


CHAPTER 2:
Existing Conditions

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2.1 INTRODUCTION

This chapter provides a compilation of data describing the physical characteristics and operation of the existing transportation system. The data includes roadway widths, intersection geometrics, lane usage, signal timing, and design features on the major street network. In subsequent portions of the Transportation Plan, this data was evaluated to identify existing or future problems and deficiencies in the major street network.

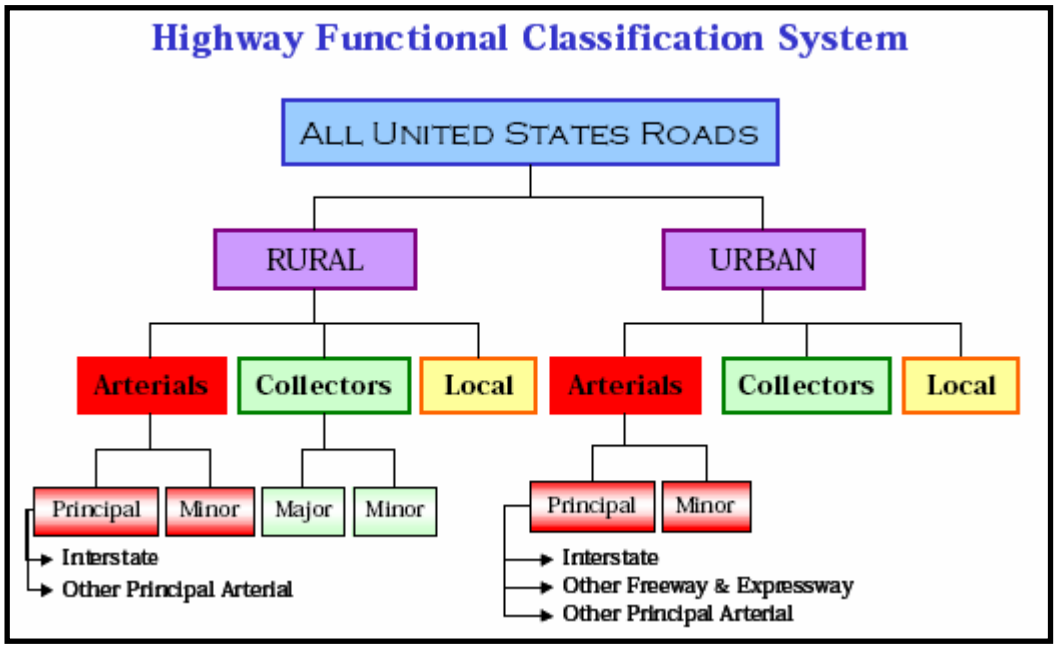
Information on the current transportation system was gathered in order to clearly understand the existing traffic conditions. The information described different aspects of the existing transportation system. Existing traffic volume data were used to determine the annual average daily traffic (AADT) volumes on the major street network. This data helps to determine current operational characteristics. Current or future traffic problems could then be identified. Only the major street network was examined in any detail. The information gathered and analyses performed include the following:

- Existing functional classifications & study roadways review;
- Traffic volume counts;
- Corridor facility size;
- Current traffic signal system/operation;
- Traffic crash data;
- Past transportation planning projects;
- Past non-motorized transportation projects; and
- Peak hour turning movement counts & existing intersection "Level of Service".

2.2 EXISTING FUNCTIONAL CLASSIFICATIONS & STUDY ROADWAYS

One of the initial steps in trying to understand a community's existing transportation system is to first identify what roadways will be evaluated as part of the larger planning process. A community's transportation system is made up of a hierarchy of roadways, with each roadway being classified according to certain parameters. Some of these parameters are geometric configuration, traffic volumes, spacing in the community transportation grid, speeds, etc. It is standard practice to examine roadways that are functionally classified as a collector, minor arterial, or principal arterial in a regional transportation plan project. These functional classifications can be encountered in both the "urban" and "rural" setting. The reasoning for examining the collector, minor arterial and principal arterial roadways, and not local roadways, is that when the major roadway system (i.e. collectors or above) is functioning to an acceptable level, than the local roadways are not used beyond their intended function. When problems begin to occur on the major roadway system, then vehicles and resulting issues begin to infiltrate neighborhood routes (i.e. local routes). As such, the overall health of a regional transportation system can be typically characterized by the health of the major roadway network. The roadways being studied under this Transportation Plan update, along with the appropriate functional classifications, are shown on **Figure 2-1** and **Figure 2-2**.

Roadway functional classifications within the city of Whitefish include interstate highways; principal arterials; minor arterials; collector routes; and local streets. The rural areas of Flathead County are also served by a similar hierarchy of streets. However, due to their rural nature the volumes on these streets are generally smaller than in urban areas. Although volumes may differ on urban and rural sections of a street, it is important to maintain coordinated right-of-way standards to allow for efficient operation of urban development. A description of these classifications is provided in the following sections. In addition, a flow chart is presented below that shows the basic hierarchy of the "Highway Functional Classification System" by rural and urban setting. The classes are defined by certain characteristics as well as the level of access and the type of travel mobility the roads provide. The three roadway classes are arterials, collectors, and local. Urban and rural areas have different characteristics as to density and types of land use, nature of travel patterns, density of street and highway networks, and the way in which all these elements are related to highway function. Federal regulations recognize these differences through separate urban and rural functional classification system and associated criteria. (*Source: A Guide to Functional Classification, Highway Systems And Other Route Designations In Montana – MDT*)



Interstate Highways

The sole purpose of an interstate highway is to provide for regional and interstate travel. Interstate highways are access-controlled facilities with access provided only at a limited number of interchanges. The interstate system has been designed as a high-speed facility with all road intersections being grade separated. An Interstate in Montana is generally a four-lane divided highway with a posted speed limit of 75 miles per hour (mph) for automobiles, and 70 mph for trucks.

Principal Arterial System

The purpose of the principal arterial is to serve the major centers of activity, the highest traffic volume corridors, and the longest trip distances in an urbanized area. This group of roads carries a high proportion of the total traffic within the urban area. Most of the vehicles entering and leaving the urban area, as well as most of the through traffic bypassing the central business district, utilize principal arterials. Significant intra-area travel, such as between central business districts and outlying residential areas, and between major suburban centers, are served by principal arterials.

The spacing between principal arterials may vary from less than one mile in highly developed areas (e.g., the central business district), to five miles or more on the urban fringes. Principal arterials connect only to other principal arterials or to the interstate system.

The major purpose of the principal arterial is to provide for the expedient movement of traffic. Service to abutting land is a secondary concern. It is desirable to restrict on-street parking along principal arterial corridors. The speed limit on a principal arterial could range from 25 to 70 mph depending on the area setting.

Minor Arterial Street System

The minor arterial street system interconnects with and augments the urban principal arterial system. It accommodates trips of moderate length at a somewhat lower level of travel mobility than principal arterials, and it distributes travel to smaller geographic areas. With an emphasis on traffic mobility, this street network includes all arterials not classified as principal arterials while providing access to adjacent lands.

The spacing of minor arterial streets may vary from several blocks to a half-mile in the highly developed areas of town, to several miles in the suburban fringes. They are not normally spaced more than one mile apart in fully developed areas.

On-street parking may be allowed on minor arterials if space is available. In many areas on-street parking along minor arterials is prohibited during peak travel periods. Posted speed limits on minor arterials would typically range between 25 and 55 mph, depending on the setting.

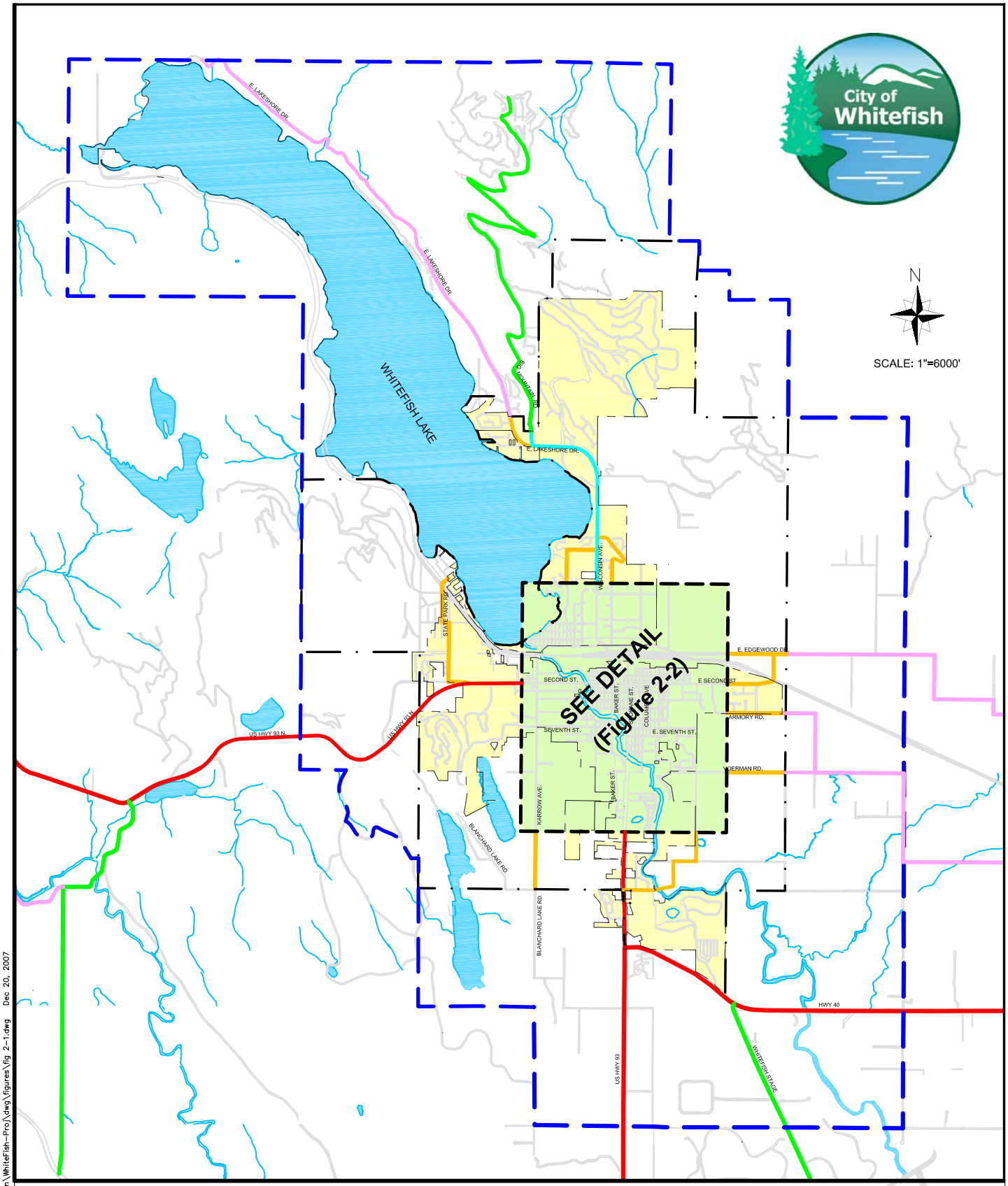
Collector Street System

The urban collector street network serves a joint purpose. It provides equal priority to the movement of traffic, and to the access of residential, business, and industrial areas. This type of roadway differs from those of the arterial system in that collector roadways may traverse residential neighborhoods. The collector system distributes trips from the arterials to ultimate destinations. The collector streets also collect traffic from local streets in the residential neighborhoods, channeling it into the arterial system. On-street parking is usually allowed on most collector streets if space is available. Posted speed limits on collectors typically range between 25 and 45 mph.

The rural collector street network serves the same access and movement functions as the urban collector street network – a link between the arterial system and local access roads. Collectors penetrate but should not have continuity through residential neighborhoods. The actual location of collectors should be flexible to best serve developing areas and the public. Several design guidelines should be kept in mind as new subdivisions are designed and reviewed. The most important concept is that long segments of continuous collector streets are not compatible with a good functional classification of streets. Long, continuous collectors will encourage through traffic, essentially turning them into arterials. This, in turn, results in the undesirable interface of local streets with arterials, causing safety problems and increased costs of construction and maintenance. The collector street system should intersect arterial streets at a uniform spacing of one-half to one-quarter mile in order to maintain good progression on the arterial network. Ideally, collectors should be no longer than one to two miles without discontinuities. Opportunities need to be identified through good design and review of subdivisions to create appropriate collector streets in developing areas.

Local Street System

The local street network comprises all facilities not included in the higher systems. Its primary purpose is to permit direct access to abutting lands and connections to higher systems. Usually service to through-traffic movements are intentionally discouraged. On-street parking is usually allowed on the local street system. The speed limit on local streets is usually 25 mph.



Notes:

1. Functional Classifications shown on this figure are the "Federally Approved" Classifications. These are different than the City of Whitefish's Roadway Classifications.

- PRINCIPAL ARTERIAL
- MINOR ARTERIAL
- COLLECTOR (URBAN)
- MAJOR COLLECTOR (RURAL)
- MINOR COLLECTOR (RURAL)
- TRANSPORTATION PLAN BOUNDARY
- URBAN BOUNDARY

Whitefish Transportation Plan (2007)

Figure 2-1

Federal Functional Classification Map

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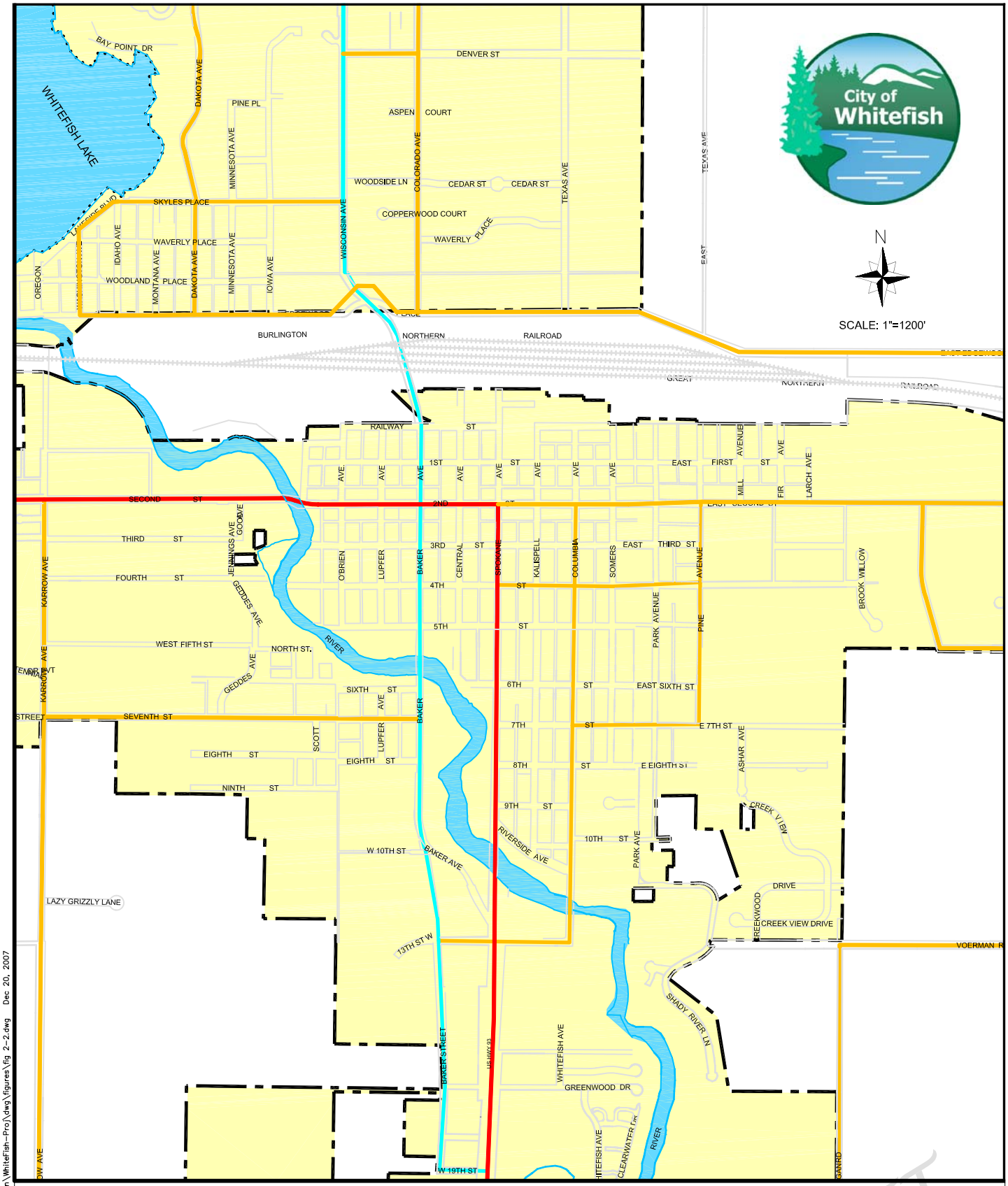

Notes:

1. Functional Classifications shown on this figure are the "Federally Approved" Classifications. These are different than the City of Whitefish's Roadway Classifications.

- PRINCIPAL ARTERIAL
- MINOR ARTERIAL
- COLLECTOR
- WHITEFISH CITY LIMITS

Whitefish Transportation Plan (2007)

Figure 2-2

Federal Functional Classification Map

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2.3 EXISTING TRAFFIC VOLUMES

Traffic volumes within the Whitefish area were collected by the Montana Department of Transportation (MDT) and WGM Group, Inc. as part of the *U.S. Highway 93 – Whitefish Urban Preliminary Traffic Report* prepared in February 2006. The traffic volumes collected are used to determine current traffic conditions and to provide reliable data on historic traffic volumes. Year 2003 traffic volumes were selected for analysis on the major road segments within the community. This information is shown on **Figure 2-3** and **Figure 2-4**. These figures show that the high volume corridors are US Highway 93 , Baker Avenue, Second Street, Wisconsin Avenue and Montana Highway 40.

2.4 CORRIDOR FACILITY SIZE

Corridor facility size was also identified and is shown on **Figure 2-5** and **Figure 2-6**. The largest facility in the community of US Highway 93 as it enters Whitefish from the south. This five-lane principal arterial reduces in geometry as it intersects with 13th Street just before crossing the Whitefish River. Most roadways are urban two-lane roadways.

Different size corridors can accommodate different amounts of traffic. Traffic volumes on a given roadway, should fall within the range shown on **Table 2-1**.

Table 2-1
Optimal Traffic Volume

Number of Lanes	Traffic Volume
2	< 12,000
3	12,000 - 18,000
4	18,000 - 24,000
5	24,000 - 36,000
6	> 36,000

At the present time, there are only two locations where traffic volumes exceed what would normally be expected from a capacity standpoint given the current geometry of the roadway. This situation exists on the US Highway 93 corridor north of 13th Street to Second Street, and also on Baker Avenue between Second Street and 13th Street. As was mentioned in Chapter 1, these segments are being studied under a parallel planning effort called a "Pre-NEPA" Corridor Study.

2.5 EXISTING TRAFFIC SIGNAL SYSTEM

The street network is often limited by the operation of its major signalized intersections. Currently, there are 7 signalized intersections in the Whitefish area. All traffic signals are owned and operated by the Montana Department of Transportation with the exception of the traffic signal at Wisconsin Avenue and Edgewood Place. The majority of the signals are located along Second Street in the downtown core. These signals are pre-timed signals that are in need of optimization to improve traffic flow (discussed later in this document). The locations of the 7 signalized intersections are as shown on **Figure 2-7** and **Figure 2-8**.

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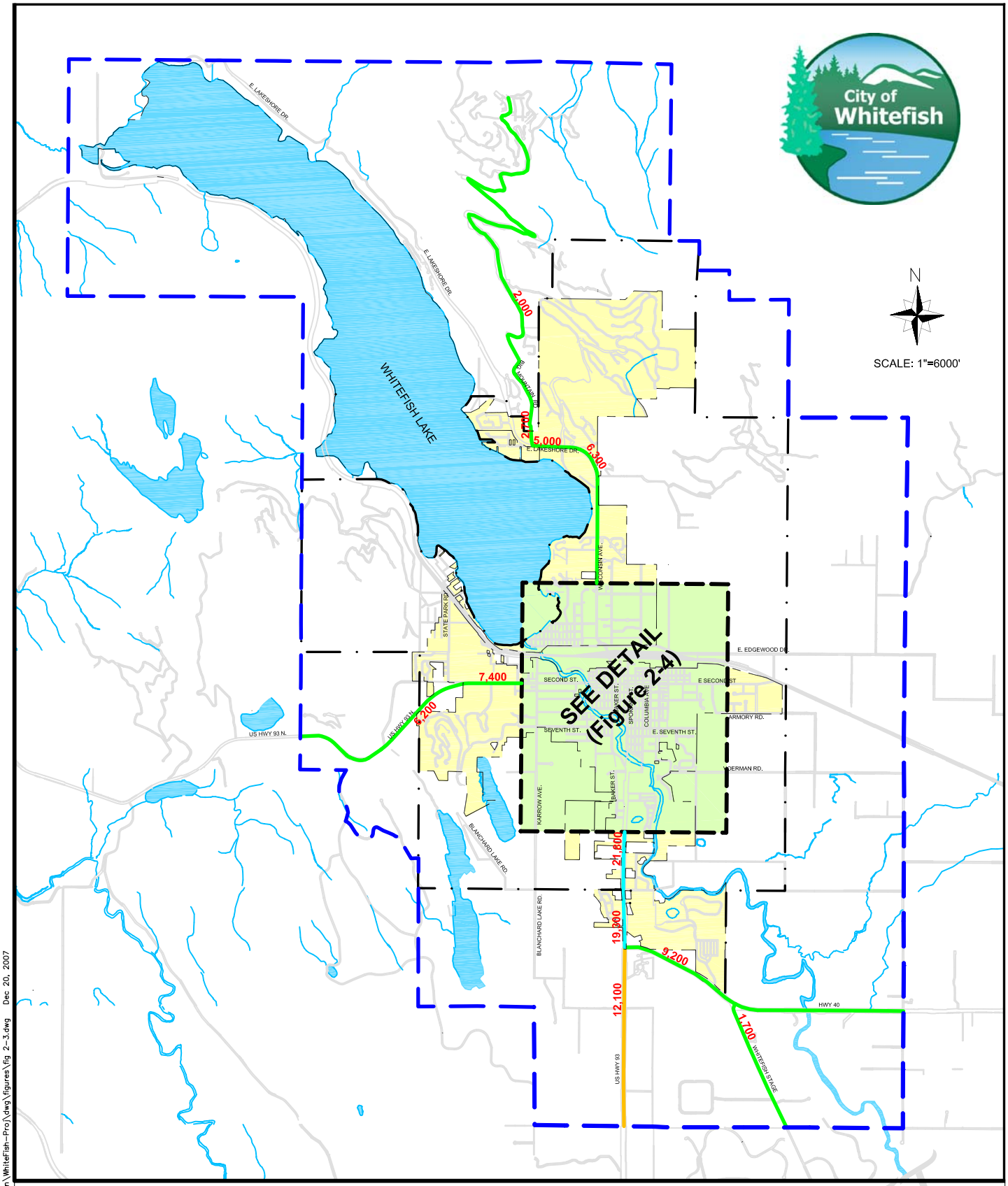

0 - 12,000 (CONSISTENT WITH 2-LANE ROAD)
12,000 - 18,000 (CONSISTENT WITH 3-LANE ROAD)
18,000 - 24,000 (CONSISTENT WITH 4-LANE ROAD)
24,000 - 36,000 (CONSISTENT WITH 5-LANE ROAD)
12,080 = 2003 TRAFFIC VOLUME (ANNUAL AVERAGE DAILY TRAFFIC - AADT)
TRANSPORTATION PLAN BOUNDARY
URBAN BOUNDARY

Whitefish Transportation Plan (2007)

Figure 2-3

2003 Existing Average Daily Traffic (ADT)

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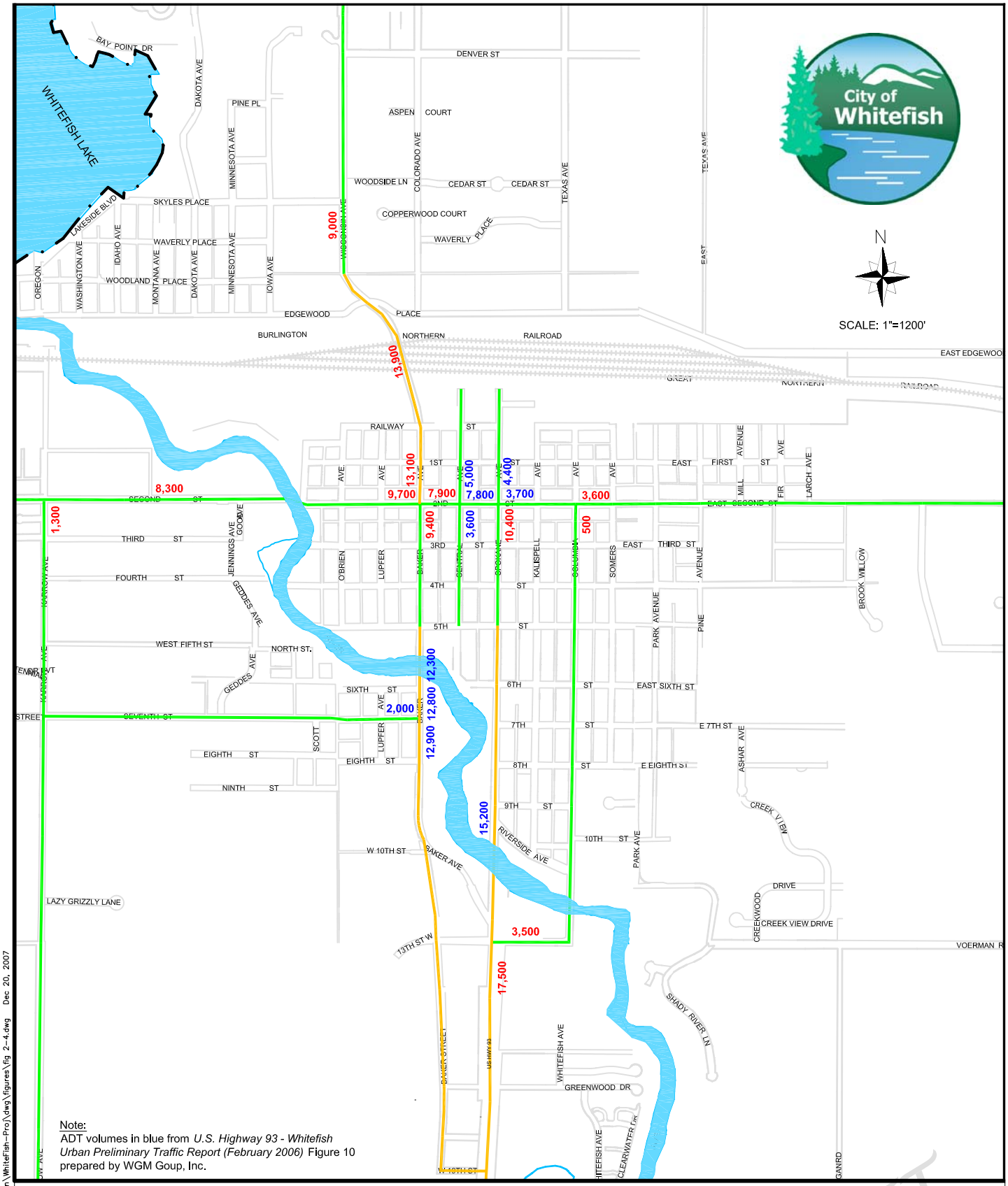

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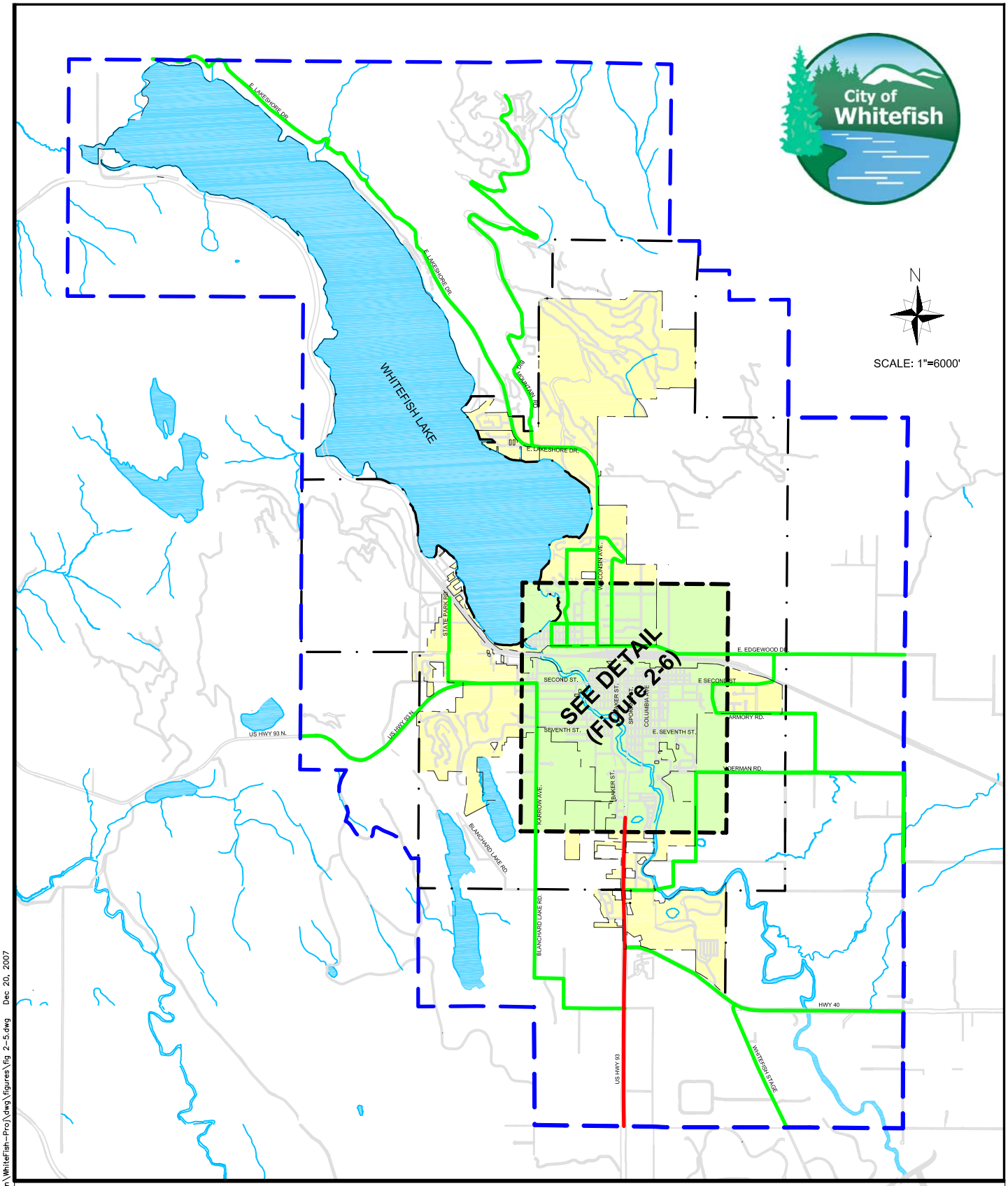
Figure 2-4

2003 Existing Average Daily Traffic (ADT)



Whitefish Transportation Plan (2007)

Notes:

1. Roadways not shown as colored on this figure are generally 2-LANE local roads.
2. 3-LANE & 5-LANE roads generally include a Two Way, Center Turn Lane.

- 2-LANE
- 3-LANE
- 4-LANE
- 5-LANE
- TRANSPORTATION PLAN BOUNDARY
- URBAN BOUNDARY

Figure 2-5
Existing Corridor Size

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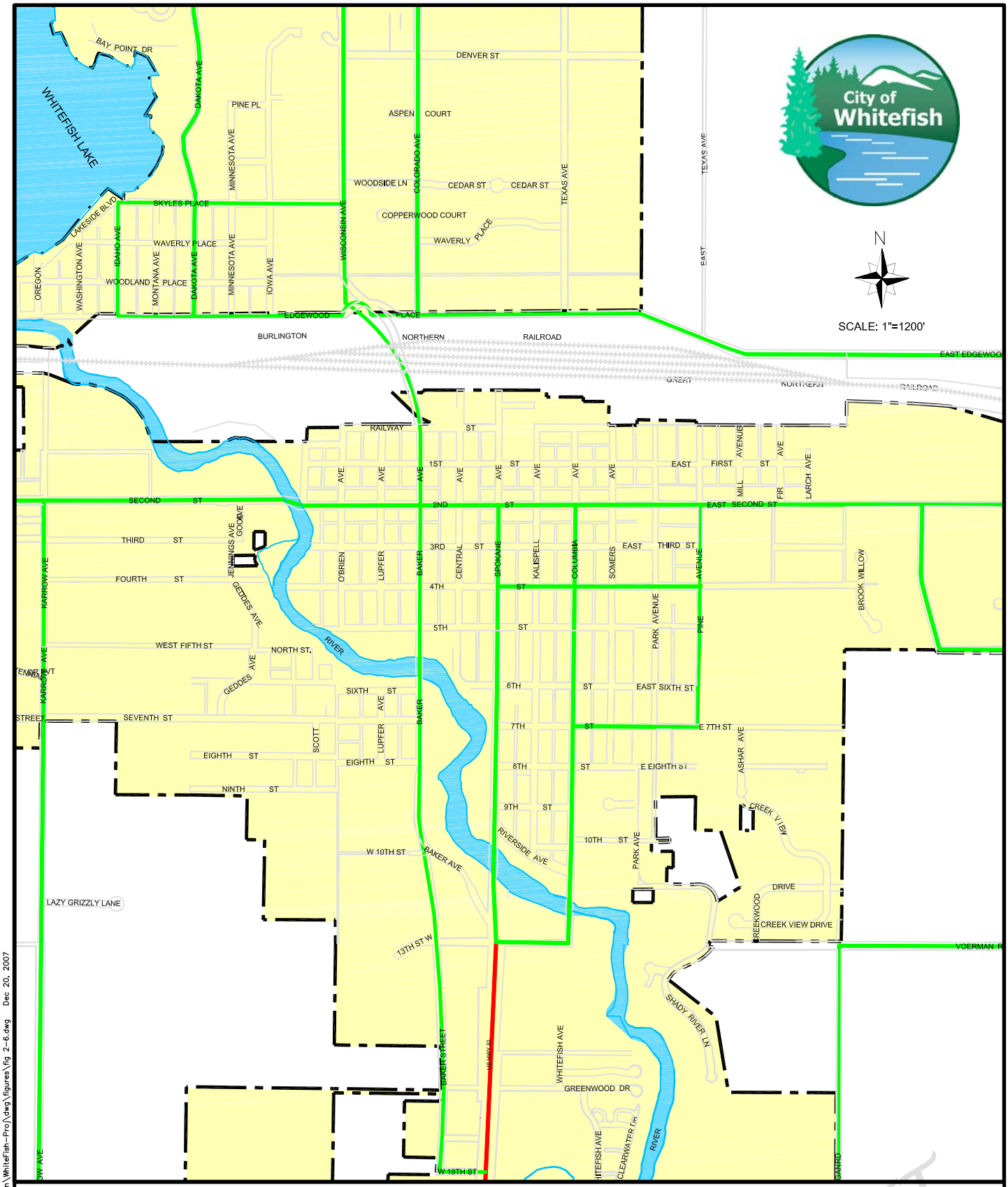

Notes:

1. Roadways not shown as colored on this figure are generally 2-LANE local roads.
2. 3-LANE & 5-LANE roads generally include a Two Way, Center Turn Lane.

Whitefish Transportation Plan (2007)

Figure 2-6

Existing Corridor Size

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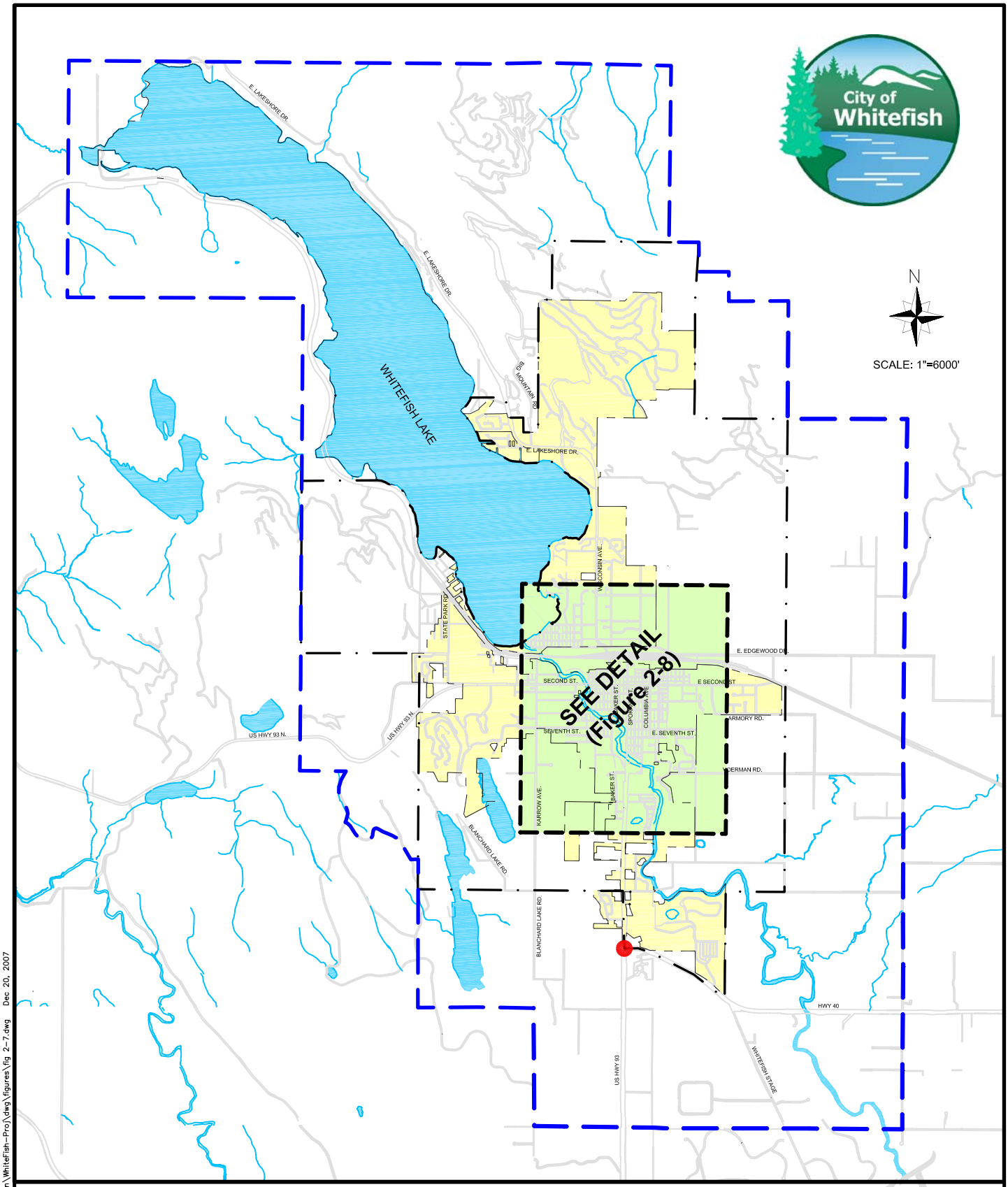

Whitefish Transportation Plan (2007)

Figure 2-7
Traffic Signal System Map

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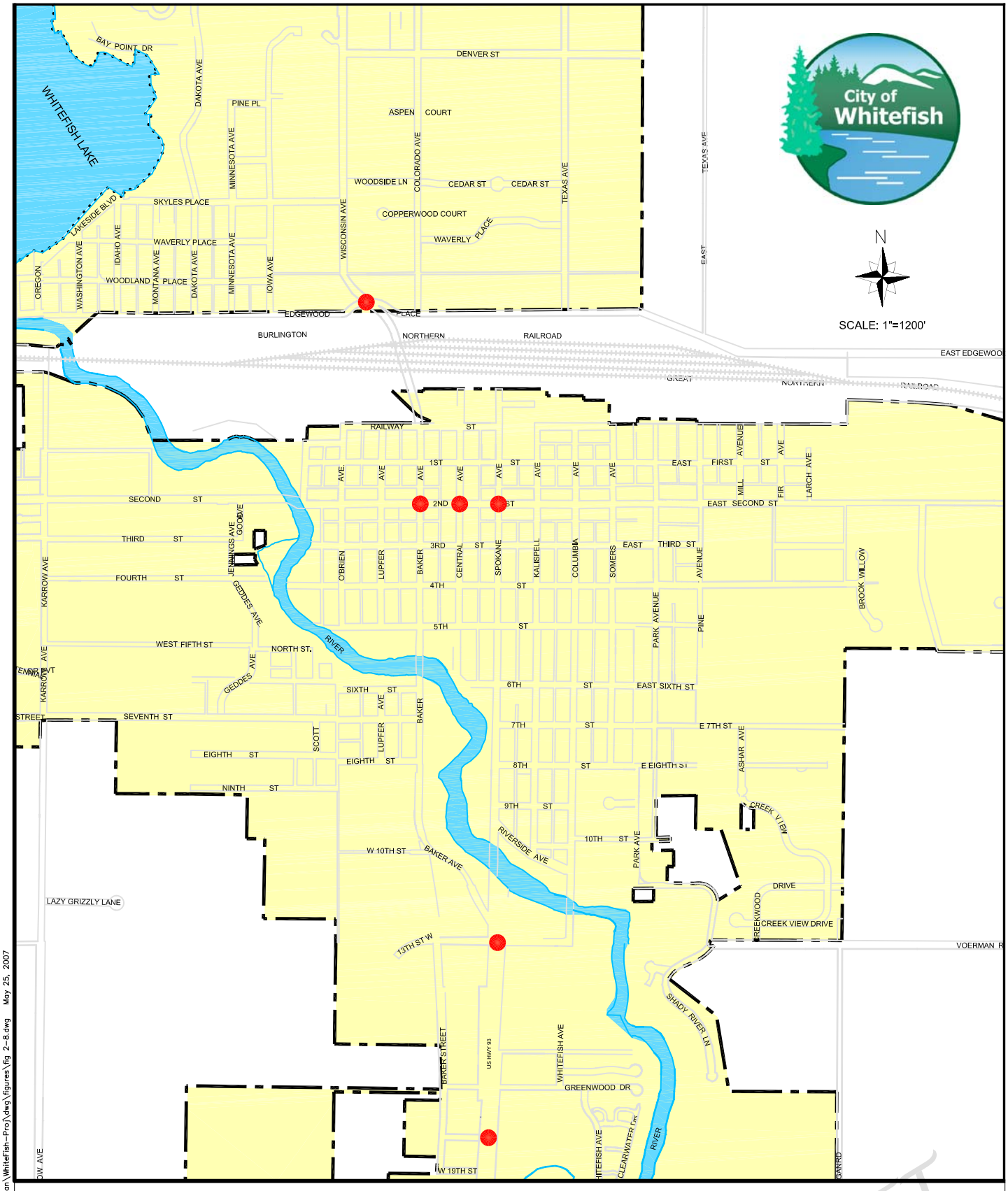

Whitefish Transportation Plan (2007)

Figure 2-8
Traffic Signal System Map

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2.6 CRASH ANALYSIS

The MDT Traffic and Safety Bureau provided crash information and data for use in the Whitefish Transportation Plan (2007). The crash information was analyzed to identify intersections with crash characteristics that may warrant further study. General crash characteristics were determined along with probable roadway deficiencies. The crash information covers the three-year time period from October 1st, 2003 to September 30th, 2006.

Three analyses were performed to rank the intersections based on different crash characteristics. First, the intersections were ranked by number of crashes. Using crash information provided by the MDT Traffic and Safety Bureau, the number of crashes was calculated for each intersections within the transportation planning boundary. For this analysis, intersections with 10 or more crashes in the three-year period were included. If an intersection did not have 10 crashes in the three-year period the data was available, it was not included at all in this analysis. A summary of these intersections, along with the number of crashes at each intersection, is shown in **Table 2-2**.

The second analysis involved a more detailed look at the crashes to determine the MDT "severity index rating". The severity index is a rating that allows the analyst to see where the most severe types of crashes occur. Crashes were broken into three categories of severity: property damage only (PDO), non-incapacitating and possible injury crash, and fatality or incapacitating injury. Each of these three types is given a different rating: one (1) for a property damage only crash; three (3) for an injury crash; and eight (8) for a crash that resulted in a fatality.

The MDT severity index rating for the intersections in the analysis is shown in **Table 2-3**. The calculation used to arrive at the severity index rating is as follows:

$$\frac{[(\#\text{ PDO for intersection}) \times (1)] + [(\#\text{ non-incapacitating and possible injury crashes for intersection}) \times (3)] + [(\#\text{ fatalities or incapacitating crashes for intersection}) \times (8)]}{\text{Total number of crashes in three-year period}} = (\text{MDT Severity Index Rating})$$

The third analysis ranked the number of crashes against the annual average daily traffic (AADT) at each intersection, expressed in crashes per million entering vehicles (MEV). A summary of the intersections in the analysis is shown in **Table 2-4**. The calculation used to arrive at the crash rates, expressed in crashes per million entering vehicles (MEV), as shown in **Table 2-4**, is as follows:

$$\frac{\text{Total number of crashes in three-year period}}{(\text{AADT for Intersection}) \times (3\text{ years}) \times (365\text{ days/year}) / (1{,}000{,}000\text{ vehicles})} = (\text{Crash Rate})$$

Table 2-2
Intersections with 10 or More Crashes in the Three-Year Period
(October 1, 2003 – September 30, 2006)

Intersection	Type of Control*	# Crashes
U.S. Hwy 93 & Montana Hwy 40	S	30
2nd Street & Central Avenue	S	14
U.S. Hwy 93 & 13th Street	S	14
U.S. Hwy 93 & 2nd Street	S	11

**"S"=Signalized, "U-2W"=Unsignalized two-way stop controlled, "U-3W"=Unsignalized three-way stop controlled, "U-4W"=Unsignalized four-way stop controlled.*

Table 2-3
Intersection Crash Analysis – MDT Severity Index Rating

Intersection	Type of Control*	PDO	Injury	Severity Index
U.S. Hwy 93 & Montana Hwy 40	S	19	11	1.73
U.S. Hwy 93 & 13th Street	S	10	4	1.57
2nd Street & Central Avenue	S	12	2	1.29
U.S. Hwy 93 & 2nd Street	S	10	1	1.18

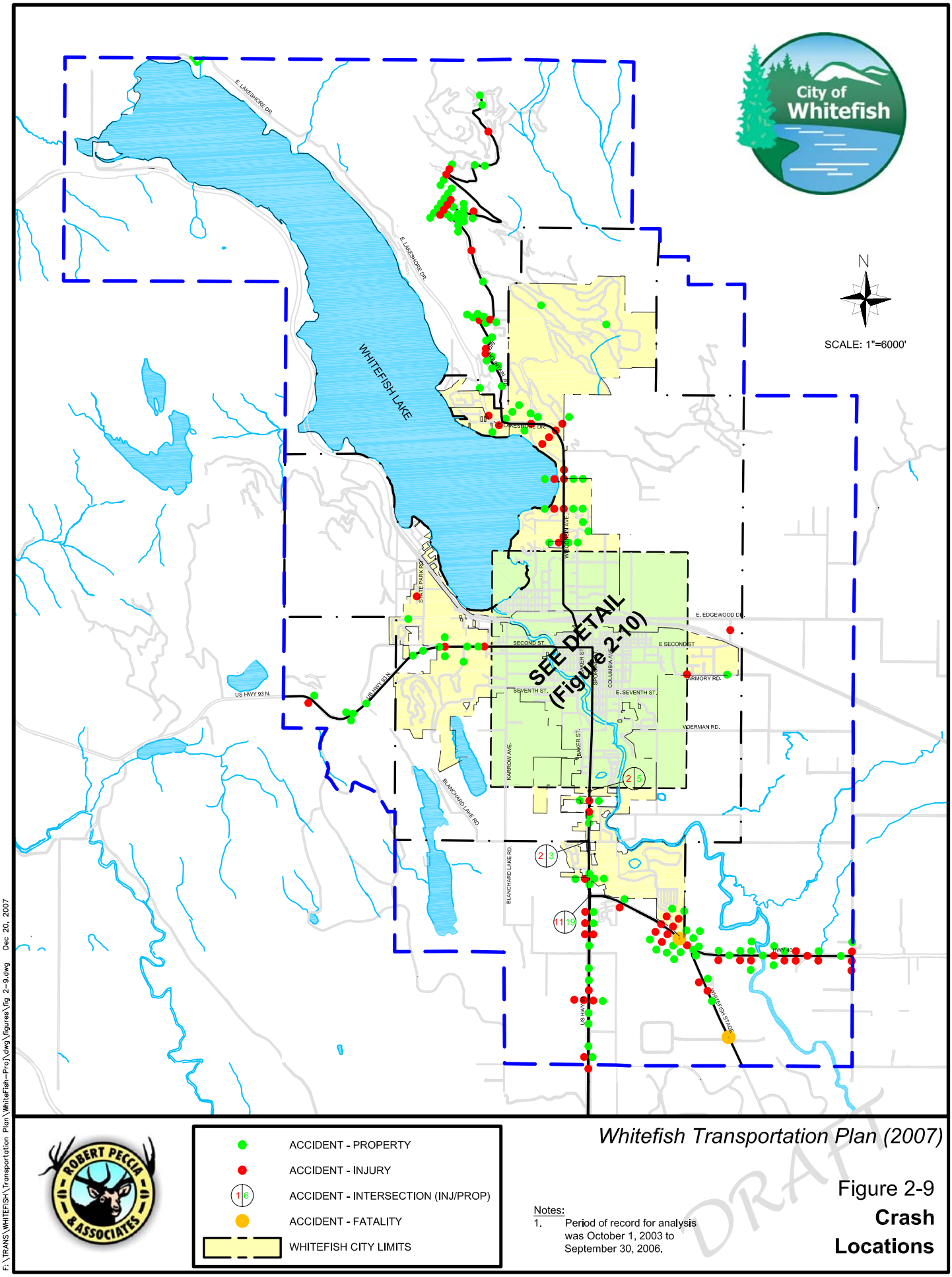
**"S"=Signalized, "U-2W"=Unsignalized two-way stop controlled, "U-3W"=Unsignalized three-way stop controlled, "U-4W"=Unsignalized four-way stop controlled.*

Table 2-4
Intersection Crash Analysis Crash Rate

Intersection	Type of Control*	# of Crashes	Volume* (vpd)	Rate
U.S. Hwy 93 & Montana Hwy 40	S	30	32,510	0.84
2nd Street & Central Avenue	S	14	20,242	0.63
U.S. Hwy 93 & 13th Street	S	14	28,610	0.45
U.S. Hwy 93 & 2nd Street	S	11	23,632	0.43

**Volume determined using MDT 2003 AADT counts. "vpd" stands for "vehicles per day".*
***"S"=Signalized, "U-2W"=Unsignalized two-way stop controlled, "U-3W"=Unsignalized three-way stop controlled, "U-4W"=Unsignalized four-way stop controlled.*

It is customary to give the intersections included in the crash analysis an even rating, a composite rating score is typically developed based on the three analyses presented above. This composite rating score requires the following criteria: First, the intersection would have a minimum crash rate of 1.0 crash per MEV. Second it must have 10 or more crashes in the three years combined. Third, it must rate in the top 10 of one of the three previous categories. Using these criteria, the intersections would then rated based on their position on each of the three previous tables, giving each equal weight. None of the intersections identified in this analysis, however, had a minimum crash rate of 1.0 crash per MEV required to develop a composite rating as described above. The intersections that were identified in the previous tables are shown on **Figure 2-9** and **Figure 2-10** as are all crashes within the study area for the *Whitefish Transportation Plan* during the three-year time period.



Whitefish Transportation Plan (2007)

Figure 2-9
Crash Locations

Notes:
1. Period of record for analysis was October 1, 2003 to September 30, 2006.

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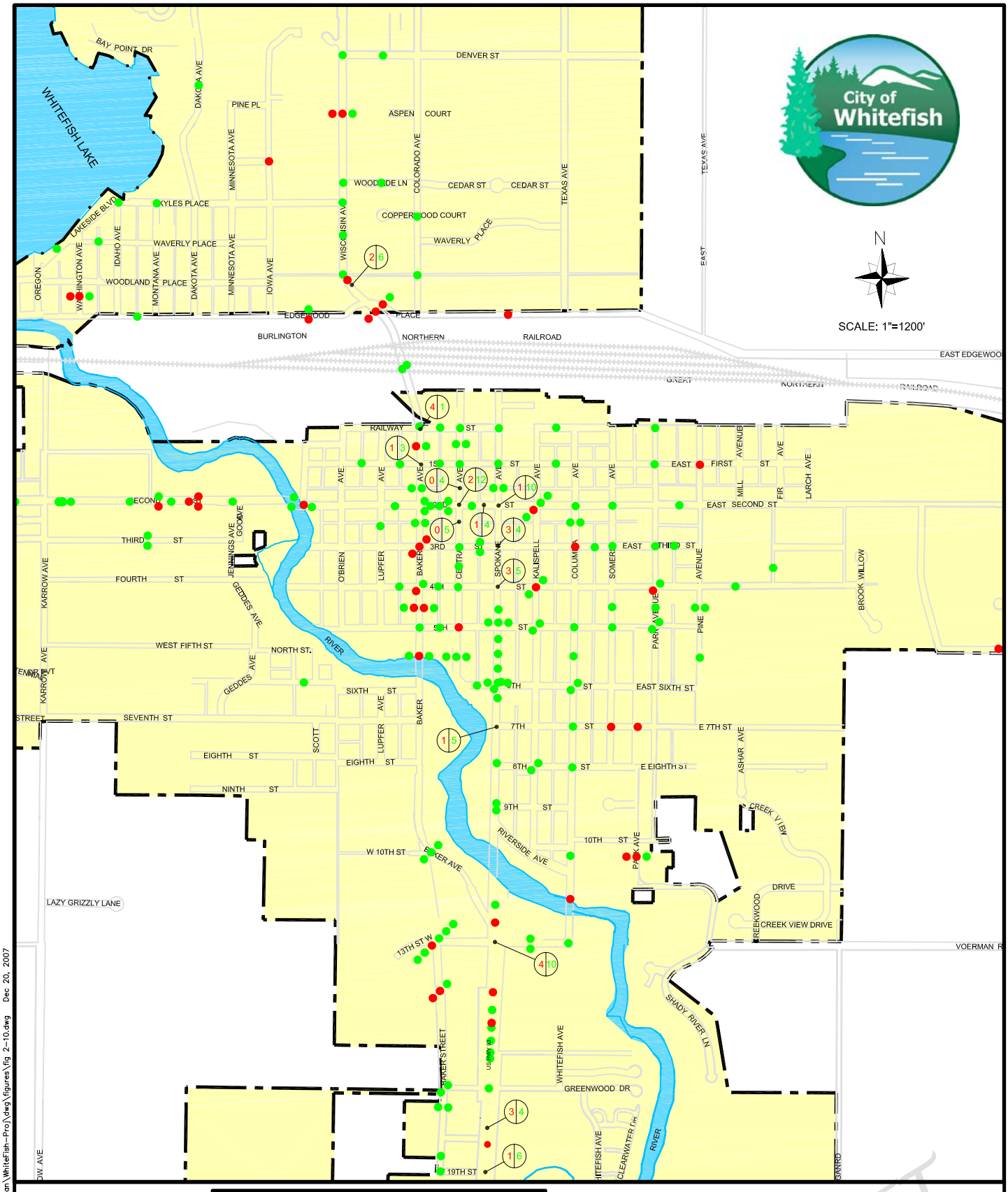
City of Whitefish
N
SCALE: 1"=1200'
WHITEFISH LAKE
BAY POINT DR
LAKESIDE BLVD
PINE PL
DENVER ST
ASPEN COURT
WOODSIDE LN
CEDAR ST
CEDAR ST
COPPERWOOD COURT
WAVERLY PLACE
WAVERLY PLACE
WOODLAND PLACE
EDGEWOOD PLACE
KYLES PLACE
OREGON
WASHINGTON AVE
IDAHO AVE
MONTANA AVE
DAKOTA AVE
MINNESOTA AVE
IOWA AVE
WISCONSIN AVE
COLORADO AVE
TEXAS AVE
BURLINGTON NORTHERN RAILROAD
EAST EDGEWOOD
GREAT NORTHERN RAILROAD
RAILWAY ST
EAST FIRST ST
EAST SECOND ST
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EAST SIXTH ST
O'BRIEN
LUPFER
BAKER
SPOKANE
KALISPELL
COLUMBIA
SOMERS
AVENUE
PARK AVENUE
PINE
BROOK WILLOW
ASHAR AVE
CREEK VIEW
CREEK VIEW DRIVE
DRIVE
CREEKWOOD
VOERMAN R
SHADY RIVER LN
RIVERSIDE AVE
KARROW AVE
GEDDES AVE
JENNINGS AVE
GOODWIN
SCOTT
BAKER STREET
WHITEFISH AVE
GREENWOOD DR
CLEARWATER LN
RIVER
LAZY GRIZZLY LANE
13TH ST W
19TH ST
ACCIDENT - PROPERTY
ACCIDENT - INJURY
ACCIDENT - INTERSECTION (INJ/PROP)
ACCIDENT - FATALITY
WHITEFISH CITY LIMITS
ROBERT PECCIA & ASSOCIATES
Whitefish Transportation Plan (2007)
Notes:
1. Period of record for analysis was October 1, 2003 to September 30, 2006.
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Figure 2-10
Crash Locations
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2.7 PAST TRANSPORTATION PLANNING PROJECTS

This section provides a list of past transportation planning projects listed for the Whitefish area. These projects were compiled from a variety of sources as listed on **Figures 2-11** and **2-12**. **Table 2-5** gives a brief description of these projects as well as their status. The table is presented graphically in **Figures 2-11** and **2-12**.

Table 2-5

Past Area Transportation Planning Projects

#	Project	Description	Status	Comments
A-1	HWY 93 Couplet	Provide a "contra-flow" lane along Baker Avenue to improve access options. Provide a couplet along Spokane Avenue and Baker Avenue.	Incomplete	
A-2	New 7th Street Bridge	Provide a new bridge crossing at Seventh Street that would connect Baker Avenue and Spokane Avenue.	Incomplete	Included as MSN-4
A-3	2nd Street Improvements Between Spokane Ave and Baker Ave	Provide turn lanes and improve truck-turning radii at the intersection of Second Street and Baker Avenue. Prohibit left turn lanes from Second Street onto Central Avenue.	Incomplete	
B-1	Kalner Lane (Alternative E)	Provide a new route beginning at the intersection of Peregrine Lane and Armory Road then continue west then south along the half section line. The route then continues south across Voerman Road and Monegan Road then travels across the river along the eastern boundary of the Riverside at Whitefish development to intersect with Route 40.	Incomplete	Modified and included as MSN-6
B-2	(Alternative F)	Provide a new route that would begin at East Second Street between Armory Fields and the airport. The route would then follow the east side of the Armory Fields and extend south along the section line to connect with Armory Road. Armory Road would then be extended from the intersection with Voerman Road south to intersect with Route 40.	Incomplete	
B-3	Seventh Street (Alternative B)	Extend Seventh Street to the east and south to connect with Voerman Road at the intersection of Monegan Road.	Incomplete	Included as MSN-5
B-4	Voerman Road (Alternative C)	Extend Voerman Road to the west across the river to connect with Columbia Avenue.	Incomplete	Included as MSN-10
C-1	JP Road Reconstruction	Street Reconstruction	Complete	
C-2	Central Avenue Reconstruction	Railway to 5th Street	Incomplete	2009 start
C-3	Flint Avenue & 6th Street	Culvert and channel improvements	Incomplete	Part of 6th and Geddes (2011-2012)
C-4	Colorado Avenue Reconstruction	Edgewood to Woodside replacement/upgrade street and utility upgrades in accordance with street reconstruction priorities	Complete	
D-1	HWY 93 Widening (1)	Widen US 93 from MT 40 north to the Whitefish River to accommodate two through travel lanes in each direction and a center landscaped median incorporating left-turn lanes where needed.	Incomplete	
D-2	HWY 93 Widening (2)	Widen US 93 from Karrow Avenue west to Lion Mountain Road to incorporate a center landscaped median with left-turn lanes where needed and one through lane in each direction.	Incomplete	
D-3	Wisconsin Avenue	Between the viaduct and Big Mountain Road, add detached bicycle paths and turn lanes at high volume intersections, striping and signage to prohibit passing on the entire length, and caution pedestrian/bicycle signage. Prepare an alignment study for widening, boulevard landscaping, and storm sewer facilities.	Incomplete	Bid not awarded, rebidding 2008
D-4	Spokane Ave	Between the Whitefish River and 7th Street, restripe and prohibit on-street parking to accommodate four through traffic lanes.	Incomplete	
D-5	2nd Street	Widen west of the Whitefish River to incorporate a center median with left-turns without restricting the numerous adjacent residences and small businesses.	Incomplete	2009 Start

D-6	7th Street (1)	Construct an extension of 7th Street east of Spokane Ave to Kalispell Ave to accommodate one lane in each direction. Repave and install sidewalks between Spokane Avenue and Pine Avenue. Designate as route to Whitefish schools.	Incomplete	
D-7	6th Street	Repave and install sidewalks between Spokane Avenue and Pine Avenue.	Incomplete	
D-8	7th Street (2)	Add 25 mph speed limit signage and increase speed enforcement between Karrow and Baker. Install curve warning sign for east and westbound traffic at O'Brien Avenue.	Complete	
D-9	Baker Ave	Stripe left-turn lane from southbound Baker Avenue to eastbound 1st Street to reduce turn movements at the intersection of 2nd Street and Baker Avenue.	Incomplete	
D-10	East 2nd Street	Include curb, gutter and sidewalk in the developed areas and widened shoulders for pedestrians and bicyclists in the more rural areas.	Incomplete	
E-1	Just south of and parallel to the western portion of JP Road		Incomplete	
E-2	To the west of and parallel to HWY 93		Incomplete	
E-3	JP Road		Complete	
E-4	To the east of and parallel to HWY 93		Incomplete	
E-5	13th Street West		Incomplete	
E-6	Greenwood Drive / 18th Street		Partially complete	East of Highway 93 complete
E-7	Commerce Street		Incomplete	
E-8	West 19th Street		Incomplete	
E-9	O'Brien Avenue		Incomplete	
F-1	Dakota Avenue Reconstruction 2	Reconstruction of Dakota Avenue from Bay Point Drive to Glenwood Road	Incomplete	
F-2	Dakota Avenue Reconstruction 1	Reconstruction of Dakota Avenue from Skyles Place to Bay Point Drive. New pedestrian/bicycle facilities to be included.	Incomplete	
F-3	Skyles Place One-Way	Convert to a one-way street during the summer between Idaho Avenue and Dakota Avenue to provide a pedestrian/bicycle route to City Beach	Incomplete	Modified and included as MSN-14
F-4	Washington Avenue Reconstruction	Reconstruction of roadway and sidewalks between Edgewood Place and Lakeside Boulevard.	Incomplete	
F-5	Woodland Place Reconstruction	Reconstruction between Dakota Avenue and Iowa Avenue with new sidewalks.	Incomplete	
F-6	Minnesota Avenue Reconstruction	Reconstruction of roadway and sidewalks between Edgewood Place and Skyles Place.	Incomplete	
F-7	Colorado Avenue Reconstruction & Pedestrian/Bicycle Facilities	Reconstruction from Edgewood Place to Denver street with new pedestrian/bicycle facilities being constructed from Edgewood Place to Mountain Trails Park. Sidewalk will also be included on the opposite side of the street from the pedestrian/bicycle path.	Complete	
F-8	Texas Avenue Reconstruction	Reconstruction between Edgewood Place and Denver Street.	Incomplete	
F-9	Railway Street Reconstruction	Reconstruction between O'Brien Avenue and Baker Avenue.	Complete	
F-10	1st Street Reconstruction 1	Reconstruction of roadway and sidewalks between Miles Avenue and Central Avenue.	Complete	
F-11	2nd Street Pedestrian Facilities	New sidewalk installation on the south side from Good Avenue to approximately one half block west of Lupfer Avenue.	Incomplete	
F-12	Lupfer Avenue Reconstruction	Reconstruction of roadway and sidewalks from 2nd Street to 5th Street.	Incomplete	
F-13	4th Street Reconstruction	Reconstruction of roadway and sidewalks from the Mountain View Manor to Baker Avenue.	Incomplete	
F-14	1st Street Reconstruction 2	Reconstruction of roadway and sidewalks from Kalispell Avenue to Fir Avenue.	Incomplete	

F-15	East 2nd Street Reconstruction	Reconstruction of roadway and sidewalks from Spokane Avenue and Larch Avenue with new sidewalks being installed on the south side between Pine and Larch and on the north side for the half block west of Larch.	Complete	
F-16	3rd Street Reconstruction/Overlay	Reconstruction of roadway and sidewalks from Kalispell Avenue to Park Avenue and a pavement overlay between Park Avenue and Pine Avenue.	Incomplete	
F-17	4th Street Reconstruction	Reconstruction from Pine Avenue to Fir Avenue with curb and gutter being placed on the south side inline with that on adjacent blocks to separate the high school parking area from the roadway.	Incomplete	
F-18	Columbia Avenue Reconstruction	Reconstruction of roadway and sidewalks between Railway Street and 7th Street.	Complete	
F-19	6th Street Reconstruction	Reconstruction from Central Avenue to Pine Avenue with new sidewalks to be included.	Incomplete	
F-20	7th Street Reconstruction	Roadway and Sidewalk reconstruction from Pine Avenue to Cow Creek with the sidewalks being separated from the curb by a four to five foot grass boulevard if possible.	Complete	
F-21	Kalispell Avenue Reconstruction	Reconstruction with new sidewalks from 4th Street to Riverside Avenue.	Incomplete	
F-22	9th Street Reconstruction	Reconstruction with new sidewalks from Spokane Avenue and Columbia Avenue.	Incomplete	
F-23	Park Avenue Reconstruction	Reconstruction with new sidewalks from 8th Street to 450 feet south of 10th Street.	Incomplete	
F-24	Riverside Avenue Reconstruction	Reconstruction with new sidewalks from Spokane Avenue and Columbia Avenue.	Incomplete	
F-25	Greenwood Drive		Complete	

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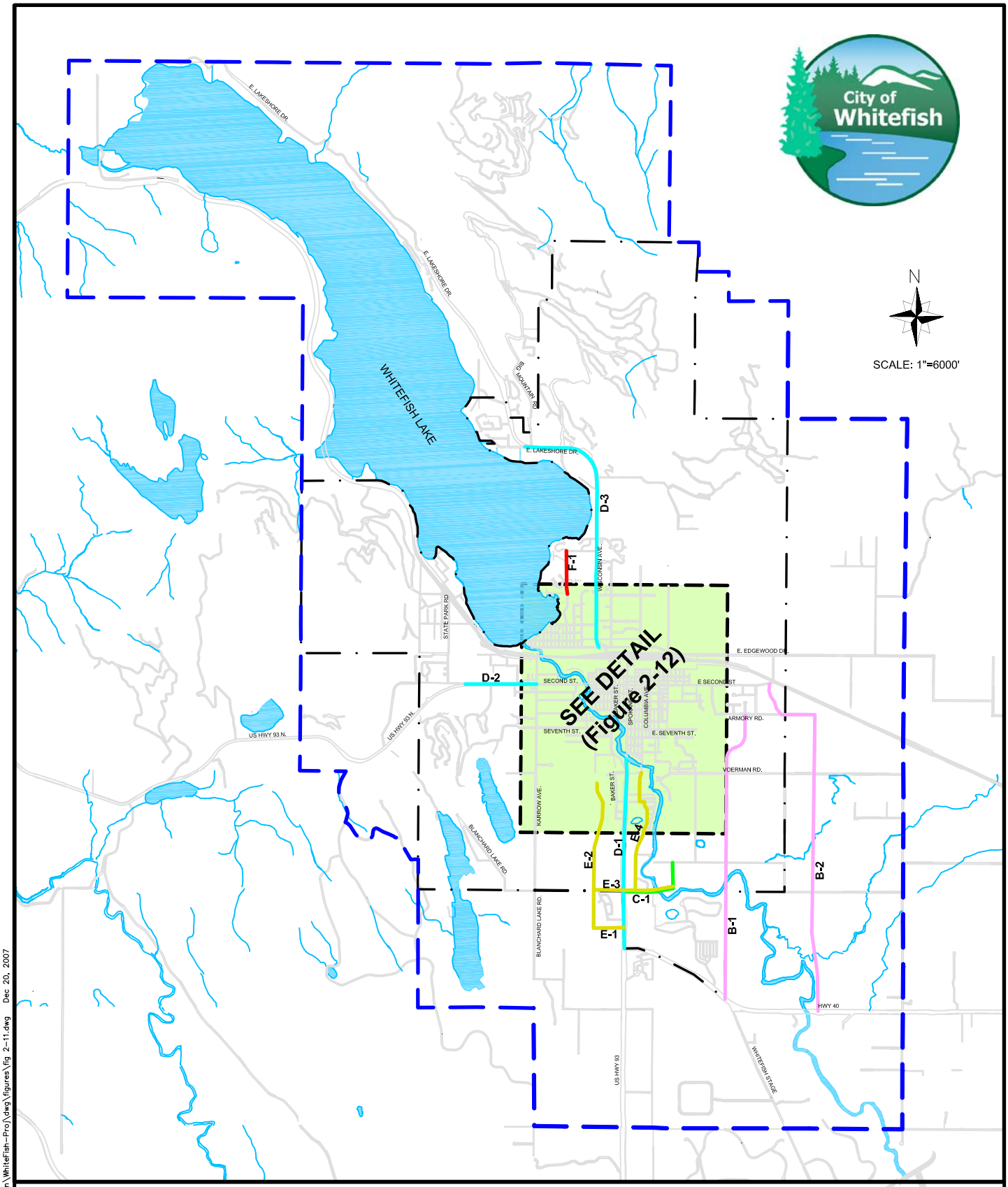

WHITEFISH DOWNTOWN BUSINESS DISTRICT MASTER PLAN
SOUTHEAST WHITEFISH TRANSPORTATION PLAN
CAPITAL IMPROVEMENTS PROJECT
WHITEFISH CITY / COUNTY MASTER PLAN
SOUTH WHITEFISH TRANSPORTATION PLANNING PROJECT
TRANSPORTATION & STORM DRAINAGE MASTER PLAN.
WHITEFISH, MONTANA
TRAFFIC IMPACT STUDY O'BRIEN BWFF RESIDENTIAL DEVELOPMENT

Whitefish Transportation Plan (2007)

Figure 2-11

Past Area Transportation Planning Projects

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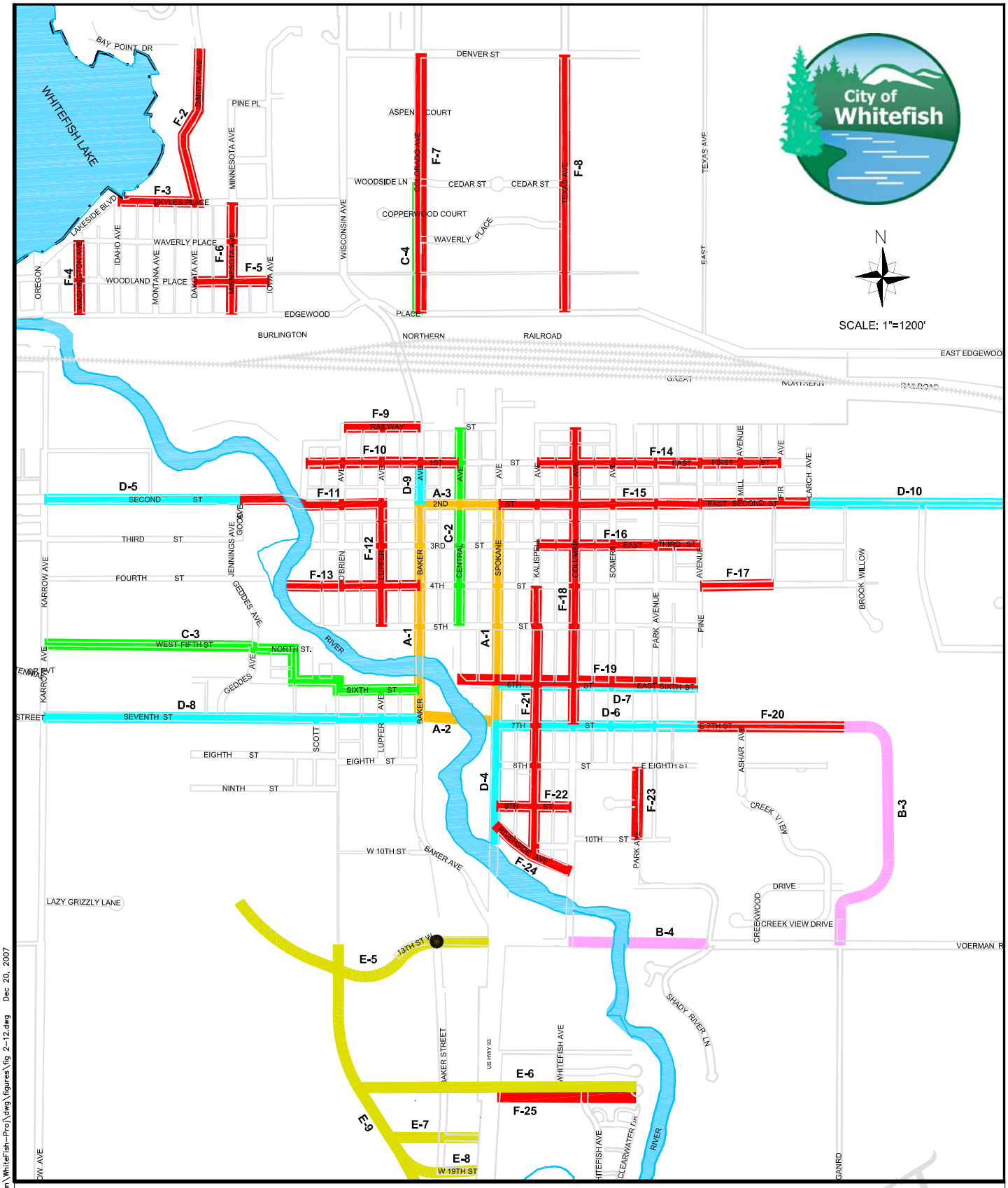

Whitefish Transportation Plan (2007)

Figure 2-12

Past Area Transportation Planning Projects

- WHITEFISH DOWNTOWN BUSINESS DISTRICT MASTER PLAN
- SOUTHEAST WHITEFISH TRANSPORTATION PLAN
- CAPITAL IMPROVEMENTS PROJECT
- WHITEFISH CITY / COUNTY MASTER PLAN
- SOUTH WHITEFISH TRANSPORTATION PLANNING PROJECT
- TRANSPORTATION & STORM DRAINAGE MASTER PLAN. WHITEFISH, MONTANA
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2.8 NON-MOTORIZED TRANSPORTATION PROJECTS

This section provides a list of past non-motorized transportation planning projects listed for the Whitefish area. **Tables 2-5** and **2-6** give a brief description of these projects. The tables are presented graphically in **Figures 2-13** and **2-14**.

Table 2-6

Trails Listed in the Whitefish Bicycle and Pedestrian Master Plan

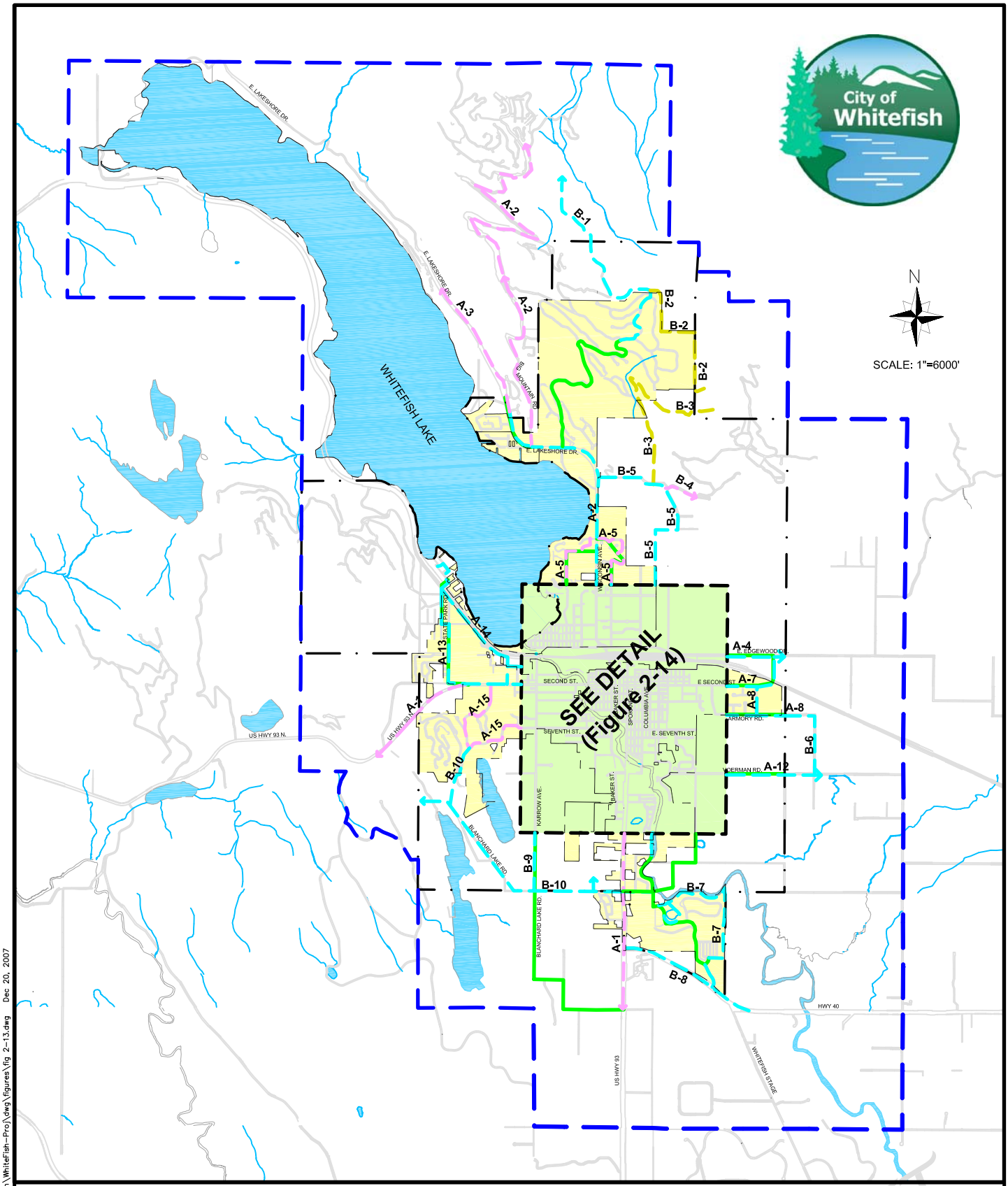
#	Identification	Description	Location	Trail Type	Preferred Facility
A-1	U.S. Highway 93 Corridor	This trail begins south of Whitefish and extends northerly through the City along Spokane Avenue. The trail joins Second Street and follows the route westerly through the City past Whitefish Lake Golf Course. U.S. Highway 93 is on the National Highway System (NHS).	On-Street	Bikeway and Walkway	Bike Lane Sidewalk/Ped Path
A-2	Wisconsin Avenue - Big Mountain Road	This trail begins at the intersection of Baker Avenue and Second Street and extends northerly across the BNSF viaduct to join with Wisconsin Avenue. The route extends northerly along Wisconsin Avenue and East Lakeshore Drive before joining Big Mountain Road. Big Mountain Road leads to the Big Mountain Ski Area. The trail segment is designated as Secondary 487 on the state highway system.	On-Street	Bikeway and Walkway	Shoulder Bikeway Ped/Bike Path
A-3	East Lakeshore Drive	This trail begins at the intersection of East Lakeshore Drive and the Big Mountain Road (Secondary Highway 487) and continues north and west to end near Lakewood Estates.	On-Street	Bikeway	Shoulder Bikeway
A-4	Edgewood Place - City Beach	This trail follows the northern perimeter of the BNSF property along Edgewood Place from Washington Avenue east to the intersection with Second Street East outside the City. Washington Avenue at the trails west end accesses City Beach.	On-Street	Bikeway and Walkway	Shared Road, Shoulder Bikeway Ped Path
A-5	Dakota Avenue - Colorado Avenue	This trail begins and ends on Edgewood Place and runs parallel to Wisconsin Avenue via Dakota and Colorado Avenue. The trail crosses Wisconsin Avenue at Colorado Avenue's intersection with Parkway Avenue.	On-Street	Bikeway	Shared Road, Shoulder Bikeway
A-6	Railway Street - Pine Avenue	This trail extends from the intersection of Railway Street and O'Brien Avenue easterly along Railway Street to Pine and then runs southerly along Pine to end at the intersection of Pine and Seventh Street East.	On-Street	Bikeway and Walkway	Shared Road Sidewalk
A-7	Second Street East	The trail follows Second Street from Spokane Avenue east past Armory Fields and across the BNSF before joining Edgewood Place outside the City.	On-Street	Bikeway	Shared Road, Bike Lane, Wide Curb Lane
A-8	Armory Road - Armory Fields	This trail extends southward from the intersection of Armory Road and Second Street and then easterly to end at the Armory Fields complex. The trail includes Dodger Avenue between Armory Road and Second Street East.	On-Street	Bikeway	Shared Road, Wide Curb Lane
A-9	Seventh Street - Columbia Avenue	The trail includes Seventh Street between Spokane Avenue and the Cow Creek Trail and a segment of Columbia Avenue between the Whitefish River bridge and Seventh Street. The trail then follows Thirteenth Street from U.S. Highway 93 to Columbia Avenue.	On-Street	Bikeway	Shared Road
A-10	Baker Street - Riverside/Baker Parks	This north-south trail extends along Baker Street from Second Street past Riverside and Baker Parks to Commerce Street. A short segment along Commerce connects the trail to U.S. Highway 93.	On-Street	Bikeway	Shared Road
A-11	Karrow Avenue - Seventh Street	The trail runs from U.S. Highway 93 (Second Street) southward along Karrow Avenue to Seventh Street and then eastward to Riverside Park.	On-Street	Bikeway and Walkway	Shared Road, Ped/Bike Path
A-12	Tenth Street - Voerman Road	This trails extends easterly from the intersection of Tenth Street and Columbia Avenue through neighborhoods adjoining the Whitefish River and across Cow Creek to join Voerman Road. The trail then proceeds due east for about a mile along Voerman Road.	On-Street	Bikeway and Walkway	Shared Road, Sidewalk, Shoulder

A-13	Golf Course - Whitefish State Park	The trail runs from the Whitefish River Trail near City Beach around the perimeter of Whitefish Lake Golf Course along U.S. Highway 93 and State Park Road to end at Whitefish State Park.	On-Street	Bikeway and Walkway	Shared Road Ped Path
A-14	Edgewood-Birch Drive - State Park Road	This trail begins at the proposed Whitefish River Crossing at Edgewood near the BNSF trestle, crosses the tracks via Birch Drive, and continues to State Park Road via the 30-foot-wide Lakeside Avenue right-of-way and through City Park (golf course) property.	On-Street	Bikeway and Walkway	Shared Road, Ped/Bike Path
A-15	Grouse Mountain - Seventh Street	This trail winds through the Grouse Mountain development and connects U.S. Highway 93 with Karrow Avenue via Fairway Drive and Seventh Street.	On-Street	Bikeway	Shared Road, Wide Curb Lane
A-16	Fifth Street	The trail extends from Baker Park due east along Fifth Street to Muldown Elementary and Whitefish High Schools.	On-Street	Bikeway and Walkway	Bike Lane Sidewalk
A-17	Whitefish River Trail	This trail follows the Whitefish River from the BNSF through the community to where the river is joined by Cow Creek. The River Trail includes segments developed as part of the City's planned trail projects in Riverside Park and from Riverside Park through the Duck Inn property adjacent to Columbia Avenue.	Off-Street	Bikeway and Walkway	Two-Direction Ped/Bike Path
A-18	Cow Creek Trail	The Cow Creek Trail generally parallels the creek and extends from Second Street East southwesterly along the city limits before joining the Whitefish River Trail near the Duck Inn.	Off-Street	Bikeway and Walkway	Two-Direction Ped/Bike Path

Table 2-7

Trails Not Listed in the Whitefish Bicycle and Pedestrian Master Plan

#	Identification	Description	Location	Trail Type
B-1	Iron Horse	Extension of Iron Horse to the North.	On-Street	Bikeway and Walkway
B-2		Runs along the northeast part of the City boundary.		Bikeway and Walkway
B-3	Huckleberry Ln		On-Street	Bikeway and Walkway
B-4	Reservoir Rd	Runs east along Reservoir Rd.	On-Street	Bikeway
B-5	Texas Ave	Starts at the intersection of Texas Ave and Edgewood Dr then heads north and east to connect with Reservoir Dr.		Bikeway and Walkway
B-6	Armory Rd	Follows Armory Rd south to connect with Voerman Rd.	On-Street	Bikeway and Walkway
B-7		Follows the south east city boundary along the river then heads south to connect with hwy 40.		Bikeway and Walkway
B-8	HWY 40	Starts at the intersection of HWY 40 and HWY 93 then heads east along HWY 40 to the intersection with Whitefish Stage.	On-Street	Bikeway and Walkway
B-9	Karrow Ave	Follows Karrow north from intersection with Blanchard Lake to intersection with 7th Street.	On-Street	Bikeway and Walkway
B-10		Starts at the intersection of Mountainside Dr and Fairway Dr then follows Mountainside Dr south to Blanchard Lake Rd. Follows Blanchard Lake south and east to Karrow Ave then goes east to connect to JP Road.	On-Street	Bikeway and Walkway
B-11	Waverly Place	Follows Waverly Place from Washington Ave to Dakota Ave.	On-Street	Bikeway and walkway from Washington Ave to Idaho Ave, then Bikeway only to Dakota Ave
B-12	Denver Street	Follows Denver Street from Wisconsin Ave to Texas Ave	On-Street	Bikeway and Walkway
B-13		From 1st Street West to 2nd Street West.	On-Street	Bikeway and Walkway
B-14	Spokane Ave	Follows Spokane Ave from 2nd St to Railway St.	On-Street	Bikeway and Walkway
B-15	6th St	Follows 6th St from 5th Street to Whitefish River Trail.	On-Street	Bikeway and Walkway
B-16		Connects the east end of 7th St to Voerman Rd at the intersection with Windy Flats Rd.		Bikeway and Walkway
B-17	13th St	Starts at the intersection of 13th St and Baker St then heads southwest.		Bikeway and Walkway
B-18		Follows the Whitefish River south and starts at the intersection of the Whitefish River Trail and Cow Creek Trail.		Bikeway and Walkway



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Whitefish Transportation Plan (2007)

Figure 2-13
Non-Motorized Transportation Facilities

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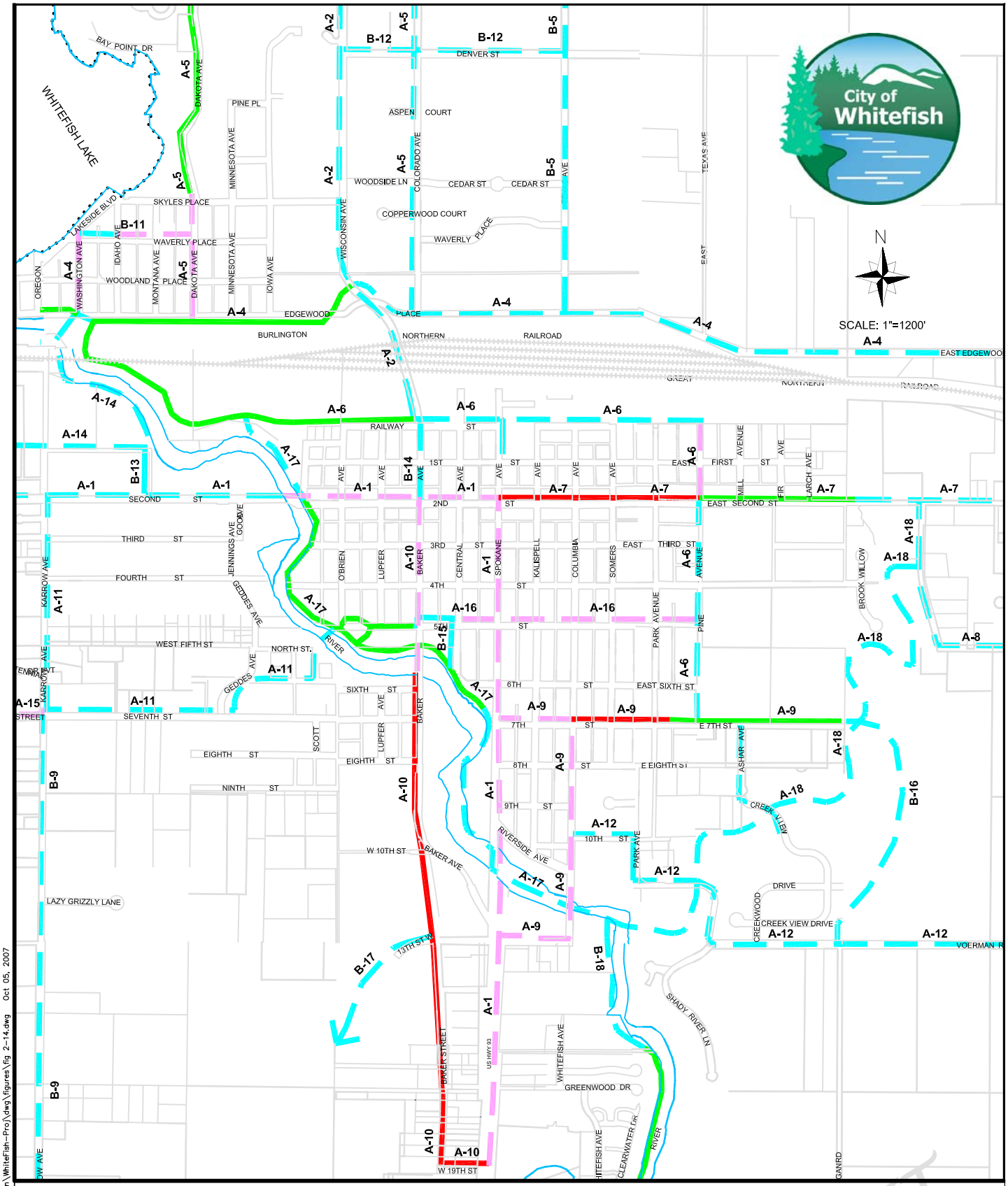

BICYCLE ROUTE (ON ROAD)
PROPOSED BICYCLE ROUTE
PEDESTRIAN AND BICYCLE PATH (PAVED)
PROPOSED PEDESTRIAN AND BICYCLE PATH (PAVED)
PEDESTRIAN AND BICYCLE PATH (UNPAVED)
PROPOSED PEDESTRIAN AND BICYCLE PATH (UNPAVED)

Whitefish Transportation Plan (2007)

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Figure 2-14
Non-Motorized Transportation Facilities

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2.9 EXISTING INTERSECTION LEVELS OF SERVICE

Urban road systems are ultimately controlled by the function of the major intersections. Intersection failure directly reduces the number of vehicles that can be accommodated during the peak hours that have the highest demand and the total daily capacity of a corridor. As a result of this strong impact on corridor function, intersection improvements can be a very cost-effective means of increasing a corridor's traffic volume capacity. In some circumstances, corridor expansion projects may be able to be delayed with correct intersection improvements. Due to the significant portion of total expense for road construction projects used for project design, construction, mobilization, and adjacent area rehabilitation, a careful analysis must be made of the expected service life from intersection-only improvements. If adequate design life can be achieved with only improvements to the intersection, then a corridor expansion may not be the most efficient solution. With that in mind, it is important to determine how well the major intersections are functioning by determining their Level of Service (LOS).

In order to calculate the LOS, 25 intersections on the major street network were counted during the spring/summer of 2007. An additional 10 intersections included in this report were counted as part of previous projects. These intersections included all signalized intersections and selected high-volume unsignalized intersections. Each intersection was counted between 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., to ensure that the intersection's peak volumes were represented. Based upon this data, the operational characteristics of each intersection were obtained.

The intersections counted included Whitefish's 7 signalized intersections and 28 unsignalized intersections in the city and the county. Level of service (LOS) is a qualitative measure developed by the transportation profession to quantify driver perception for such elements as travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles. It provides a scale that is intended to match the perception by motorists of the operation of the intersection. Level of Service provides a means for identifying intersections that are experiencing operational difficulties, as well as providing a scale to compare intersections with each other. The LOS analysis for the existing intersections was conducted according to the procedures outlined in the Transportation Research Board's ***Highway Capacity Manual – Special Report 209*** using the Highway Capacity Software, version 4.1f.

The level of service scale is based on the ability of an intersection or street segment to accommodate the amount of traffic using it. The scale ranges from "A" which indicates little, if any, vehicle delay, to "F" which indicates significant vehicle delay and traffic congestion. Under most circumstances, a level of service of C or better (i.e. A, B or C) is considered to be the standard by which traffic operations are judged. It must be recognized that the level of service scale relates to traffic operations, and do not necessarily take into account the concept of desirable "community values". For example, some communities may accept a lower level of service standard from a traffic operational perspective if other amenities are provided (i.e. sidewalks, bicycle lanes, street trees, etc.). In many smaller communities, the particular level of service that is deemed acceptable may be based on factors other than facilitating traffic flow and transportation operations.

2.9.1 Signalized Intersections

For signalized intersections, recent research has determined that average stopped delay per vehicle is the best available measure of level of service. The following table identifies the relationship between level of service and average stopped delay per vehicle. The procedures used to evaluate signalized intersections use detailed information on geometry, lane use, signal timing, peak hour volumes, arrival types and other parameters. This information is then used to calculate delays and determine the capacity of each intersection. An intersection is determined to be functioning adequately if operating at LOS C or better. **Table 2-8** shows the LOS by stopped delay for signalized intersections.

Table 2-8
Level of Service Criteria (Signalized Intersections)

Level of Service	Stopped Delay per Vehicle (sec)
A	< 01
B	10 to 20
C	20 to 35
D	35 to 50
E	50 to 80
F	> 80

Using these techniques and the data collected in the spring/summer of 2007, the LOS for the signalized intersections was calculated. **Tables 2-9 & 2- 10** show the AM and PM peak hour LOS for each individual leg of the intersections, as well as the intersections as a whole. The intersection LOS is shown graphically in **Figure 2-15** and **Figure 2-16**.

Table 2-9
2007 AM Peak LOS (Signalized Intersections)

Intersection	EB	WB	NB	SB	INT
Baker Avenue & 2nd Street	D	C	A	B	C
Central Avenue & 2nd Street	B	C	A	A	B
Spokane Avenue & 2nd Street	B	B	D	B	C
Spokane Avenue & 13th Street	C	C	B	C	C
Spokane Avenue & Commerce Street	C	C	C	C	C
U.S. Hwy 93 & Montana Hwy 40	C	F	C	C	F
Wisconsin Avenue & Edgewood Place*	B	B	A	A	A

**intersection not counted by RPA*

Table 2-10
2007 PM Peak LOS (Signalized Intersections)

Intersection	EB	WB	NB	SB	INT
Baker Avenue & 2nd Street	F	D	B	B	E
Central Avenue & 2nd Street	C	C	A	A	C
Spokane Avenue & 2nd Street	B	B	F	C	F
Spokane Avenue & 13th Street	C	C	B	D	C
Spokane Avenue & Commerce Street	C	C	C	C	C
U.S. Hwy 93 & Montana Hwy 40	C	F	C	E	F
Wisconsin Avenue & Edgewood Place*	B	B	A	A	A

**intersection not counted by RPA*

2.9.2 Unsignalized Intersections

Level of service for unsignalized intersections is based on the delay experienced by each movement within the intersection, rather than on the overall stopped delay per vehicle at the intersection. This difference from the method used for signalized intersections is necessary since the operating characteristics of a stop-controlled intersection are substantially different. Driver expectations and perceptions are also entirely different. For two-way stop controlled intersections, the through traffic on the major (uncontrolled) street experiences no delay at the intersection. Conversely, vehicles turning left from the minor street experience more delay than other movements and at times can experience significant delay. Vehicles on the minor street, which are turning right or going across the major street, experience less delay than those turning left from the same approach. Due to this situation, the level of service assigned to a two-way stop controlled intersection is based on the average delay for vehicles on the minor street approach.

Levels of service for all-way stop controlled intersections are also based on delay experienced by the vehicles at the intersection. Since there is no major street, the highest delay could be experienced by any of the approaching streets. Therefore, the level of service is based on the approach with the highest delay as shown in **Table 2-11**. This table shows the LOS criteria for both the all-way and two-way stop controlled intersections.

Table 2-11
Level of Service Criteria (Stop Controlled Intersections)

Level of Service	Stopped Delay per Vehicle (sec)
A	< 01
B	10 to 15
C	15 to 25
D	25 to 35
E	35 to 50
F	> 50

Using the above guidelines, the data collected in the spring/summer of 2007, and calculation techniques for two-way stop controls and all-way stop controls, the LOS for the

unsignalized intersection was counted. The results of these calculations are shown in **Table 2-12**. The intersection LOS is shown graphically in **Figure 2-15** and **Figure 2-16**.

Table 2-12
2007 LOS (Stop-Controlled Intersections)

Intersection	AM	PM	Intersection	AM	PM
Ashar Avenue & 7th Street	A	B	Pine Avenue & 7th Street	B	B
Baker Avenue & 4th Street	B	D	Spokane Avenue & 1st Street	A	A
Baker Avenue & 5th Street	B	C	Spokane Avenue & 4th Street	C	C
Baker Avenue & 7th Street	B	C	Spokane Avenue & 5th Street	C	D
Baker Avenue & 10th Street*	B	B	Wisconsin Avenue & Colorado Avenue*	B	C
Baker Avenue & 13th Street*	B	C	Wisconsin Avenue & Denver Street*	B	C
Baker Avenue & 15th Street*	B	B	Wisconsin Avenue & Glenwood Road*	B	B
Columbia Avenue & 7th Street	B	B	Wisconsin Avenue & Reservoir Road*	B	C
Fir Avenue & 2nd Street	B	B	Wisconsin Avenue & Skyles Place*	B	C
Fir Avenue & 4th Street	B	B	Wisconsin Avenue & Woodside Lane*	C	C
Kalispell Avenue & 2nd Street	C	C	U.S. Highway 93 & Blanchard Lake Road	B	B
Karrow Avenue & 7th Avenue	A	A	U.S. Highway 93 & JP Road	C	C
Pine Avenue & 2nd Street	C	C	U.S. Highway 93 & Karrow Avenue	B	D
Pine Avenue & 4th Street	B	B	U.S. Highway 93 & State Park Road	B	C

** intersection not counted by RPA*

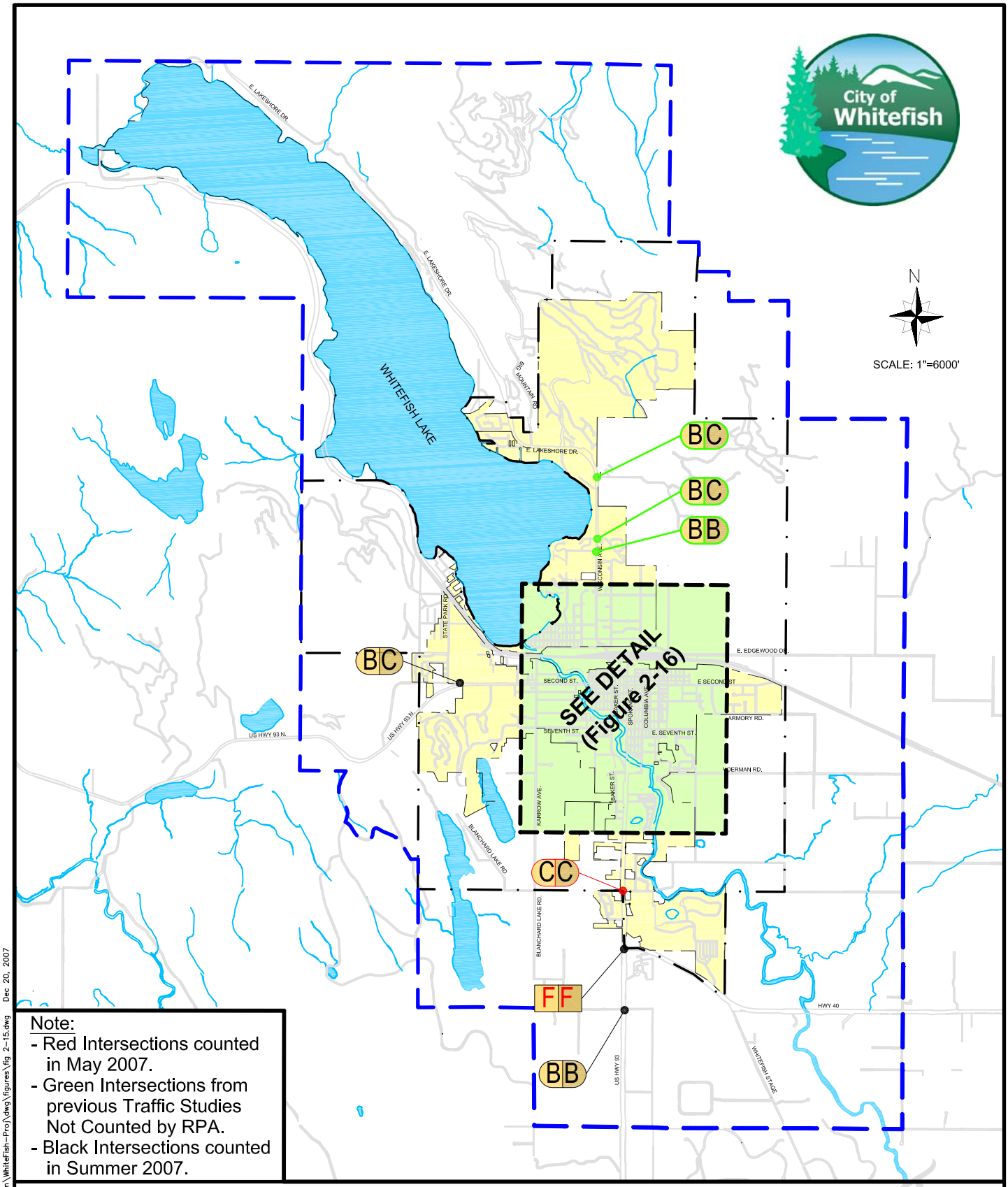
The LOS analyses of the existing conditions in the Whitefish area reveals that some signalized and unsignalized intersections are currently functioning at LOS D or lower. These intersections are shown in **Table 2-13** and are ideal candidates for closer examination and potential intersection improvements measures.

Table 2-13
Existing Intersections Functioning at LOS D or Lower

Intersection		AM Peak Hour LOS	PM Peak Hour LOS
Baker Avenue & 2nd Street	S	C	E
Baker Avenue & 4th Street	U	B	D
Spokane Avenue & 2nd Street	S	C	F
Spokane Avenue & 5th Street	S	C	D
U.S. Hwy 93 & Karrow Avenue	U	B	D
U.S. Hwy 93 & Montana Hwy 40	S	F	F

(S)ignalized

(U)nsignalized



Note:
- Red Intersections counted in May 2007.
- Green Intersections from previous Traffic Studies Not Counted by RPA.
- Black Intersections counted in Summer 2007.

SIGNALIZED INTERSECTION
A.M. → A A ← P.M.

UNSIGNALIZED INTERSECTION
A.M. → A A ← P.M.

A,B,C,D,E,F = LEVEL OF SERVICE

TRANSPORTATION PLAN BOUNDARY
URBAN BOUNDARY

Whitefish Transportation Plan (2007)

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Figure 2-15
Existing Level of Service

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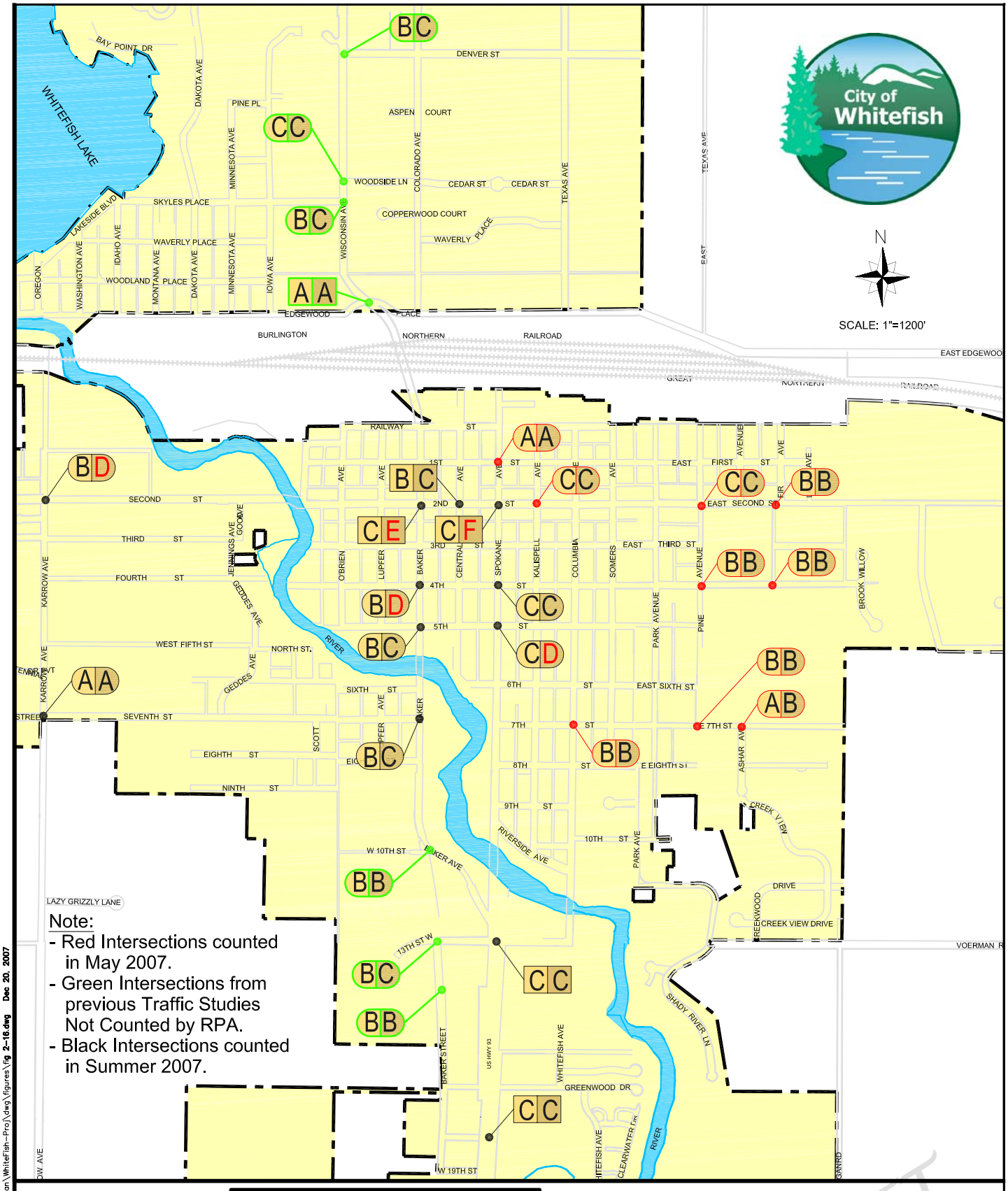

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Figure 2-16

Existing Level of Service

2.10 RECENT TRAFFIC IMPACT STUDIES (TIS'S)

Several Traffic Impact Studies (TIS's) have been completed in the community just prior to the beginning of this Transportation Plan project. These TIS's are typically developer driven, and assess the transportation system immediately adjacent to the development project. The following three (3) TIS's were made available and reviewed during this project's development.

O'Brien Bluff Residential Development (January 2007)

This Traffic Impact Study (TIS) looked at the possible effects on the surrounding roadway system from a proposed 10-acre residential development on the west side of O'Brien Avenue. The following intersections were studied as part of this TIS:

- Baker Avenue and 10th Street
- Baker Avenue and 13th Street
- Baker Avenue and 15th Street

As a result of this study it was determined that the O'Brien Bluff Development would have a minimal impact on the studied intersections. However, the intersection of Baker Avenue and 13th Street will show operational problems regardless of the proposed project and will need to be signalized. The operational problems are due to normal growth as well as other developments in the area such as the Baker Commons development, the Wave expansion, and other projects currently planning for this area.

Wisconsin 20 Residential Development (October 2006)

This Traffic Impact Study (TIS) looked at the possible effects on the surrounding roadway system from a proposed 20-acre residential development located on the western side of Wisconsin Avenue. The development would include up to 122 new residential units, 30% of which would likely be "recreational" or second homes. This TIS looked at a number of intersections that would be impacted by the proposed development. These intersections included:

- Wisconsin Avenue and Reservoir Road
- Wisconsin Avenue and Colorado Avenue
- Wisconsin Avenue and Glenwood Road
- Wisconsin Avenue and the Gas Station
- Wisconsin Avenue and the Alpine Plaza
- Wisconsin Avenue and Denver Street
- Wisconsin Avenue and Woodside Lane
- Wisconsin Avenue and Skyles Place
- Wisconsin Avenue and Edgewood Place

As a result of this study it was determined that when the Wisconsin 20 residential development is completed the new intersection of Marina Way at the Alpine Market will experience delays, however, this delay will be mainly on the eastern approach from the Alpine Market, not the new approach from the proposed development. This delay would

best be mitigated by the installation of a traffic signal at Marina Way and left-turning lanes on Wisconsin Avenue when signalization warrants are met. The TIS also suggested modifying the eastern side of the roadway to connect Marina Way through to Colorado Avenue, which would increase the chances of this intersection meeting a signalization warrant. The TIS also determined that although the intersection of Wisconsin Avenue and Woodside Lane will experience delay due to the proposed project, no mitigation measures would be feasible to correct this problem.

Boardwalk at Whitefish Lake Development (November 2005)

This Traffic Impact Study (TIS) looked at the possible effects on the surrounding roadway system from a proposed 40-acre residential and commercial resort development along Wisconsin Avenue. The property would be developed to include a variety of resort residential condominiums, townhouses, cabins, a spa/recreation center, and a restaurant. The intersections studied as part of this TIS included:

- Wisconsin Avenue and Reservoir Road
- Wisconsin Avenue and the entrance to Whitefish Lake Lodge
- Wisconsin Avenue and Colorado Avenue
- Wisconsin Avenue and Glenwood Road
- Wisconsin Avenue and Woodside Lane
- Wisconsin Avenue and Skyles Place
- Wisconsin Avenue and Edgewood Place

Although no mitigation measures were recommended to address roadway capacity issues under typical conditions, it was suggested that improvements to Wisconsin Avenue adjacent to the development to address peak-season, winter traffic, and pedestrian needs may be desirable. The TIS suggested the installation of raised medians at this location to improve pedestrian safety, decrease vehicle speeds, and provide better roadway operations under peak conditions. However, the installation of a median would also necessitate restricting turning movements at some intersections associated with the Whitefish Lake Lodge.