gas distribution lines cross or exist adjacent to the Spokane Avenue, 2nd Street and Baker Avenue. Some of these utilities may be in conflict with future improvements to the US 93 corridor.

1.3.10 Approaches and Access Control

Commercial properties located adjacent to Spokane Avenue between 13th and 6th Streets are typically served by one or two approaches. Newer commercial developments, such as several motels located along the west side of Spokane Avenue, are typically served by only one access point. Multiple or wide driveway approaches are found at business locations along the east side of Spokane between Riverside Avenue and 8th Street.

In general, the narrow lot configuration in the established residential neighborhood along Spokane between 6th and 2nd Streets is not conducive to individual driveway approaches. With only a few exceptions, property access is generally from alleys or side streets only in this area. Commercial uses have evolved on some of the blocks adjoining Spokane Avenue in central Whitefish and driveway approaches have been developed to serve off-street parking lots associated with businesses.

Lot configurations and the presence of on-street parking have limited the number of driveway approaches along 2nd Street between Spokane and Baker Avenues.

Access is currently unrestricted along Spokane Avenue, 2nd Street, or Baker Avenue within the area under evaluation for this study. MDT has a System Impact Action Process (SIAP) in place to review and evaluate the potential impacts of non-MDT initiated projects that may substantially and permanently affect the use, capacity, and safety of state-maintained highways. This review process allows MDT to coordinate between local land use agencies, private developers, and/or other governmental agencies when considering requests for access to the state transportation system.

1.4 Current Traffic Operations

Traffic operations are variable within the corridor study area. US 93 south of 13th Street is a suburban arterial with a 45 mile per hour speed limit. This section of US 93 was rebuilt in accordance to the ROD for the US Highway 93 Somers to Whitefish West EIS and includes four travel lanes, medians, turn lanes, improved signalization and restructured access to the highway.

North of 13th Street, US 93 serves older highway commercial areas, traditional residential neighborhoods, and the city's central business district. As expected, these two-lane streets have a different character and operating conditions than US 93 south of 13th Street.

Baker Avenue fulfills several functions between 2nd Street and 13th Street. Baker Avenue serves the downtown core area between 2nd Street and 5th Street, city parks and residential areas between 5th and 10th Streets, and a developing area with new commercial and office uses along 13th Street.

Information about existing traffic conditions on Spokane Avenue, 2nd Street, and Baker Avenue follows including a discussion of current traffic volumes, the level of service (LOS) associated with these traffic volumes, and other operating characteristics.

1.4.1 Current Traffic Volumes on US 93

Traffic has been continuously monitored by MDT at several permanent count locations within the Flathead Valley since the early 1980s. However, the nearest automatic traffic recorders are on US 2 near Kalispell (ATR Station A-24) and on US 2 east of Columbia Falls (ATR Station A-60). Station A-24 is representative of urban traffic on a Principal Arterial roadway similar to US 93. Although the counter does not represent traffic conditions within Whitefish, they do provide an indication of long term traffic growth trends in the Flathead Valley.

Historical traffic count data from MDT's *Montana's Automatic Traffic Recorders 2007* shows an increase in the annual average daily traffic (AADT) at the recording site of more than 60% over the 1991 to 2007 period and an increase in AADT volumes of about 25% between 2000 and 2007. Data for 2008 shows the AADT at this count station was about 7% lower than the 2007 AADT for this count station. However, the long-term AADT data shows

traffic volumes at this Flathead Valley location have increased by 3 to 4% per year over most of the last two decades.

MDT's annual "Traffic by Section" publications do provide a long term record of traffic volumes on US 93 in the Whitefish area. The AADT data provided in the publications were developed from short-term periodic traffic counts conducted by MDT. Data collected over the 2000 to 2007 period shows traffic volumes on US 93 have increased by nearly 6% on US 93 south of 13th Street, held steady or shown minor increases through the downtown area of Whitefish, and increased by more than 4% on US 93 between Baker and Karrow Avenues.

Traffic volumes on US 93 and other corridor roadways have steadily increased over the last decade. Recent (2007 and 2008) AADT volumes on corridor roadways are shown below:

- US 93 (south of 13th Street) – 18,000 to 22,000 vehicles
- Spokane Avenue (between 2nd and 13th Streets) – 8,000 to 15,000 vehicles
- 2nd Street (between Spokane and Baker Avenues) – 8,000 to 10,000 vehicles
- Baker Avenue (between 2nd and 13th Streets) – 9,000 to 13,000 vehicles

A traffic model was developed for the Whitefish Transportation Plan to represent current and future travel based on existing and anticipated housing and employment within the community. With the model, it was possible to estimate daily traffic volumes on all major roads and illustrate the distribution of traffic on the road system in the Whitefish area. **Figure 1-9** shows current (2003) daily traffic volumes on US 93 and other major streets within the corridor study area as determined by the traffic model. It should be noted that the modeled volumes are representative of current facility use but they may not match actual traffic volume data on the roadways.

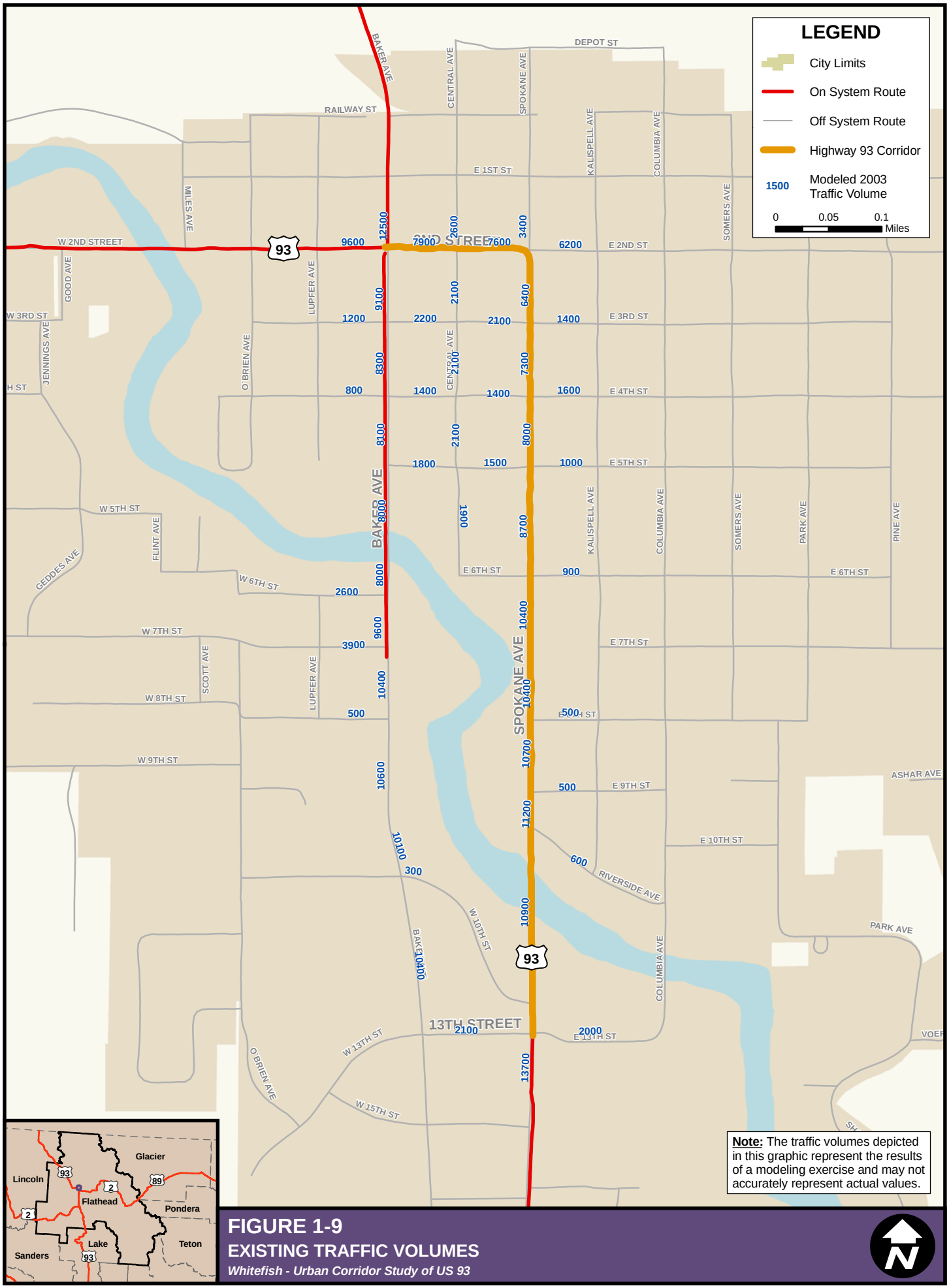


FIGURE 1-9

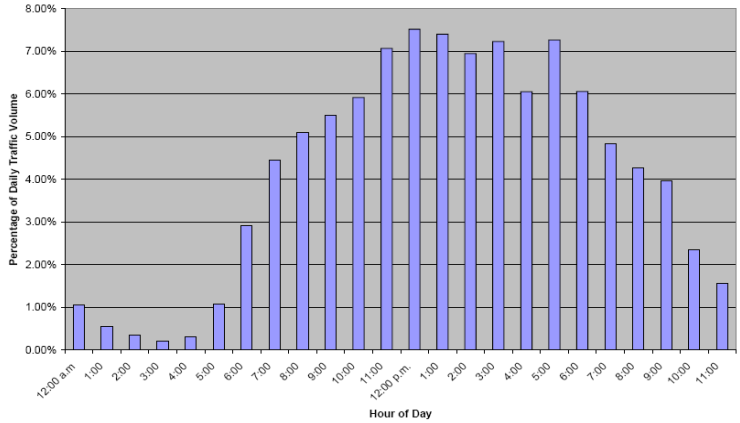
EXISTING TRAFFIC VOLUMES

Whitefish - Urban Corridor Study of US 93

1.4.2 Hourly Variations in Traffic on the US 93 Corridor

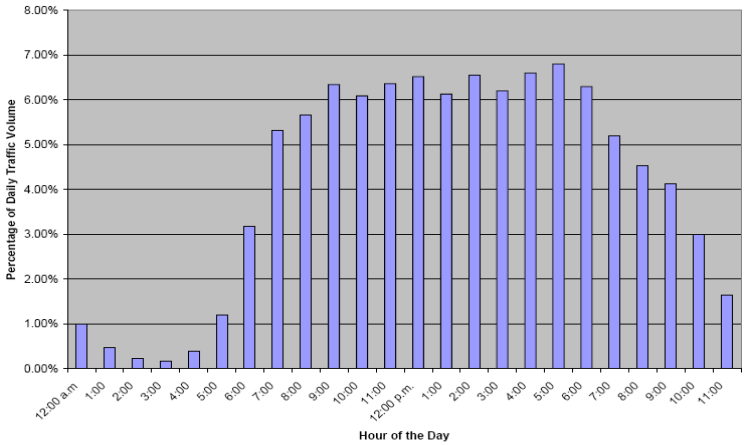
The lack of a continuously recording traffic counter on the US 93 corridor in Whitefish means that trends in traffic must be identified based on short-term counts at spot locations. Traffic volume data collected during August 2003 at two intersections on the US 93 corridor was reviewed to identify trends in hourly traffic variations in Whitefish. Hourly traffic volumes (expressed as a percentage of the total daily volume) at each intersection is presented below in **Figure 1-10**.

Figure 1-10: Hourly Variations in Traffic Volumes within the Corridor



Spokane Avenue/13th Street

Data collected by WGM Group, Inc. in August 2003



2nd Street/Baker Avenue

Data collected by WGM Group, Inc. in August 2003

The traffic volume data for Spokane Avenue and 13th Street shows a peak travel period occurring between 11:00 a.m. to 6:00 p.m. with traffic volumes during each hour typically exceeding 7% of the total daily traffic at the intersection during this 7-hour long period. Data for the 2nd Street and Baker Avenue intersection shows a much longer sustained peak travel period—extending from 9:00 a.m. to 7:00 p.m. Traffic volumes during each hour of this 10-hour long period exceeded 6% of the total daily traffic at the intersection.

Intersection turning movement counts conducted along Spokane Avenue, 2nd Street, and Baker Avenue during 2007 showed that morning (AM) peak hours typically began

between 7:30 and 8:00 a.m. and afternoon (PM) peak hours typically began between 4:30 and 5:00 p.m.

1.4.3 Seasonal Variations in Traffic

The lack of a permanent traffic counter and relevant previous traffic counts within Whitefish (and particularly the corridor study area) makes quantifying seasonal variations in traffic volumes difficult. However, it is recognized that seasonal variations in traffic do occur in the community.

MDT's automatic traffic recorders—ATR Station A-24 near Kalispell and ATR Station A-60 east of Columbia Falls—provide a general indication of seasonal variations in traffic in the Flathead Valley.

Data for 2008 from these stations show that traffic volumes are typically highest from May through September and traffic volumes during peak months (July and August) may be significantly higher than the AADT for the year. During 2008, ATR Station A-24 showed traffic volumes during July (the peak month) that were 13% above the AADT for this station. Due to the recreational traffic on US 2, ATR Station A-60 showed July traffic volumes that were 85% higher than the AADT for the station. As expected, travel was lowest during the winter months at both these stations. In 2008, traffic volumes at the ATR Station near Kalispell during January were about 87% of the AADT. January 2008 traffic volumes were only about 56% of the AADT at ATR Station east of Columbia Falls.

1.4.4 Vehicle Classifications/Trucks

Comments heard during the development of this corridor study indicate trucks on US 93 affect traffic operations and safety along the route and conflict with local desires for the redevelopment of downtown Whitefish.

MDT's Road Design Manual defines a truck as "a heavy vehicle engaged primarily in the transport of goods and materials, or in the delivery of services other than public transportation. For geometric design and capacity analyses, trucks are defined as vehicles with six or more tires." MDT's vehicle classification standards also categorize commercial vehicles by types as either Small Trucks or Large Trucks. Small Trucks are single-unit vehicles (Type 5, 6, or 7 Vehicles) with two to six axles. MDT's vehicle classification standards identify Large Trucks (Type 8 through 13 Vehicles) as tractor-trailer combinations with various numbers of axles.

WGM Group completed a series of manual counts and quantified truck traffic at 13 intersections along Spokane Avenue, 2nd Street, and Baker Avenue during August 2003. For the purposes of these counts, vehicles the size of a typical UPS delivery vehicle and larger were identified as "trucks" during WGM's counts. A typical UPS delivery vehicle is a 2-axle single-unit vehicle with six tires and is a Type 5 Commercial Vehicle within the Small Truck category according to MDT's standards. While WGM's data does not provide information on each type of vehicle associated with MDT's Small Truck and

Large Truck categories, the data is indicative of the overall amount of commercial vehicle traffic on US 93 at the time of the counts.

WGM's counts yielded data on the percentage of trucks observed during the AM peak hour (typically between 7:00 and 9:00 AM) and PM peak hour (typically between 4:00 and 6:00 PM) at each intersection. The percentages of trucks present during peak hour traffic were examined at four representative intersections in the corridor study area including Spokane Avenue and 13th Street, Spokane Avenue and 2nd Street, 2nd Street and Baker Avenue, and Baker Avenue and 5th Street. The results of these truck counts are provided in **Table 1-1**. As the table shows, trucks comprised between 7.7% and 9.4% of all vehicles counted at key intersections along the US 93 corridor during the AM peak hour and between 2.4% and 4.1% of all vehicles counted during the PM peak hour.

It should be noted that these truck counts were taken during a time when construction and development in the Whitefish area was at or near peak levels. These percentages may not accurately reflect current conditions due to the slowdown in development that has and is occurring in the area.

Table 1-1: Truck Percentages at Selected Intersections in the Corridor

Location	AM Peak Hour	PM Peak Hour
Spokane Avenue/13th Street		
Peak Hour Volume	936	1443
Number of Trucks	82	52
% Trucks in Peak Hour	**8.8%**	**3.6%**
Spokane Avenue/2nd Street		
Peak Hour Volume	668	1145
Number of Trucks	63	47
% Trucks in Peak Hour	**9.4%**	**4.1%**
2nd Street/Baker Avenue		
Peak Hour Volume	1300	1779
Number of Trucks	100	43
% Trucks in Peak Hour	**7.7%**	**2.4%**
Baker Avenue/5th Street		
Peak Hour Volume	732	1087
Number of Trucks	31	20
% Trucks in Peak Hour	**4.2%**	**1.8%**

Source: WGM Group, Inc. traffic counts during August 2003. Vehicles the size of a typical UPS delivery vehicle and larger were identified as "trucks" during WGM's traffic counts.

The presence of trucks occasionally inhibits traffic flows on US 93 and affects traffic operations at signalized intersections in the downtown area. At various times during the

day, it is not uncommon for just a few large commercial vehicles waiting at traffic signals to consume much of the available queuing space for vehicles on 2nd Street between Spokane and Baker Avenues.

1.4.5 Existing Intersection Levels of Service

Urban road systems are ultimately controlled by the operation of their major intersections. Poor operating conditions reduce the number of vehicles that can pass through intersections during peak travel hours and limit a roadway corridor's overall ability to accommodate traffic each day. The Level of Service (LOS) is often used as an indicator of the operating conditions at intersections.

Level of Service (LOS) is a performance measure developed by the transportation profession to account for such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles. It provides a "report card" type rating scale corresponding to the operation of the intersection and how it accommodates the amount of traffic using it. LOS A, B, and C represent conditions where traffic moves without significant delays during peak travel hours. Level of Service D and E suggest deteriorating operating conditions and increased delays. Level of Service F represents conditions where significant vehicle delays and congestion occur.

Traffic engineers conduct LOS analyses for both signalized and unsignalized intersections. At signalized intersections, the LOS rating is based on the average delay of all movements. At side-street stop-controlled intersections, the LOS rating is based on the average delay of the worst movement; typically a left turn from the stop-controlled street. For this reason, even though the traffic on the major street (such as Spokane or Baker Avenues) may not be delayed, the intersection may be assigned a poor LOS because entering or crossing traffic from the side streets experience lengthy delays. For all-way stop-controlled intersections (like the intersection of Baker Avenue and 13th Street), the LOS rating is based on the average delay experienced on all movements. Intersections with short average delays have a high LOS; conversely, intersections with long average delays have a low LOS.

LOS characteristics are different for signalized and unsignalized intersections. Drivers anticipate longer delays at signalized intersections that carry large amounts of traffic and generally expect unsignalized intersections to have less delay. Additionally, several driver behavior considerations combine to make delays at unsignalized intersections less desirable than at signalized intersections. For example, drivers at signalized intersections are able to relax during the red phase, whereas drivers on the minor approaches at an unsignalized intersection must remain attentive to identify acceptable gaps and make their desired traffic movement.

Applicable MDT Operating Standards. MDT's Traffic Engineering Manual indicates the highway mainline or intersections should be designed to accommodate a selected design hourly volume at a specified LOS. MDT's operational standards for urban roadways and intersections are shown below in **Table 1-2**. These operating standards

apply to US 93 within the corridor study area and to the portion of Baker Avenue on the state highway system.

MDT's operating standards only specify a minimum or desirable LOS based on various typical roadway lane configurations (2-lane, 4-lane, and multi-lane facilities with or without curbs) and design speeds. Note that design speed is a selected speed used to determine the various geometric design features of the roadway and does not mean the same as operating speed or the posted speed. The desirable and minimum LOS represents anticipated operations under design year traffic volumes—typically 20 years into the future. MDT generally strives to provide arterial roadways that operate at LOS C or higher in the design year.

Table 1-2: MDT Operational Standards for Urban Roadways and Intersections

Urban Principal Arterials (NHS-Non-Interstate) **Spokane Avenue/2nd Street**	**2-Lane**		**4-Lane**	
	Curbed	Uncurbed	Curbed	Uncurbed
Design Speed	40-45 mph	40-50 mph	40-45 mph	40-55 mph
Design Year Level of Service*	Desirable: **B** Minimum: **C**		Desirable: **B** Minimum: **C**	
Urban Minor Arterials (Non NHS) **Baker Avenue**	**2-Lane**		**Multi-lane**	
	Curbed	Uncurbed	Curbed	Uncurbed
Design Speed	35 mph	35 mph	35 mph	35 mph
Design Year Level of Service*	Desirable: **B** Minimum: **C**		Desirable: **B** Minimum: **C**	
Urban Collectors (Non NHS)	Curbed		Uncurbed	
Design Speed	30 mph		30 mph	
Design Year Level of Service*	Desirable: **C** Minimum: **D**			

Source: Montana Department of Transportation, Road Design Manual, Chapter Twelve-Geometric Design Tables, Figures 12-7, 12-8 and 12-9, December 2004.

Applicable City of Whitefish Operating Standards. The Whitefish City-County Growth Policy includes a goal under its Transportation element indicating a local desire to "provide an efficient and effective transportation system to serve the present and future needs of the Whitefish area." However, the City has not developed policies that specify desirable or minimum LOS standards for road development.

Current Levels of Service at Corridor Intersections. During the spring and summer of 2007, signalized intersections and high-volume unsignalized intersections on US 93 and Baker Avenue were counted to generate traffic data for LOS analyses. Each intersection was counted from 7:00 to 9:00 AM and from 4:00 to 6:00 PM in an effort to capture morning and evening peak hour volumes at the intersections. Additionally, peak hour traffic information from previous projects were obtained for two other stop controlled intersections on Baker Avenue and used for the LOS analysis.

Based on the intersection traffic data collected in 2007, the LOS for each of the identified intersections within the corridor was calculated using Highway Capacity Software.

Table 1-3 shows the AM and PM peak hour LOS for each individual leg of the signalized intersections evaluated based on count information collected in 2007, and an overall LOS for the entire intersection. Individual legs of intersections or intersections that operate at LOS D or below are highlighted in **Table 1-3**. LOS D or lower is indicative of intersections where geometric changes or operational improvements may be warranted.

The LOS analyses suggest that the intersections of Spokane Avenue and 2nd Street and 2nd Street and Baker Avenue currently operate at LOS F and LOS E, respectively during the PM peak hour. These intersections also have individual legs that operate a LOS D during the AM peak hour. The analyses showed the southbound leg of the intersection of 13th Street and Spokane Avenue operates poorly during the PM peak hour.

Table 1-3: Peak Hour LOS for Signalized Intersections in the Corridor

2007 AM Peak LOS					
Intersection	**EB**	**WB**	**NB**	**SB**	**Overall**
Spokane Avenue & 13th Street	C	C	B	C	C
Spokane Avenue & 2nd Street	B	B	D	B	C
Central Avenue & 2nd Street	B	C	A	A	B
Baker Avenue & 2nd Street	D	C	A	B	C
2007 PM Peak LOS					
Intersection	**EB**	**WB**	**NB**	**SB**	**Overall**
Spokane Avenue & 13th Street	C	C	B	D	C
Spokane Avenue & 2nd Street	B	B	F	C	F
Central Avenue & 2nd Street	C	C	A	A	C
Baker Avenue & 2nd Street	F	D	B	B	E

Table 1-4 presents the results of the LOS analyses for unsignalized (stop-controlled) intersections along the US 93 corridor and Baker Avenue where traffic data was collected in 2007. Please note that turning movement counts were not performed at every intersection along Spokane Avenue or Baker Avenue during 2007, so LOS analyses were not performed for all unsignalized intersections along these roadways.

The table shows two stop-controlled intersections—Spokane Avenue and 5th Street and Baker Avenue and 4th Street—currently operate at LOS D during the PM peak hour based on the 2007 traffic count data. The poor overall peak hour LOS shown at these unsignalized intersections is the result of at least one of the movements at each intersection operating with significant vehicle delays and does not necessarily mean that the operations of the entire intersection are poor. Analyses suggest the major roadways (Spokane and Baker Avenues) generally operate at an acceptable LOS during the peak hour.

Table 1-4: Peak Hour LOS for Unsignalized Intersections on US 93 and Baker Avenue

2007 LOS (Stop-Controlled Intersections)					
Intersection	AM	PM	Intersection	AM	PM
Spokane Avenue & 1st Street	A	A	Baker Avenue & 4th Street	B	D
Spokane Avenue & 4th Street	C	C	Baker Avenue & 5th Street	B	C
Spokane Avenue & 5th Street	C	D	Baker Avenue & 7th Street	B	C
			Baker Avenue & 10th Street*	B	B
			Baker Avenue & 13th Street*	B	C

* intersection not counted by RPA

1.4.6 Corridor Capacity

Assessing the capacity of a road segments within a corridor can provide important information about the ability of existing facilities to accommodate present and future traffic volumes. The capacity of a road is a function of a number of factors including:

- the operation intersections along the corridor;
- adjacent land uses;
- side approaches and intersection spacing;
- road alignment and grade;
- speed;
- turning movements;
- the types of vehicles using the road; and
- the planning and maintenance devoted to the associated street network.

As traffic volumes increase, vehicle flows deteriorate and delays increase. When traffic volumes approach and exceed the available capacity, roadway operations begin to fail and service levels drop.

The number of lanes on the roadway may be indicative of its available capacity. In general, two-lane roads can accommodate up to 12,000 vehicles per day, three-lane roads can carry between 12,000 and 18,000 vehicles per day, and four-lane roads can handle between 18,000 and 24,000 vehicles per day. Five lanes or more are typically required for volumes over 24,000 vehicles per day.

The Volume to Capacity (v/c) ratio is a statistic that can indicate whether a roadway segment has an adequate numbers of travel lanes for the traffic volumes using the facility. If traffic volumes exceed capacity, congestion will occur and facility users experience increased vehicle delays and a decreased LOS. High v/c ratios are indicative of roadway segments unable to adequately accommodate traffic flows and poor operating conditions. Roadways with v/c ratios of 0.8 may operate at or near capacity and at a poor LOS (LOS D and LOS E). Ratios of 1.0 or more suggest the road may be over capacity and operating at LOS F.

The travel demand model developed for the Whitefish Transportation Plan provides traffic volume data that can be used together with information about existing lane configurations to identify corridor locations with capacity concerns. Through this analysis, the following roadway sections may be approaching capacity or over capacity and operating at a poor LOS during peak hours:

- Spokane Avenue between Riverside Avenue and 1st Street,
- 2nd Street west of Baker Avenue,
- Baker Avenue north of 2nd Street, and
- Baker Avenue between 6th and 13th Streets.

1.5 Safety Analysis

1.5.1 Recent Crash Data for the Corridor

Crash data for a three-year time period from October 1, 2003 to September 30, 2006 was obtained from the MDT Traffic and Safety Bureau to identify areas of traffic safety concern and help assess the overall safety performance of the US 93 corridor and adjoining streets. Over the three-year period examined, 84 crashes were reported along Spokane Avenue and 2nd Street between 13th Street and Baker Avenue and 24 crashes occurred along Baker Avenue between 2nd Avenue and 13th Street. An analysis of the crash data for the three-year period revealed the following information:

- No fatalities occurred as a result of the crashes along the US 93 corridor or on Baker Avenue; however, 20 of the reported crashes along Spokane Avenue and 2nd Street and 8 of the crashes along Baker Avenue resulted in injuries or possible injuries.

- Nearly 90% of the reported crashes involved two or more vehicles with the most common crashes being rear-end collisions (51%), right-turn/angle collisions (22%), sideswipe collisions (8%) and left turn collisions (8%).

- About one-fourth of the crashes recorded on Spokane Avenue and 2nd Street during the three-year period occurred during hours of darkness or low light conditions. About 29% of the reported collisions on Baker Avenue during the study period occurred at dawn, dusk or at night.

- About one-fourth of the crashes along the US 93 corridor and on Baker Avenue occurred on wet, icy, or snowy road surfaces.

- Almost 87% of the reported crashes on Spokane Avenue and 2nd Street were attributed to intersections along the corridor. Six intersections had 5 or more reported crashes during the study period including:

    - Spokane Avenue and 13th Street (17 crashes);
    - Spokane Avenue and 4th Street (8 crashes);

- Spokane Avenue and 3rd Street (7 crashes);
- Spokane Avenue and 2nd Street (11 crashes);
- 2nd Street and Central Avenue (5 crashes); and
- 2nd Street and Baker Avenue (14 crashes).

- Fifteen (15) of the 24 crashes on Baker Avenue between 2nd and 13th Streets during the three-year study period occurred at intersections along the corridor. Thirteen (13) crashes were reported at the intersection of Baker Avenue and 13th Street and 3 each occurred at Baker Avenue's intersections with 4th Street and 10th Street.

In an effort to better understand the crash history at intersections along US 93 and on Baker Avenue, additional data for those locations with five or more crashes during the three-year study period were analyzed. This analysis considered crash types, road surface and light conditions, information about the intent of motorists involved in crashes, direction of travel, vehicles involved, and contributing circumstances to each crash. The evaluation of crash types and other contributing factors helps determine the primary causes for the crashes and may be indicative of possible engineering solutions needed to reduce certain crashes.

The predominant crash type at the intersections along the US 93 corridor examined in detail was rear-end collisions followed by right-turn and right angle collisions, left turn collisions, sideswipes, and collisions with fixed objects. Most of these collision types are characteristic of roadways experiencing periods of traffic congestion. Rear-end collisions are often the result of sudden and unexpected slowing or stopping coupled with inadequate following distance. The lengthy queues of vehicles stopped at signalized intersections along Spokane Avenue and 2nd Street are likely contributing factors to rear-end collisions along US 93.

Crashes involving left or right-turning vehicles and right angle collisions are often the result of drivers misjudging the speed and/or distance of oncoming traffic and mistakenly turning in front of or into an oncoming vehicle. Due to the high traffic volumes on US 93 during portions of the day, drivers attempting to enter or cross traffic on Spokane Avenue from side streets may sometimes become impatient and cause conflicts with approaching vehicles.

Sideswipe collisions within the corridor may suggest the need for improved centerline or lane markings. They may also be reflective of a narrow roadway, particularly in areas of the corridor where parking exists along both sides of the street.

The fixed object collisions recorded at the intersections of Spokane Avenue and 2nd Street and 2nd Street and Baker Avenue, suggests the need for geometric modifications to increase turning radii at these intersections for large vehicles.

1.5.2 Severity Index Ratings and Crash Rates

Severity index ratings and crash rates were calculated for the intersections along Spokane Avenue, 2nd Street, and Baker Avenue where 3 or more crashes were recorded during the study period. These measures (along with the total number of crashes recorded) can indicate the need for safety improvements by allowing the severity and frequency of crashes at corridor intersections to be compared with other locations.

Severity Index Ratings. The severity index rating is a measure used by MDT that considers three categories of severity resulting from crashes—property damage only (PDO), non-incapacitating injuries, and incapacitating injuries or fatalities. MDT developed a weighted formula that considers the total number of crashes by severity type and the total crashes occurring at a location to determine a severity index rating. Crashes resulting in injuries or fatalities are weighted more than crashes resulting in only property damage. A location where all crashes resulted in property damage but no injuries would have a severity index rating of 1.00. Locations where crashes resulted in injuries would have index ratings above 1.00.

The three intersections along US 93 with the highest severity index ratings during the study period were Spokane Avenue and 3rd Street (1.86), Spokane Avenue and 13th Street (1.82), and Spokane Avenue and 4th Street. These severity ratings are not abnormally high or indicative of critical safety concerns when compared to other locations on the state highway system.

The only intersections along Baker Avenue with 3 or more crashes and severity index ratings higher than 1.00 were at Baker Avenue and 3rd Street (3.00) and Baker Avenue and 13th Street (1.33). It should be noted the severity index rating for intersection of Baker Avenue and 3rd Street is the result of only 3 crashes at the location with some level of injuries in each instance. The crash rate does not indicate a high frequency of crashes at this intersection. .

Intersection Crash Rates. Crash rates relate the total number of crashes to the total amount of traffic entering the intersection during a given period. Intersection crash rates are expressed in terms of crashes per million entering vehicles (MEV). Crash rates for intersections on US 93 and Baker Avenue were calculated for intersections with five or more crashes using estimates of the total daily traffic entering each intersection during the three-year period.

The estimated crash rates for the selected intersections along US 93 and Baker Avenue during the three-year study period ranged from 0.23 to 0.67 crashes per MEV. These estimated crash rates are not considered high when compared with such rates for intersections in other urban areas of Montana.

1.6 Pedestrian and Bicycle Facilities in the Corridor

1.6.1 Sidewalks

Sidewalks exist along both sides of Spokane Avenue from 13th Street to 2nd Street and along the majority of 2nd Street from Spokane Avenue westward to the Whitefish River crossing. Sidewalks also parallel both sides of Baker Avenue between Railway Street and 13th Street.

The Guide for the Planning, Design, and Operation of Pedestrian Facilities produced by the American Association of State Highway and Transportation Officials (AASHTO) indicates the minimum unobstructed pedestrian travel way (clear width) for a sidewalk is 4 feet. Sidewalks at least 5 feet wide are needed for wheelchair users to pass one another or turn around. The AASHTO publication also notes that along arterials not within the central business district (CBD), sidewalk clear widths of 6 to 8 feet are recommended where a planting strip is provided between the sidewalk and the curb, and sidewalk clear widths of 8 to 10 feet are desirable where the sidewalk is flush against the curb. In Central Business District areas, AASHTO lists the desirable clear width for sidewalks as 10 feet or sufficiently wide to provide the desired level of service needed to accommodate pedestrian flows.

Sidewalks along US 93 South, Spokane Avenue and Baker Avenue are typically 5 feet wide and meet the AASHTO standard for minimum clear width. The sidewalks along Spokane Avenue between the Whitefish River and 6th Street are located immediately behind the curbs along each side of the street and are not 8 to 10 feet wide as suggested in AASHTO's guidance. Sidewalks in front of businesses along on 2nd Street between Spokane and Baker Avenues are generally 8 to 10 feet wide. Clear widths on the sidewalks along this portion of 2nd Street are reduced in some locations by poles for overhead street lighting and traffic signals, sign posts, planters, and supporting posts for overhead awnings attached to adjacent buildings.

Intersections along the corridor typically include curb ramps for wheelchair accessibility on two or more corners; however, not all intersections include curb ramps with detectable warning surfaces for visually-impaired pedestrians as called for in the "Americans with Disabilities Act Accessibility Guidelines" (ADAAG). Please note that work for this corridor study did not include a detailed evaluation to determine if existing sidewalks comply with <u>all</u> requirements of the ADAAG (grade, cross-slope, obstacles, etc.).

1.6.2 Crosswalks

Table 1-5 identifies pedestrian crosswalk locations along Spokane Avenue, 2nd Street, and Baker Avenue. Crosswalks have been installed on all approaches at the signalized intersections in the corridor and at several other intersections with stop-controlled side approaches. A mid-block crosswalk with curb ramps also exists on Baker Avenue at

Riverside Park. All crosswalk locations are delineated by painted pavement striping with painted stop bars in advance of each crosswalk.

Advance crosswalk warning signs have been installed to alert motorists well ahead of the crosswalks on Spokane Avenue at 4th and 5th Streets and on Baker Avenue at 4th Street. The crosswalk at Spokane Avenue and 4th Street also has overhead flashing lights for all approaches to reinforce that the crossing is used by school children.

Pedestrian push buttons and pedestrian signal (WALK/DON'T WALK) indicators are provided on the poles supporting signal mast arms on all legs of the intersection at Spokane Avenue and 13th Street. Pedestrian pushbuttons (typically installed with pedestrian signals) are electronic buttons used by pedestrians to change traffic signal timing to accommodate street crossings. Vehicle traffic is not delayed if pedestrians are not present to signal the need for crossing.

Pedestrian signal indicators exist at Spokane and 2nd and 2nd and Central, but not at 2nd and Baker.

Table 1-5: Crosswalks Along the US 93 Corridor and Baker Avenue

Crosswalk Locations	Relation to Intersection
Spokane and 13th Street*	All corners
Spokane and 5th Street	North of cross street
Spokane and 4th Street	North and south of cross street
Spokane and 2nd Street*	All corners
2nd Street and Central Avenue*	All corners
2nd Street and Baker Avenue*	All corners
Baker Avenue and 3rd Street	South of cross street
Baker Avenue and 4th Street	South of cross street
Baker Avenue (South of 5th)	Mid-block at Riverside Park
Baker Avenue and 13th Street	All corners

* Signalized intersection

It was noted that a portable "Pedestrian Crossing" sign placed on the centerline of the roadway is used to reinforce the presence of the crosswalk at Baker Avenue and 3rd Street for approaching motorists. This sign is not used during the winter months due to the need to plow snow from the roadway.

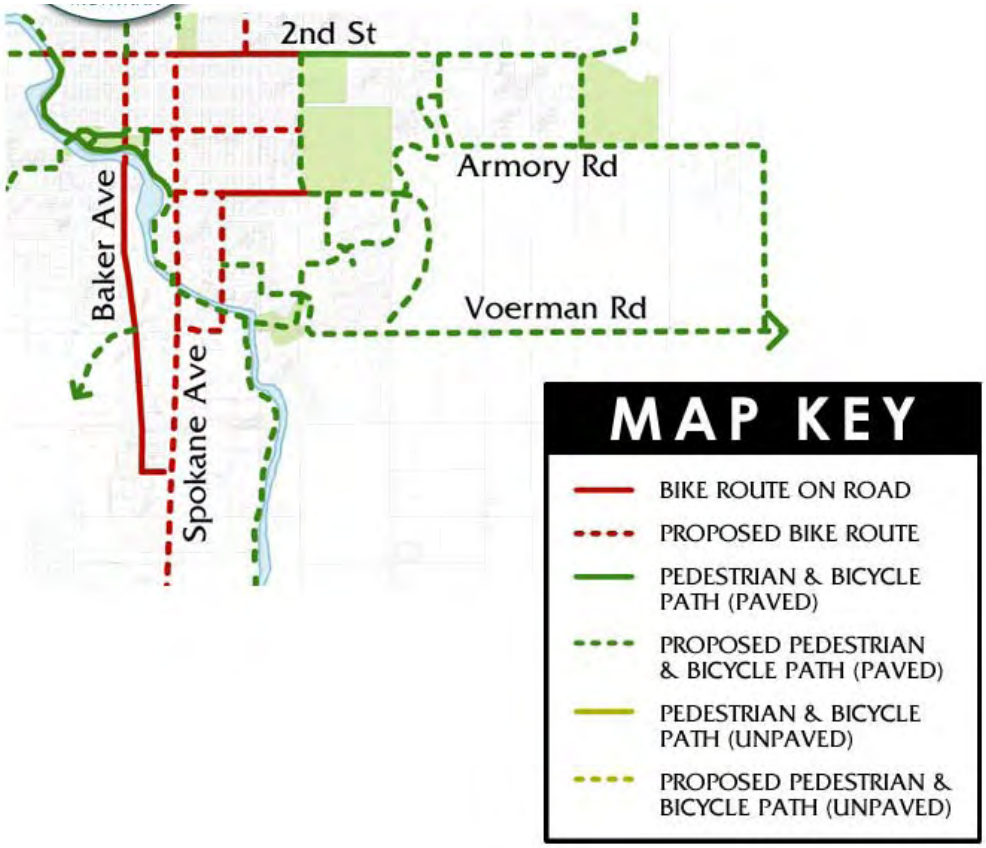
1.6.3 Designated Pedestrian and Bicyclist Trails in the Corridor

The City of Whitefish prepared and approved the Whitefish Bicycle and Pedestrian Master Plan which identifies a safe, usable, and functional transportation system for pedestrians and bicyclists within the community. The City has also formed a Pedestrian and Bicycle Path Advisory Committee to help guide the development of a non-

motorized trail network in the community and routinely update the Bicycle and Pedestrian Master Plan. The City's Pedestrian and Bicycle Path Advisory Committee has routinely updated the recommendations in the plan.

According to the City's Bicycle and Pedestrian Master Plan, the US 93 corridor (Spokane Avenue and 2nd Street) is designated as a proposed bike route with links to other designated bicycle routes and paths. Numerous other designated pedestrian or bicyclist trails cross or parallel US 93 and Baker Avenue. Both existing and proposed trails are shown on **Figure 1-11**.

FIGURE 1-11: Designated Pedestrian and Bicyclist Trails in the Corridor



Source: Fish Trails – Whitefish Montana Accessed at: http://www.fishtrails.info/fish_trails_map.php

1.6.4 Proposed Pedestrian and Trail Amenities on US 93

The Whitefish Downtown Business District Master Plan advocates the development of a pedestrian-friendly environment to encourage visitors and residents to utilize downtown businesses. The Plan calls for pedestrian improvements throughout the downtown to support and improve the viability of retail businesses, to improve pedestrian safety along and across 2nd Street, and provide connections to adjacent neighborhoods.

The Plan recommends the development of the "Whitefish Promenade"— an off-street, multi-use recreational trail around the downtown— intended to link adjacent neighborhoods, the city's pedestrian and bike network and parklands along the Whitefish River. A portion of the Whitefish Promenade is proposed along the west side of Spokane Avenue from 7th Street to Railway Street. The Plan also called for a pedestrian-priority streetscape design for 2nd Street between Spokane and Baker Avenues.

1.6.5 Pedestrian and Bicyclist Involvement in Corridor Crashes

The incidence of crashes involving pedestrians or bicyclists on US 93 or Baker Avenue within the corridor study area is very low. Data for the period from October 1, 2003 to September 30, 2006 showed only one crash involving a pedestrian—an incident at the intersection of Spokane and 13th Street that resulted in an injury—along the US 93 corridor. This location is the first pedestrian crossing that northbound motorists encounter when traveling into Whitefish from the south.

One crash during the three-year period examined for this study involved a bicyclist and occurred at the intersection of Spokane Avenue and 2nd Street. The bicyclist was traveling east on 2nd Street and was injured after being struck by a turning construction vehicle. Public comments to date have suggested that unreported bicycle-related crashes are not a common occurrence in Whitefish.

1.7 Other Transportation Modes

1.7.1 Rail Service

Whitefish is located on the main railroad line operated by the BNSF Railway in Montana. Both passenger and freight service are available in the community.

Amtrak, the National Railroad Passenger Corporation, operates across the northern portion of Montana and stops at Whitefish. Amtrak's Empire Builder provides daily passenger service between Chicago and Seattle. Each day, a westbound train departs during the evening (at about 9:00 p.m.) and an eastbound train departs each morning (at about 7:30 a.m.) . Whitefish is a summer and winter tourist destination for rail passengers due to its proximity to Big Mountain and Glacier National Park. Amtrak statistics show Whitefish is the busiest Amtrak station between Minneapolis and Seattle with between 60,000 and 70,000 annual passenger arrivals or departures in recent years. The Amtrak passenger station is located in the historic Whitefish Depot at the north end of Spokane Avenue in downtown Whitefish.

Railroad freight service is also available in Whitefish. The BNSF Railway operates about 60 trains per day through Whitefish, carrying agricultural products and other cargo. According to the *2000 Montana State Rail Plan Update*, the BNSF Railway's Wolf Point-Havre-Shelby-Libby Main Line through Whitefish is considered a major transcontinental

rail freight route. Railroad freight facilities are generally located west of the grade-separated crossing on Wisconsin Avenue.

1.7.2 Air Service

Glacier Park International Airport is located 11 miles southeast of Whitefish and accessed from US 93 via Montana Highway 40 and US Highway 2. The airport offers numerous daily flights and is served by Delta , Sky West, Northwest, Horizon, Alaska, and United Airlines and Allegiant Air.

1.7.3 Transit Services

Whitefish is served by Rimrock Trail Lines with daily coach service to Missoula. In Missoula, passengers can make connections via other Rimrock buses or transfer to the Greyhound system.

Eagle Transit provides general public transportation service in Flathead County. Eagle Transit, controlled by the Flathead County Area IX Agency on Aging, was initially focused on serving the elderly. In recent years, Eagle Transit has expanded to serve the disabled population and general public within the county. Eagle Transit currently provides a variety of services including Kalispell city bus route, county-wide "door to door" service with scheduled routes in Columbia Falls and Whitefish, and demand-response inter-city services. Service was recently expanded in Columbia Falls and the Canyon area. The "door to door" service varies by community and is designed to meet the needs of the elderly and disabled. Public transportation services and anticipated transportation needs over the 2007-2012 period in Whitefish (and Flathead County) are discussed in a Transit Development Plan (TDP) prepared for Eagle Transit by LSC Transportation Consultants during 2006.

In late February 2008, Eagle Transit began offering scheduled inter-city public bus service to commuters traveling between Kalispell and Whitefish, Whitefish and Columbia Falls, and Kalispell and Columbia Falls. The new service was the result of a cooperative agreement between Flathead County, MDT and the National Park Service that provided Eagle Transit with access to a fleet of buses typically used only during July and August in Glacier National Park. The agreement has allowed Eagle Transit to use the Park's vehicles for transit service between the three Flathead Valley communities for much of the year and enabled the National Park Service to continue meeting its summer transit needs.

Currently, the commuter buses between Kalispell and Whitefish operate between 6:30 a.m. and 6:10 p.m. Monday through Friday, with two designated stops (North Valley Hospital and the O'Shaughnessy Center) and seven requested stop locations in the Whitefish area. Buses headed to Kalispell currently leave designated stops in Whitefish twice each morning and buses from Kalispell arriving twice each evening. According to Eagle Transit's current commuter schedules, buses between Whitefish and Columbia Falls are not offered.

Locally, the SNOW (Shuttle Network of Whitefish) Bus operates three buses and provides complimentary transport to and from the Mountain Mall and the Whitefish Mountain Resort from late November through mid April. This seasonal shuttle service, paid for by local businesses, had about 54,000 riders during the 2007-2008 season.

1.8 Summary of Existing Transportation Conditions

Figures 1-12, 1-13, and **1-14** summarize the existing physical and operational characteristics of Spokane Avenue, 2nd Street, and Baker Avenue.

The following "highlights" are identified from the assessment of existing transportation conditions presented in this chapter:

- US 93 through Whitefish accommodates significant amounts of both local and through traffic. The route is part of a National Highway System (NHS) route and serves as an important element of the downtown Whitefish's street network.

- Traffic volumes on US 93 vary notably within the community. AADT volumes are higher in the commercial area along Spokane Avenue south of the Whitefish River (15,000 to 17,000 vehicles) than in the downtown area along 2nd Street west of Spokane Avenue (8,000 to 10,000 vehicles).

- Truck traffic, including through tractor-trailer combinations and local commercial delivery and construction vehicles, has historically represented a sizable percentage of the traffic on US 93 through Whitefish during portions of the day.

- The LOS analyses of the existing conditions reveals that some approaches at signalized intersections and several unsignalized intersections within the US 93 corridor and on Baker Avenue currently function at LOS D or lower during peak hours. These intersections include: Spokane Avenue and 13th Street; Spokane Avenue and 2nd Street; and Baker Avenue and 2nd Street. Spokane Avenue and 5th Street, and Baker Avenue and 4th Street. The poor LOS ratings predicted for the unsignalized intersections are the result of delays for side street traffic and not due to poor traffic flows on Spokane or Baker Avenues.

- Volume to capacity data shows that several sections of US 93 and Baker Avenue are at or approaching capacity and operate at poor Levels of Service (LOS D and E) during peak travel periods.

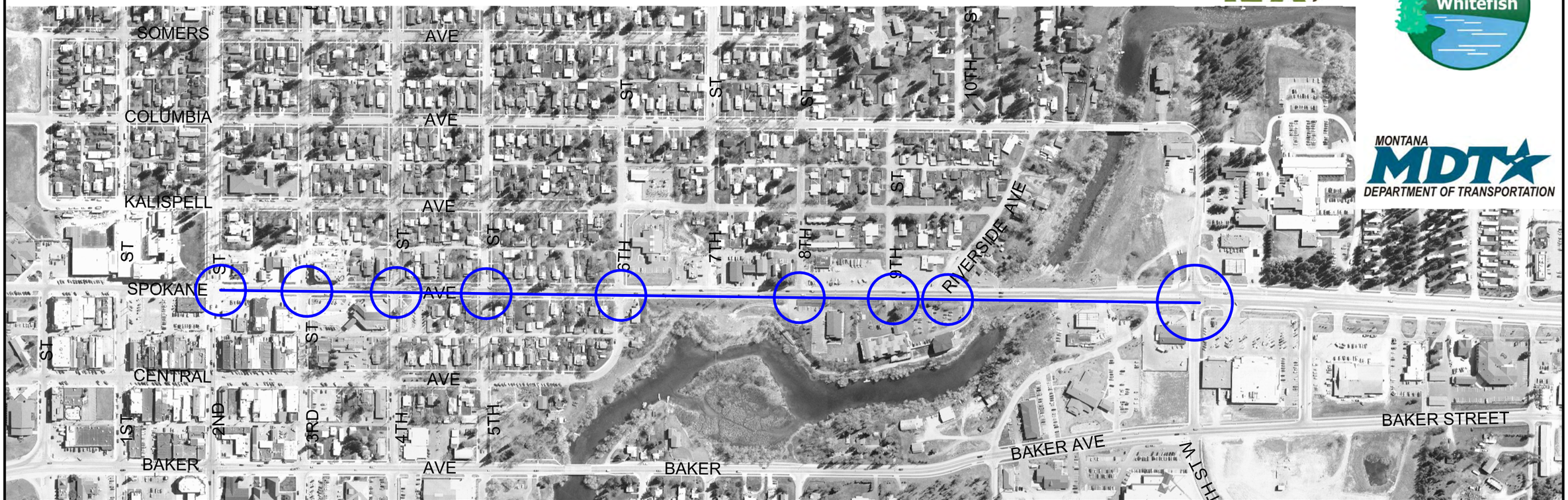
- The primary crash type along the US 93 corridor during a recent three-year period was rear-end collisions followed by right-turn and right angle collisions, sideswipes, and left turn collisions. These crash types are indicative of roadways experiencing traffic congestion.

- Spokane Avenue, 2nd Street, and Baker Avenue are integral to the City of Whitefish's existing and planned pedestrian and bicyclist trail network. Designated trail segments exist along each of these streets.

- Whitefish is well served by rail transportation; however, other forms of public transportation are seasonal (like the SNOW Bus to Whitefish Mountain Resort) or generally focused on serving "special needs" groups within the community.

WHITEFISH
URBAN CORRIDOR STUDY OF U.S. 93

US 93 / SPOKANE AVENUE - EXISTING CONDITIONS



		2nd STREET		3rd STREET		4th STREET		5th STREET		6th STREET		7th STREET		8th STREET		9th STREET		RIVERSIDE AVE.		13th STREET	
ROW WIDTH			70'								70'		70'						235'		185' - 190'
LANE CONFIGURATION	NB																		TRANSITION		
	SB																				
ADT (2 WAY VOLUME)			10 380						15 200									15 200			17 450
PEAK HOUR LOS AM/PM	NB	C/F				C/C		C/D												C/C	
	SB																				
ON-STREET PARKING			NO		YES		YES		YES		NO		NO		NO		NO		NO		NO
TRAFFIC CONTROL		ooo		*		*		*		*				*		*		*		ooo	
# OF CRASHES (Oct. 1, 2003 - Sept. 30, 2006)		11	0	7	0	8	1	3	3	3	1	2	0	1	0	2	0	0	2	17	
SIDEWALKS			YES		YES		YES		YES		YES		YES		YES		YES		YES		YES
BICYCLE PATH / LANE			NO		NO		NO		NO		NO		NO		NO		SHARED ROADWAY				
POSTED SPEED			25		25		25		25			25			25		25		35		45

- Highly congested, excessively long delays
- Tolerable congestion, noticeable delays
- Moderate delays
- Little or no delays

* SIDE STREET STOP

FIGURE 1-12

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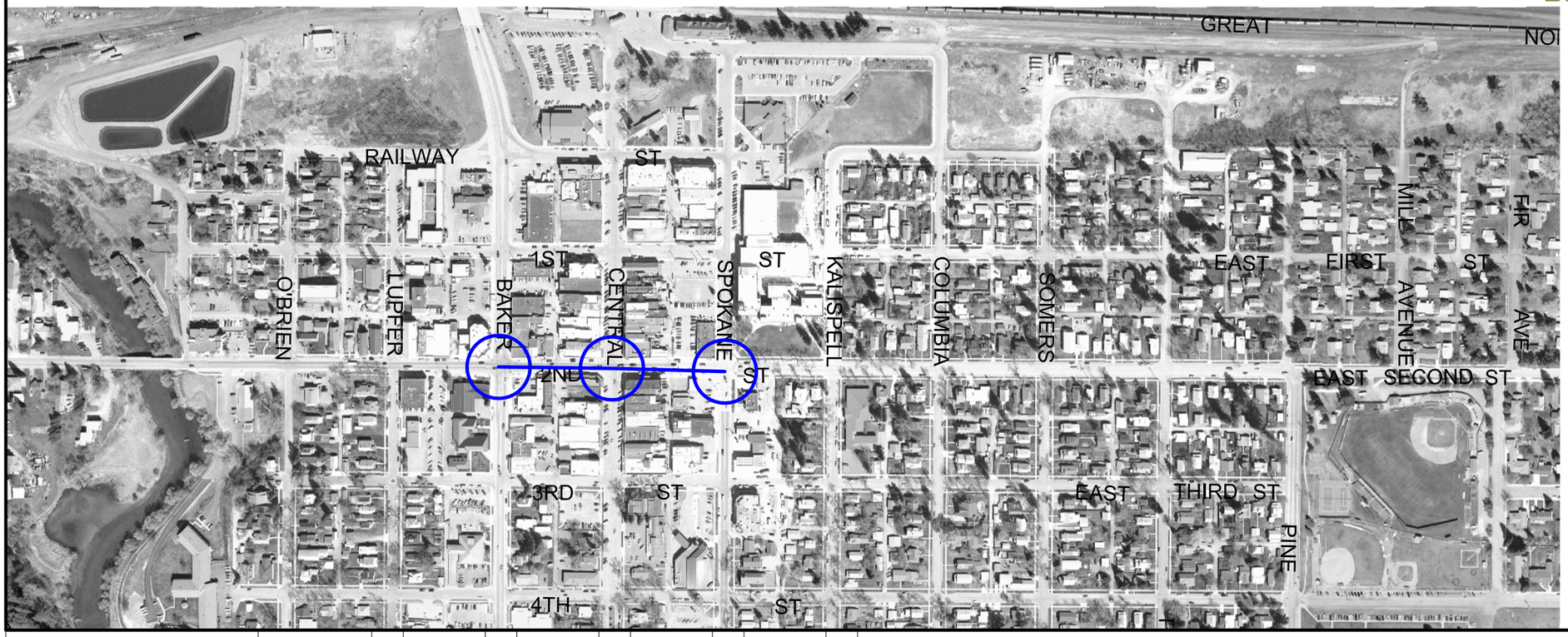
US 93 / 2nd STREET - EXISTING CONDITIONS



200 0 200 400
(SCALE IN FEET)

N

			LUPFER AVE		BAKER AVE		CENTRAL AVE		SPOKANE AVE		KALISPELL AVE	
ROW WIDTH		70'		70'		70'		70'		70'		70'
LANE CONFIGURATION	WB											
	EB											
ADT (2 WAY VOLUME)		9 740				7 870		7 800		3 700		3 620
PEAK HOUR LOS AM/PM	WB				C/E		B/C		C/F		C/C	
	EB											
ON-STREET PARKING		YES		YES RESTRICTED		YES		YES / NO		NO		YES
TRAFFIC CONTROL												
# OF CRASHES (Oct. 1, 2003 - Sept. 30, 2006)			2	4	14	1	5	0	11		4	
SIDEWALKS		YES		YES		YES		YES		YES		YES
BICYCLE PATH / LANE		NO		NO		NO		NO		ON ROAD BIKE LANE		
POSTED SPEED		25		25		25		25		15		25

* SIDE STREET STOP

- Highly congested, excessively long delays
- Tolerable congestion, noticeable delays
- Moderate delays
- Little or no delays

FIGURE 1-13

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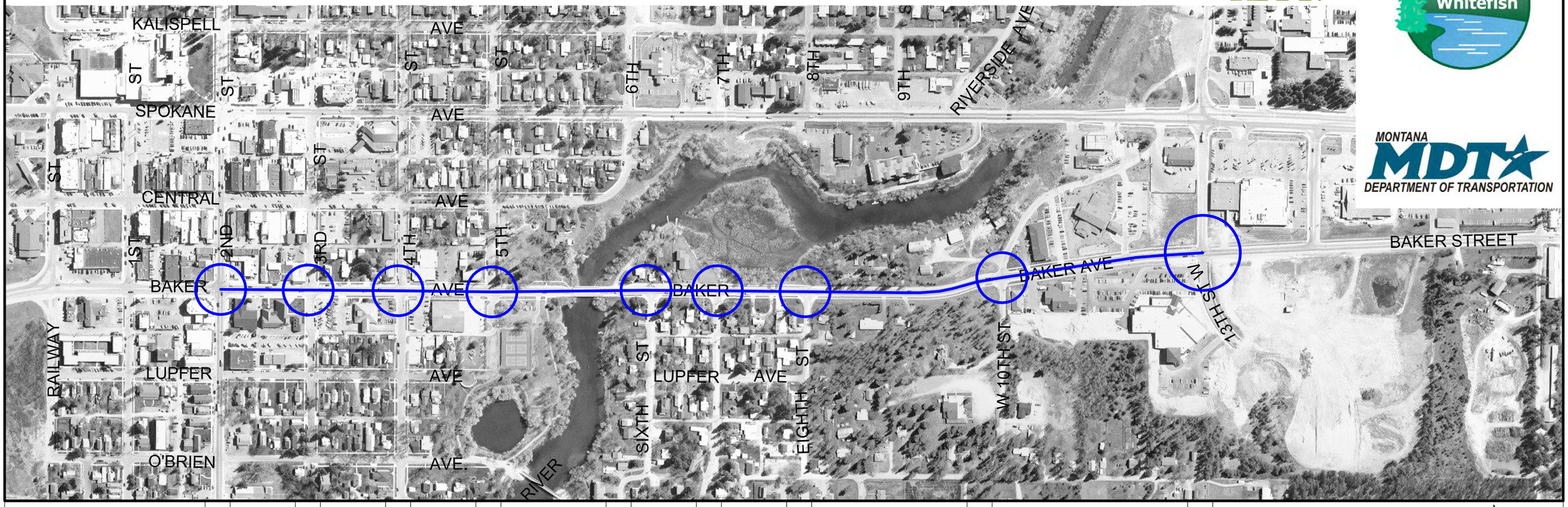
URBAN CORRIDOR STUDY OF U.S. 93

BAKER AVENUE - EXISTING CONDITIONS



		2nd STREET		3rd STREET		4th STREET		5th STREET		6th STREET		7th STREET		8th STREET		10th STREET		13th STREET W	
ROW WIDTH			70'		70'		70'		70'		70'		70'		70'		70'		
LANE CONFIGURATION	NB		←		←		←		←		←		←		←		←		←
	SB		→		→		→		→		→		→		→		→		→
ADT (2 WAY VOLUME)	13 100		←		9 400		→		← 12 300 →		12 800		← 12 900				→		← 8 460
PEAK HOUR LOS	NB	C/E				B/D		B/C				B/C				B/B		B/C	
	SB																		
ON-STREET PARKING			YES RESTRICTED		YES		YES		YES NO YES	EAST SIDE	NO		NO		NO		NO		NO
TRAFFIC CONTROL				*		*		*		*		*		*		*		4 WAY STOP	
# OF CRASHES (Oct. 1, 2003 - Sept. 30, 2006)		14	2	3	0	2	4	1	3	0	0	0	0	0	0	3	0	6	
SIDEWALKS			YES		YES		YES		YES		YES		YES		YES		YES		NO
BICYCLE PATH / LANE			SHARED ROADWAY →								YES		YES		ON ROAD BIKE LANE		ON ROAD BIKE LANE		
POSTED SPEED			25		25		25		25		25		25		25		25		

- Highly congested, excessively long delays
- Tolerable congestion, noticeable delays
- Moderate delays
- Little or no delays

* SIDE STREET STOP

FIGURE 1-14

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