

## **IV. PROBLEM IDENTIFICATION**

### **CORRIDOR VOLUMES VS. CAPACITY**

A number of factors, including intersection function and spacing, adjoining land uses, control of access, road alignment, number of lanes, speed, and vehicle mix affect the overall capacity of any given roadway corridor.

At present, there appear to be no through roadway capacity problems related strictly to volumes on the major street network. Only two roadway segments have volumes above 10,000 ADT – Interstate 90, and Jackrabbit Lane between I-90 and Madison Avenue. Both segments have two lanes for each direction of travel.

The traffic volume projections shown on Figures III.2 and III.3 indicate that some of the existing roadway segments will have capacity problems if no improvements are made to the system. Improvements can take one or both of the following forms.

First, the existing roadways can be improved with additional capacity, i.e. added travel lanes. One area where it would be particularly difficult to add lanes is the segment of Main Street in the downtown area because of the buildings that stand on both sides of Main.

A second option is to build roadways and facilities where none currently exist, thereby re-directing traffic. The proposed airport interchange discussed later in this report is an example of a single project that could have wide-ranging effects on the distribution of traffic in the Belgrade area.

## INTERSECTION LEVELS OF SERVICE

A level of service is expressed with a letter designation that describes the operation of a particular roadway facility. The letters A through F are used to define operating conditions at peak times. Level of service A represents the best conditions, often referred to as free flow, with very little delay. Level of service F represents the worst conditions, indicative of unstable flow, with unreasonable delay.

Level of service E represents flow at or near capacity on a roadway segment. For planning purposes, a design criteria level of service of C or D in the design year is often employed to assure a more acceptable level of service for users of the facility.

The levels of service of seven major intersections under current conditions were evaluated. The seven intersections, and the resulting levels of service based on the evaluation of morning peak hour "X" and evening peak hour "(Y)", are as follows:

1. Main Street and Oregon Street D / (E)
2. Main Street and Broadway Street C / (D)
3. Main Street and Jackrabbit Lane D / (E) est.
4. Jackrabbit Lane and Madison Avenue B / (C) est.
5. Jackrabbit Lane and Amsterdam Road D / (C) est.
6. Old Highway 10 and Gallatin Field Access Road B / (C)
7. Madison Avenue/Broadway Street/Colorado Street C / (C)

## ACCIDENT ANALYSIS

Accident records were obtained from the Montana Department of Transportation for the nearly five-year period from January 1996 through September 2000. For five major intersections, these raw numbers were normalized by determining the accident rate expressed as accidents per million vehicles entering each intersection.

The intersections are listed below, from highest accident rate to lowest.

	<u>Intersection</u>	<u>No. Of Accidents</u>	<u>Accident Rate</u>
1.	Jackrabbit & Madison	13*	3.47
2.	Broadway & Main	13	1.34
3.	Broadway & Madison	5	0.90
4.	Oregon & Main	8	0.88
5.	Jackrabbit & Main	8	0.77

\* The accidents at Jackrabbit & Madison include only those reported since activation of the signal at the intersection. The accident rate may be unusually high because drivers were unfamiliar with the new geometric improvements and signal.

Intersections with accident rates less than 1.00 are not normally cause for concern. With the exception of Jackrabbit & Madison, all of the identified intersections have been targeted in this document for improvements.