

4.0 Traffic Projections

Traffic projections of roadway segments and intersection turning movements were calculated for the years 2006 and 2016. The projections were based on historical traffic counts from 1986-1998. Appendix C contains graphs outlining traffic growth along the Spenard corridor since 1986.

Five roadway segments along Spenard Road were looked at. The following table shows the historic annual growth rate for each segment.

Segment	Year - AADT	Year - AADT	Annual Growth Rate %
Minnesota to 36 th	1986 - 21,000	1998 - 16,850	-1.8
36 th to Benson	1986 - 16,500	1998 - 14,070	-1.3
Benson to Northern Lights	1986 - 15,200	1998 - 17,066	1.0
Northern Lights to Fireweed	1992 - 15,235	1998 - 13,750	-1.7
Fireweed to Hillcrest	1992 - 6,363	1998 - 5,280	-3.1

Table 4.1 Historic Growth Rates

As noted, all segments with the exception of the Benson to Northern Lights segment have shown a negative growth. Due to the fact that this area is built-out, an annual growth rate of 0.5% for all segments except the Benson to Northern Lights segment is used. An annual growth rate of 1.0% is used for the Benson to Northern Lights segment. The following table presents projected average annual traffic volumes for each segment of Spenard.

Segment	Annual Growth Rate %	1998 AADT	2006 AADT	2016 AADT
Minnesota to 36 th	0.5	16,850	17,540	18,430
36 th to Benson	0.5	14,070	14,640	15,390
Benson to Northern Lights	1.0	17,066	18,480	20,410
Northern Lights to Fireweed	0.5	13,750	14,310	15,040
Fireweed to Hillcrest	0.5	5,280	5,500	5,780

Table 4.2 Traffic Projections

Similar to Spenard, annual growth rates for 36th, Benson, Northern Lights and Fireweed were

determined for use in projecting turning movement volumes. An annual growth rate of 0.5% was used for 36th, Benson and Northern Lights with a 1.0% rate for Fireweed. Projected AM and PM peak hour turning movement volumes for the years 2006 and 2016 for the intersections of Spenard with the above mentioned roadways can be found in Appendix C. Existing intersection counts can be found in Appendix E.

5.0 Capacity Analysis

Intersection and roadway capacity analysis was performed to identify probable alternatives that incorporate measures identified in the Collision Analysis.

5.1 Intersection Capacity

A signalized capacity analysis was performed for the four signalized intersections. The intersections were analyzed for the AM and PM peak conditions for the years 2006 and 2016 for each intersection configuration alternative and the existing intersection configuration. Analysis was performed based on the Highway Capacity Manual (HCM) (3) using Highway Capacity Software Version 3.1c (HCS), Synchro 4 Traffic Signal Coordination Software Version 4 and existing signal timing plans provided by the MOA.

Five alternative intersection configurations were identified for the Benson/Northern Lights intersections, one alternative configuration was identified for the Fireweed intersection, and one alternative was identified for the 36th Avenue intersection. Figure 5.1 shows the alternative intersection configurations. The one Benson/Northern Lights alternative configuration not illustrated (BLN5) consists of the Benson signal operating in a split phase mode under the existing lane configuration. The following tables show the capacity analysis results. Estimated queue lengths for each alternative can be found in the LOS reports in Appendix D.