5.0 TRANSPORTATION FORECASTS

5.1 Demographic and Land Use Projections

Population Projections

Table 5.1 presents population projections within a two mile catchment of the downtown centers of each community in the study area.

Table 5.1 Catchment Area Population Profile (2005 and 2030)

Town	Population 2005	Projected Population 2030	Households 2005	Projected Households 2030
Missoula	32,871	51,000	15,069	23,500
Lolo	3,796	6,000	1,412	2,200
Florence	1,629	2,500	634	1,000
Stevensville	2,745	4,300	1,228	1,900

2005 Source: US Bureau of Census Block Group Data
2030 Source: Center for Rocky Mountain Research,, Application of Average Annual Growth Rate of 1.8%, rounded

Employment Projections

Table 5.2 presents employment projections within a two mile catchment of the downtown centers of each community in the study area.

Table 5.2 Catchment Area Employment Profile (2005 and 2030)

Town	Employment 2005	Projected Employment 2030
Missoula	23,624	35,000
Lolo	855	1,300
Florence	553	800
Stevensville	1,163	1,700

2005 Source: US Bureau of Census Block Group Data and Montana Department of Revenue data for year 2005
2030 Source: Montana Dept. of Labor and Industry, Application of Average Annual Job Growth Rate of 1.6%, rounded

Density Projections

Density changes are difficult to project. Given the amount of undeveloped land available within the study area, density may not increase at the same rate as population. The Missoula Urban Area Land Use Plans shows planned residential densities of one and two dwelling units per acre in the southern boundary of the planning area, which extends through Lolo. The Lolo Regional Plan recommends maintaining rural residential densities, and the addition of small scale commercial development in at least one location in the study area. Because these plans show the perpetuation of typically rural land use patterns, densities will likely remain the same over the planning horizon.

Land Use Projections

Future guidance on land use and development within the study area is provided by the Missoula County Growth Policy Amendment and the 2002 Lolo Regional Plan. The Missoula County Growth Policy Update recommends:

- Encourage land development in areas adjacent to existing public services
- Encourage low density development further from public services
- Encourage low density in areas adjacent to the urban area in order to promote reuse and infill within urban areas

The 2002 Lolo Regional Land Use Plan recommends:

- Focus development in the North Bitterroot Valley Development Area
- Reduce densities further from existing town centers, including Florence and Lolo
- Encourage densities of one unit per acre to one unit per five acres around the US 93 Corridor
- Encourage residential and small scale commercial development at the crossroads of Highway 93 and Old Highway 93. A park and ride currently exists here.

Based on these guiding policies, future land uses may become more dense within Missoula, but will not be expected to add a significant amount of density overall in the study area. The policies established in these two documents encourage development to occur around existing town centers, while maintaining rural areas outside of towns.

5.2 Traffic Projections

Projected Annual Average Daily Traffic Volumes (2030)

2030 AADT values were calculated using the respective growth rates for the northern and southern portions of the corridor, as noted in Section 4.2. Existing (2007) and projected (2030) AADT values for MDT count locations throughout the corridor are listed in Table 5.3.

Table 5.3 Existing and Projected AADT (2007 and 2030)

MP±	2007 AADT	2030 AADT
90.9	33,600	55,400
90.6	34,400	56,700
90.1	26,800	44,200
88.8	26,200	43,300
83.4	20,800	34,300
74.7	11,400	22,500

Source: HKM Engineering, 2007.

Projected Mainline LOS and Peak Hour Mainline Traffic Volumes

Based on traffic volumes projected through the use of growth rates noted in Section 4.2, the two northbound lanes of US 93 are expected to carry approximately 1,000 vehicles near the southern end of the corridor and approximately 3,500 vehicles at the northern end of the corridor during the AM peak hour in 2030, as illustrated in Figure 5-1. During the 2030 PM peak hour, the two southbound lanes of US 93 are expected carry approximately 1,400 vehicles near the southern end of the corridor and approximately 2,800 vehicles at the northern end of the corridor, as illustrated in Figure 5-2. Considering the service volumes listed in Table 4.12, US 93 may operate at LOS A or LOS B in the southern portion of the corridor and LOS C or LOS D in the northern portion of the corridor during the 2030 peak hours, assuming level terrain and a free flow speed of 60 mph. LOS rankings may be lower over portions of the US 93 corridor with rolling terrain and where the free flow speed is closer to 50 mph.

Figure 5-1 AM Peak Hour Traffic Volumes in the US 93 Corridor (2030)

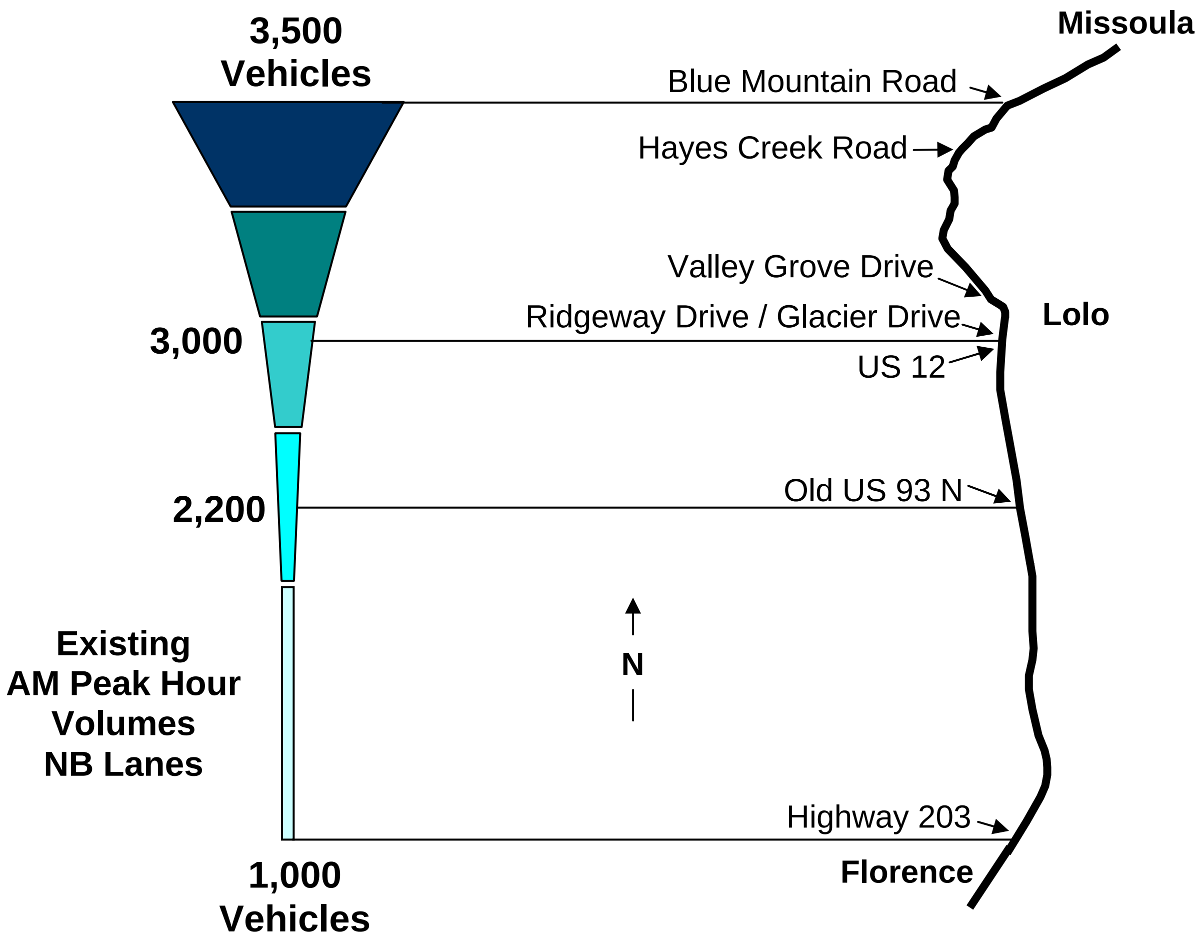
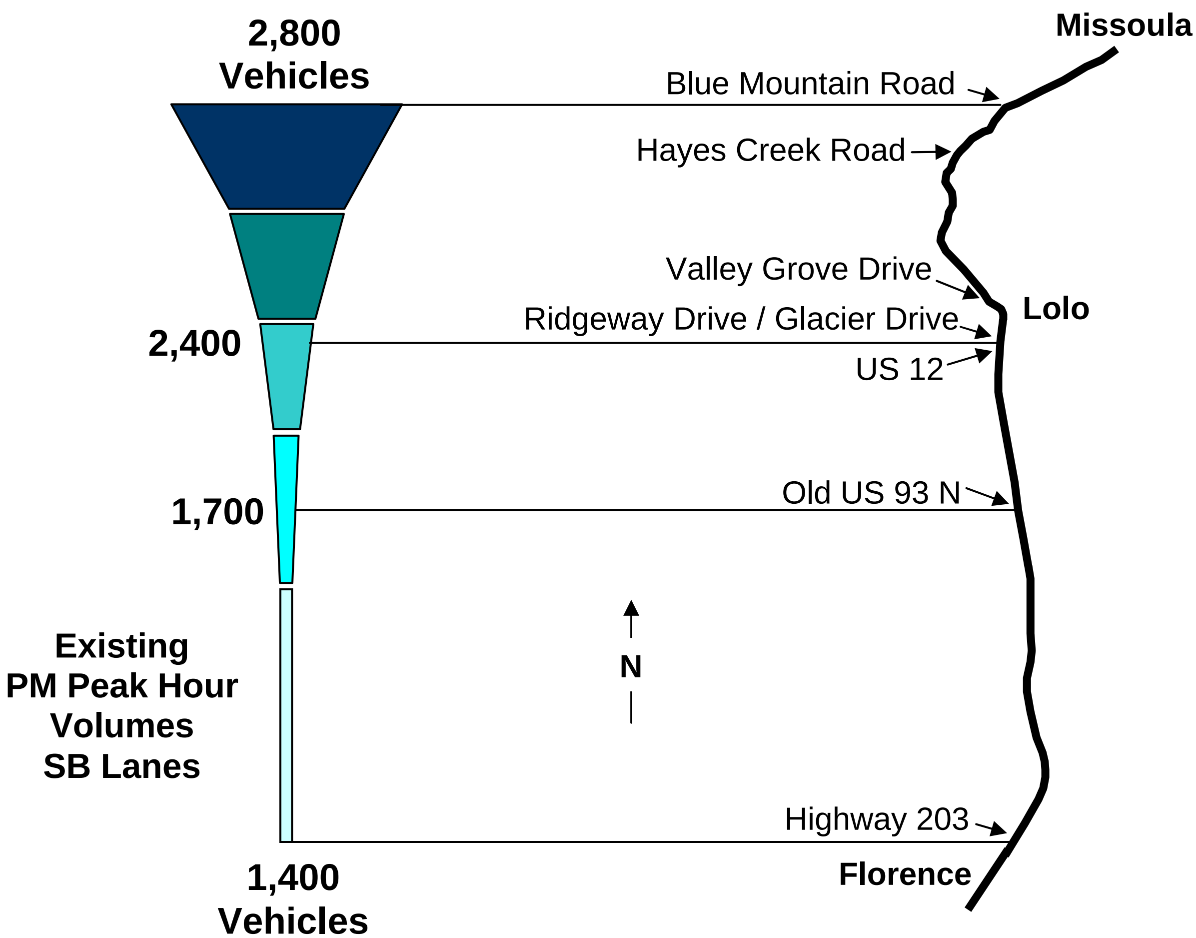


Figure 5-2 PM Peak Hour Traffic Volumes in the US 93 Corridor (2030)



Projected Intersection LOS

As with the operational analysis presented in Chapter 4, stochastic simulation software was used to model the street network and estimate vehicle delay at each study intersection. Multiple runs were performed for each scenario to provide statistically sound results. Due to the random nature of simulation, which creates variation even when using identical input values for each simulation run, the results of this analysis should be viewed as approximate.

Table 5.4 presents 2030 AM and PM peak hour overall intersection LOS for the fourteen intersections evaluated in this study. As shown in Table 5.4, mainline volumes are projected to experience substantial delay at a number of intersections within the corridor during both the AM and PM peak hours. During the AM peak hour, the longest delay is projected to occur in the southern portion of the corridor, with LOS ratings of D, E, and F at intersections in Florence and Lolo. During the PM peak hour, the longest delays occur in the northern portion of the corridor, with LOS ratings of D and F in Lolo and near Missoula. Due to the relative proximity of signalized intersections in Lolo, poor operation at one intersection results in long queues extending back to previous intersections, particularly in the AM peak period. 2030 AM and PM overall intersection LOS is illustrated in Figures 5-3 and 5-4.

Table 5.4 Projected Overall Intersection LOS (2030)

Intersection			AM Peak Hour Overall Intersection		PM Peak Hour Overall Intersection	
ID	Location	Control	Avg. Delay (Sec/Veh)	LOS	Avg. Delay (Sec/Veh)	LOS
1	Blue Mountain Rd./US-93	Signalized	19.4	B	99.9	F
2	Wornath Rd./US-93	EB Stop	6.3	A	<5.0	A
3	Hayes Creek Rd./ US-93	EB/WB Stop	16.5	C	10.0	B
4	Cochise Dr./US-93	EB Stop	10.6	B	<5.0	A
5	Bird Lane/US-93	EB Stop	<5.0	A	7.5	A
6	Valley Grove Dr./ US-93	EB Stop	7.5	A	7.5	A
7	Ridgeway-Glacier Dr./US-93	Signalized	46.5	D	36.1	D
8	Tyler Way/US-93	Signalized	70.1	E	19.6	B
9	Lewis & Clark Dr./ US-93	EB/WB Stop	45.8	E	27.9	D
10	US-12/US-93	Signalized	140.4	F	18.5	B
11	Mormon Creek Rd./ US-93	EB Stop	53.7	F	5.7	A
12	Old US-93 N./US-93	EB Stop	7.5	A	7.9	A
13	Old US-93 S./US-93	EB Stop	<5.0	A	18.8	C
14	Highway 203/US-93	Signalized	>200.0	F	23.2	C

Source: Fehr & Peers, 2008.

Figure 5-3 Overall Intersection LOS – 2030 AM Peak Hour

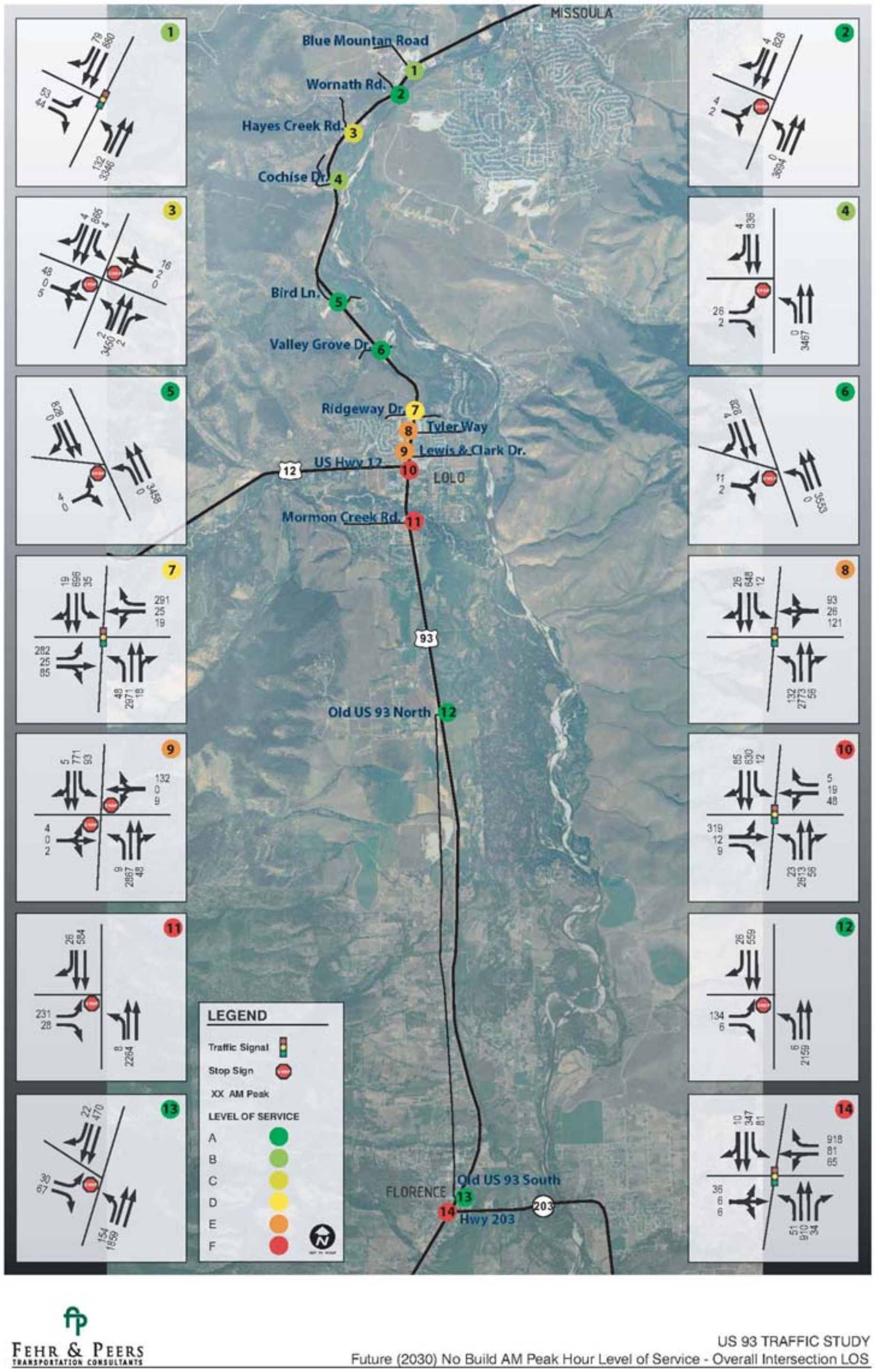


Figure 5-4 Overall Intersection LOS – 2030 PM Peak Hour

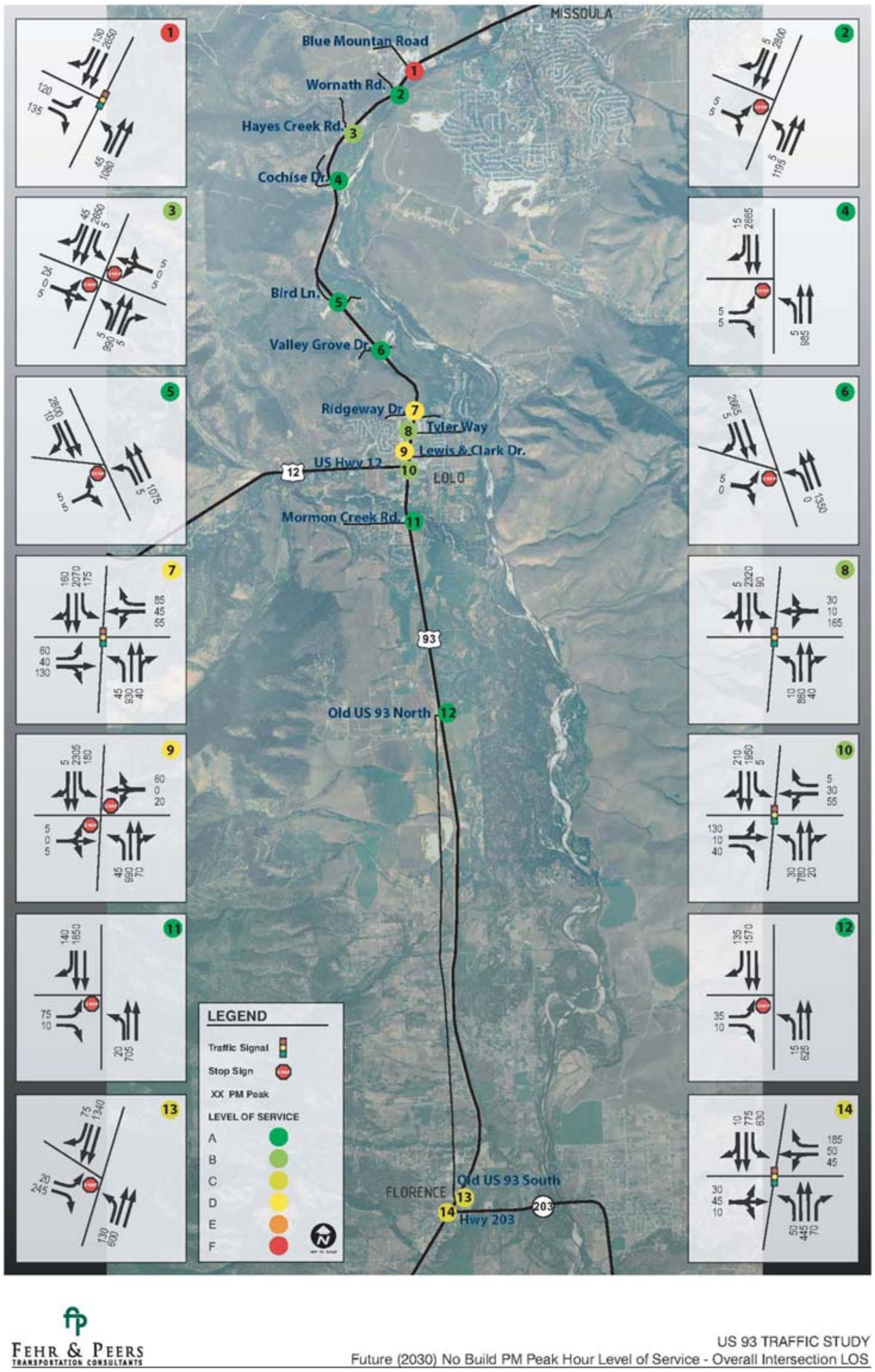


Table 5.5 presents LOS experienced at the worst approach of stop-controlled study intersections within the corridor. As indicated in Table 5.5, the majority of side streets at stop-controlled intersections are projected to experience delays of over 100 seconds, as evidenced by LOS F throughout the corridor. These LOS ratings indicate that it will become increasingly difficult to access US 93 from stop-controlled side streets during the AM and PM peak hours over the planning horizon. AM and PM worst approach LOS is illustrated in Figures 5-5 and 5-6.

Table 5.5 Projected Worst Approach LOS (2030)

Intersection			AM Peak Hour Worst Approach			PM Peak Hour Worst Approach		
ID	**Location**	**Control**	**Approach**	**Avg. Delay** (Sec/Veh)	**LOS**	**Approach**	**Avg. Delay** (Sec/Veh)	**LOS**
1	Blue Mountain Rd./ US-93	Signalized	N/A	N/A	N/A	N/A	N/A	N/A
2	Wornath Rd./US-93	EB Stop	EB	>200.0	F	EB	>200.0	F
3	Hayes Creek Rd./ US-93	EB/WB Stop	EB	>200.0	F	EB	>200.0	F
4	Cochise Dr./US-93	EB Stop	EB	147.5	F	EB	123.1	F
5	Bird Lane/US-93	EB Stop	EB	130.9	F	EB	>200.0	F
6	Valley Grove Dr./ US-93	EB Stop	EB	>200.0	F	EB	>200.0	F
7	Ridgeway-Glacier Dr./US-93	Signalized	N/A	N/A	N/A	N/A	N/A	N/A
8	Tyler Way/US-93	Signalized	N/A	N/A	N/A	N/A	N/A	N/A
9	Lewis & Clark Dr./ US-93	EB/WB Stop	WB	>200.0	F	WB	>200.0	F
10	US-12/US-93	Signalized	N/A	N/A	N/A	N/A	N/A	N/A
11	Mormon Creek Rd./ US-93	EB Stop	EB	>200.0	F	EB	47.3	E
12	Old US-93 N./US-93	EB Stop	EB	89.9	F	EB	31.1	D
13	Old US-93 S./US-93	EB Stop	EB	21.7	C	EB	103.7	F
14	Highway 203/US-93	Signalized	N/A	N/A	N/A	N/A	N/A	N/A

Source: Fehr & Peers, 2008.

Figure 5-5 Worst Approach LOS – 2030 AM Peak Hour

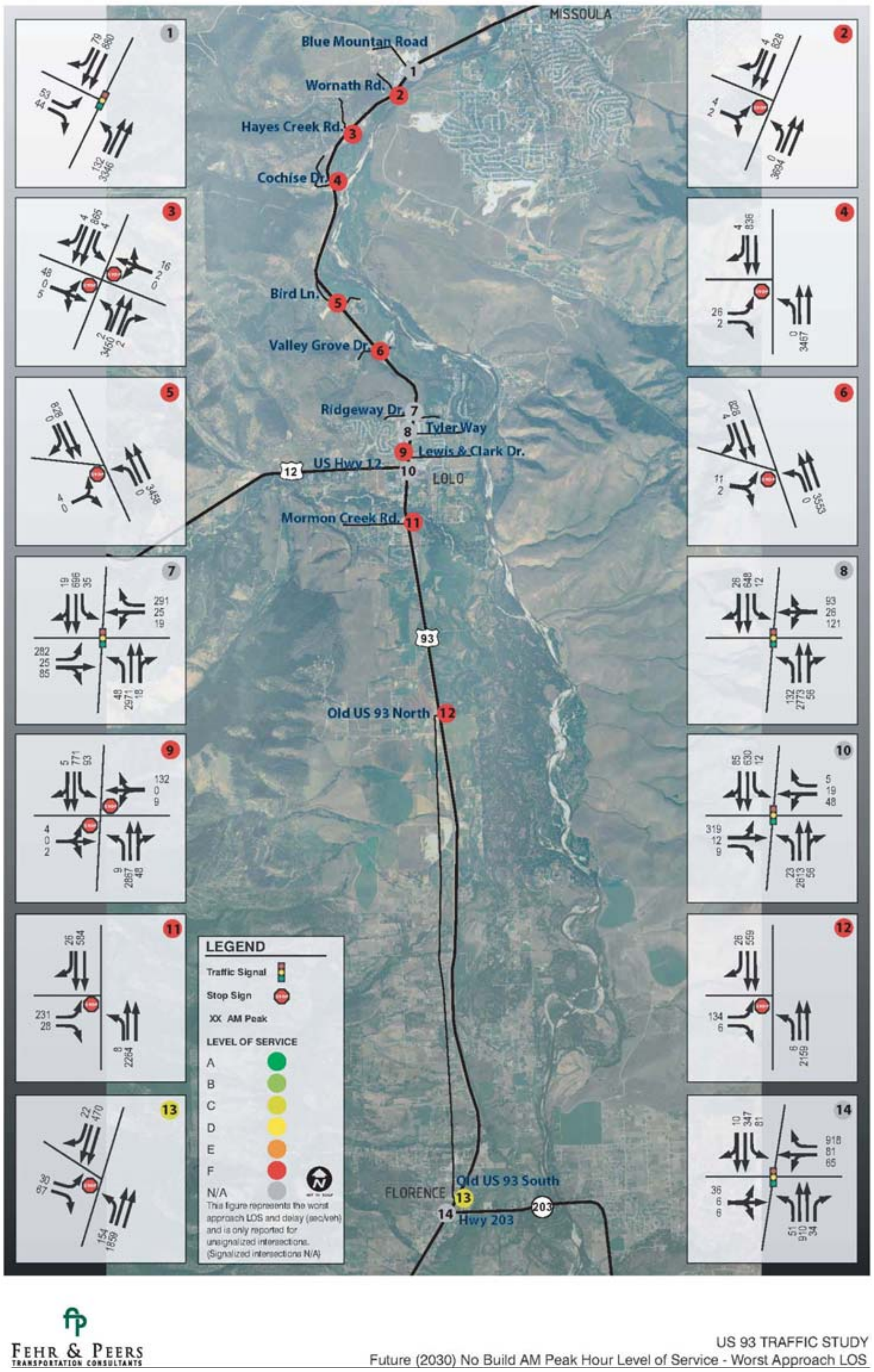
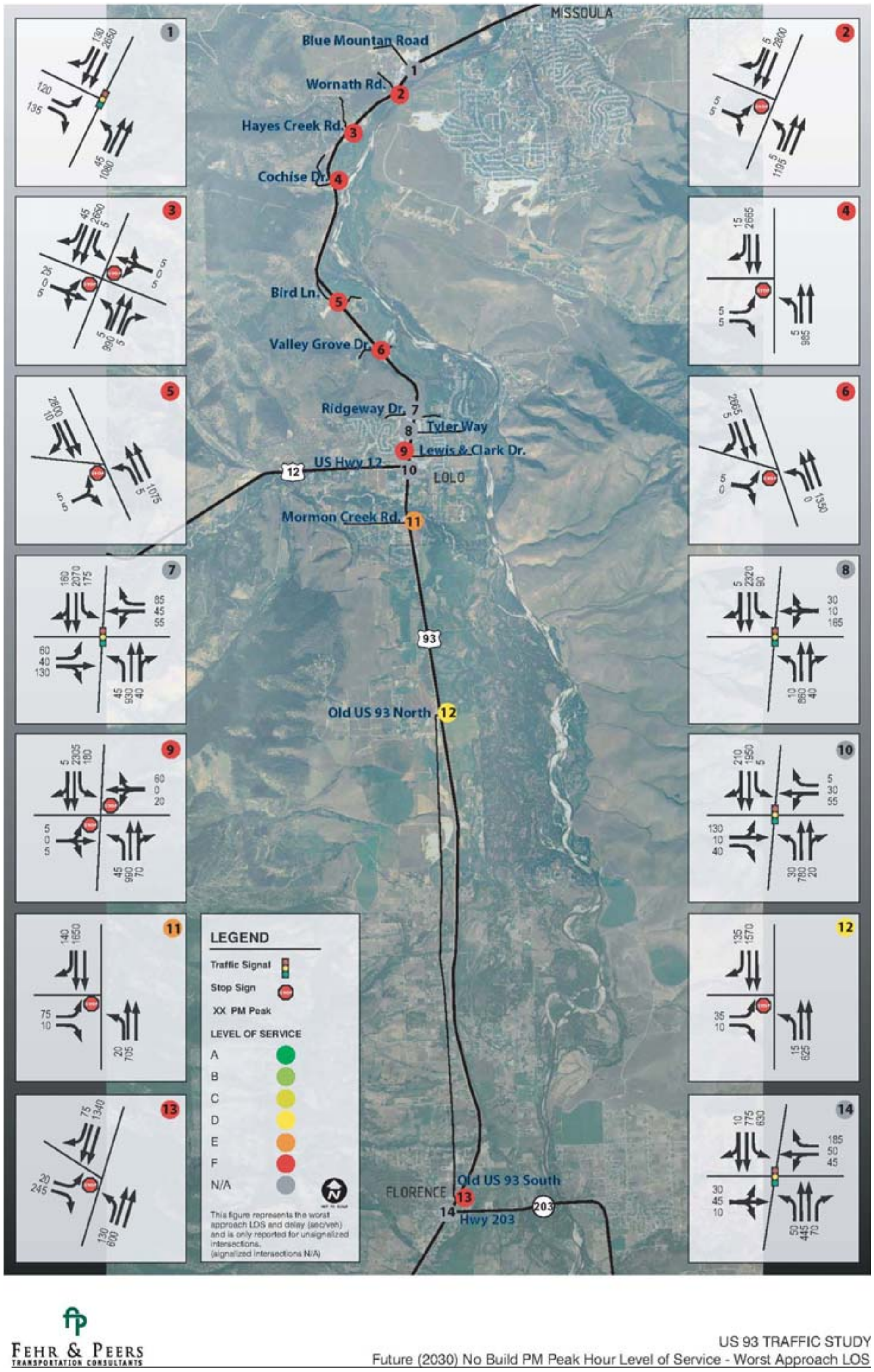


Figure 5-6 Worst Approach LOS – 2030 PM Peak Hour



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