

In addition, there are areas near Spenard Road zoned R-2M, R-3 and R-4, all Multi-Family Residential. Figure 2.3 illustrates the corridor zoning.

3.0 Collision Analysis

A collision analysis was performed for Spenard Road between Chugach Way and Hillcrest Drive for the 3-year period 1996-1998. A total of 392 collisions were reported during this time frame. A summary of all reported collisions can be found in Appendix A. Collision diagrams for Spenard Road from Chugach Way to Hillcrest Drive can be found in Appendix B.

The collision analysis was divided into two categories, spot analysis and segment analysis. Spot locations are short sections of roadway or intersections. Segment locations are longer than spot locations and consist of sections of similar roadway characteristics.

3.1 Spot Analysis

The spot analysis revealed 19 locations with three or more collisions over the 3-year period. The spot locations were all roadway intersections or a combination of roadway intersections and driveways. Table 3.1 lists the location, calculated accident rate based on million vehicles entering (MVE), the statewide average accident rate for the location type, and the critical accident rate based on a 95.0% confidence level. The statewide average accident rate is based on the ADOT&PF Formulas and Factors for the fiscal year 1999 Highway Safety Improvement Program. The MVE was determined from Municipality of Anchorage Annual Traffic Reports for the years 1996-1998. Appendix A contains the formulas and factors along with accident rate calculations.

| Location | Accident Rate per/MVE | Statewide Average Rate ¹ per/MVE | Critical Accident Rate ^{1,2} per/MVE | Remarks |
|----------------------------|--------------------------|---|---|-----------------------------|
| Chugach Way | 0.96 | 0.62 | 0.94 | Exceeds 95% Critical Rate |
| 36 th Ave. | 1.46 | 1.17 | 1.56 | |
| 34 th Ave. | 0.96 | 0.62 | 0.97 | Exceeds 90% Critical Rate |
| 33 rd Ave. West | 0.31 | 0.62 | 0.97 | |
| 33 rd Ave. East | 0.37 | 0.62 | 0.97 | |
| 32 nd Ave. West | 0.17 | 0.62 | 0.96 | |
| 32 nd Ave. East | 0.17 | 0.62 | 0.96 | |
| 31 st Ave. | 0.30 | 0.62 | 0.96 | |
| 30 th Ave. | 0.96 | 0.62 | 0.97 | Exceeds 90% Critical Rate |
| 29 th Place | 0.76 | 0.62 | 1.00 | |
| Benson Blvd. | 1.77 | 1.05 | 1.35 | Exceeds 99.9% Critical Rate |
| 29 th Ave. | 0.25 | 0.62 | 0.98 | |
| REI Driveway | 0.95 | 0.62 | 0.98 | Exceeds 90% Critical Rate |
| Northern Lights Blvd. | 2.38 | 1.05 | 1.36 | Exceeds 99.9% Critical Rate |
| 27 th Ave. | 1.22 | 0.85 | 1.24 | Exceeds 90% Critical Rate |
| 26 th Ave. East | 0.65 | 0.62 | 0.97 | |
| 26 th Ave. West | 0.12 | 0.62 | 0.97 | |
| 25 th Ave. East | 0.64 | 0.62 | 0.98 | |
| 25 th Ave. West | 0.45 | 0.62 | 0.98 | |
| Fireweed Lane | 1.09 | 1.05 | 1.52 | |
| 23 rd Ave. | 0.34 | 0.62 | 1.24 | |
| Hillcrest Drive | 0.47 | 0.62 | 1.13 | |

¹ Source: ADOT High Accident Screening Process Factors and Formulas for the FY '99 HSIP.
² Accident rate indicates 95.0% confidence that the rate cannot be attributed to a random occurrence.

Table 3.1 Collision Rates

Two locations, Benson and Northern Lights exceed the 99.9% confidence level, indicating that there is a 99.9% chance that the accident rate can be attributed to an accident problem as opposed to randomness. One location, Chugach Way exceeds the 95% confidence level. Four locations, 34th Avenue, 30th Avenue, the REI driveway and 27th Avenue exceed the 90% confidence level. The intersection of Chugach Way is not investigated further as it is part of the 36th Avenue study being conducted by the MOA, the remaining locations are discussed below.

34th Avenue and Spenard Road

Collision Summary

This location had 16 recorded collisions during the 3-year period consisting of 7 angle (44%), 6 lane-change (38%), 2 rear-end (12%) and 1 pedestrian (6%). See collision diagram in Appendix B, page 3.

A contributing factor was identified for 11 collisions (69%). These include: 6 (38%) failure to yield, 3 (19%) driver inattention, 1 (6%) improper passing and 1 (6%) alcohol. Citations were issued for 9 (56%) of the collisions. There were 2 (13%) injury collisions at this location.

Eleven collisions (59%) occurred during daylight with 4 collisions (25%) occurring under streetlight conditions. Eight collisions (50%) occurred under snow/ice roadway conditions, 6 collisions (38%) occurred under dry roadway conditions and 2 collisions (13%) occurred under wet roadway conditions.

Collision Reduction Measures

Angle collisions consisting of left-turns from Spenard and left-turns from 34th accounted for 7 collisions (44%). Sight distance problems associated with parked cars near the edge of the roadway may contribute to the left-turning collisions from 34th.

Rear-end and lane change collisions for northbound traffic accounted for 6 collisions (38%). A combination of several factors may contribute to this condition including limited sight distance due to the

curve preceding the intersection and slowing or stopped vehicles attempting to turn from Spenard.

According to published accident reduction factors (2), sight distance improvements at this location would provide for a 30% reduction in all collisions. Additionally, providing left-turn lanes would provide a 30% reduction in all collisions.

30th Avenue and Spenard Road

Collision Summary

This location had 16 recorded collisions during the 3-year period consisting of 7 rear-end (44%), 5 angle (31%), 2 lane-change (13%) and 1 each fixed-object and pedestrian. See collision diagram in Appendix B, page 6.

A contributing factor was identified for 12 collisions (81%). These include: 5 (31%) failure to yield, 2 (13%) unsafe speed, 2 (13%) follow to close, 2 (13%) alcohol and 1 (6%) improper passing.

Citations were issued for 11 (69%) of the collisions. There were 3 (19%) injury collisions at this location.

Thirteen collisions (81%) occurred during daylight with the remaining 3 collisions (19%) occurring under streetlight conditions. Eight collisions (50%) occurred under dry roadway conditions, 5 collisions (31%) occurred under snow/ice roadway conditions and 2 collisions (13%) occurred under wet roadway conditions.

Collision Reduction Measures

Rear-end collisions consisting of 4 northbound and 3 southbound accounted for the majority of collisions at this location. A possible contributing factor for the southbound collisions could be slowing or stopped vehicles attempting to turn from Spenard. Additionally, these turning vehicles may have their access to the side street blocked from the northbound queue from the Benson intersection, approximately 175 feet north of 30th. These could also be factors for the 2 southbound lane-change

collisions. The northbound rear-end collisions can most likely be attributed to the signalized Benson intersection.

The 5 angle collisions all involved westbound and northbound traffic. The most probable contributing factor is inadequate sight distance resulting from the queue from the Benson intersection. Vehicles queued in the outside northbound lane obstruct the view of the inside northbound lane.

Prohibiting left turns from both Spenard and 30th Avenue could provide a 45% reduction in all collisions (2). Currently, left-turns are prohibited at 29th Avenue, which similar to 30th, is often blocked by queued vehicles.

Benson Boulevard and Spenard Road

Collision Summary

This location had 62 recorded collisions during the 3-year period consisting of 30 angle (48%), 22 rear-end (35%), 8 lane-change (13%), and 1 each backing and pedestrian. See collision diagram in Appendix B, page 7.

A contributing factor was identified for 52 collisions (84%). These include: 12 (19%) driver inattention, 10 (16%) disregard traffic control device, 7 (11%) failure to yield, 7 (11%) alcohol, 5 (8%) follow too close, 4 (6%) unsafe speed, 4 (6%) improper turning, 1 (2%) improper passing, 1 (2%) unsafe backing, and 1 (2%) slippery pavement. Citations were issued for 44 (71%) of the collisions. There were 24 (39%) injury collisions at this location.

Thirty-two collisions (52%) occurred during daylight with 25 collisions (40%) occurring under streetlight conditions. Thirty-two collisions (52%) occurred under dry roadway conditions, 20 collisions (32%) occurred under snow/ice roadway conditions and 7 collisions (11%) occurred under wet roadway conditions.

Collision Reduction Measures

Of the 30 angle collisions, 20 involved either a northbound or southbound vehicle disregarding the traffic signal and colliding with an eastbound vehicle. Signal visibility may be the leading contributing factor in these collisions. For southbound traffic, there are three signal heads. The far-right pole mounted signal head is obscured by buildings and the far-left pole mounted signal head is located approximately 45 feet east of the Spenard centerline. The remaining signal head consists of 5 sections and is centered over the 2 southbound lanes. For northbound traffic, there are 2 signal heads, a far-right pole mounted and an overhead centered over the two lanes. Due to intersection and side street clutter, the far-left and -right signal heads are not clearly visible. The addition of a second overhead signal head could reduce all intersection collisions by 20% (2). Additionally, the proximity of buildings to the right-of-way prevent eastbound traffic on Benson from seeing southbound Spenard traffic. Sight distance improvements could provide a 30% reduction in intersection collisions (2). The second most common angle collision involved southbound left-turns failing to yield to northbound through traffic. Installing a left-turn lane would improve this situation.

Driver inattention and following too close were the main contributing factors to the rear-end collisions. Signal visibility may also be a contributing factor to the southbound rear-end collisions.

REI Driveway and Spenard Road

Collision Summary

This location had 15 recorded collisions during the 3-year period consisting of 6 angle (40%), 6 rear-end (40%), and 1 each pedestrian, fixed-object and lane-change. See collision diagram in Appendix B, page 7.

A contributing factor was identified for 13 collisions (87%). These include: 4 (27%) unsafe speed, 3 (20%) failure to yield, 1 (7%) improper turning, 2 (13%) driver inattention, 1 (7%) follow too close and 2 (13%) alcohol. Citations were issued for 12 (80%) of the collisions. There were 7 (47%) injury collisions at this location.

Nine collisions (60%) occurred during daylight with the remaining 6 collisions (40%) occurring under streetlight conditions. Nine collisions (60%) occurred under dry roadway conditions and 5 collisions (33%) occurred under snow/ice roadway conditions.

Collision Reduction Measures

The most probable contributing factor for the 6 angle collisions is inadequate sight distance due to queues from both the Benson and Northern Lights intersections. This driveway is approximately 150 feet from each intersection. Three factors most likely contribute to the 6 rear-end collisions. The first being the proximity to the two signalized intersection, the second being vehicles slowing or stopping on Spenard to access the driveway and the third being the number of closely spaced driveways. Prohibiting left turns from both Spenard and the driveways could provide a 45% reduction in all collisions (2). Eliminating duplicate closely spaced driveways would reduce driver confusion as to which driveway they intend to use.

Northern Lights Boulevard and Spenard Road

Collision Summary

This location had 82 recorded collisions during the 3-year period consisting of 27 rear-end (33%), 26 angle (32%), 22 lane-change (27%), 3 fixed-object (4%) and 2 each head-on and pedestrian. See collision diagram in Appendix B, page 8.

A contributing factor was identified for 64 collisions (78%). These include: 15 (18%) improper turning, 12 (15%) failure to yield, 12 (15%) unsafe speed, 8 (10%) driver inattention, 5 (6%) follow too close, 5 (6%) disregard traffic control device, 4 (5%) improper passing, 2 (2%) alcohol and 1 (1%) slippery pavement. Citations were issued for 58 (71%) of the collisions. There were 17 (21%) injury collisions at this location.

Fifty-one collisions (62%) occurred during daylight with 23 collisions (28%) occurring under streetlight conditions. Thirty-eight collisions (46%) occurred under snow/ice roadway conditions, 35 collisions

(43%) occurred under dry roadway conditions and 8 collisions (10%) occurred under wet roadway conditions.

Collision Reduction Measures

Of the 26 angle collisions, 12 involved either a northbound or southbound vehicle disregarding the traffic signal and colliding with a westbound vehicle. Similar to the Benson intersection, signal visibility may be the leading contributing factor. Signal head arrangement is the same as the Benson intersection. The addition of a second overhead signal head could reduce all intersection collisions by 20% (2). Additionally, the proximity of landscaping to the right-of-way prevent westbound traffic on Northern Lights from seeing southbound Spenard traffic. Sight distance improvements could provide a 30% reduction in intersection collisions (2). The second most common angle collision involved northbound left-turns failing to yield to southbound through traffic. Installing a left-turn lane would improve this situation.

Driver inattention and following too close were the main contributing factors to the rear-end collisions. Signal visibility may also be a contributing factor to the southbound rear-end collisions.

The majority of lane-change collisions, 19 out of 22, occurred on Northern Lights. A combination of several factors most likely contribute to these collisions. The most probable factor is the number of through lanes on Northern Lights, 4, with people making multiple lane changes in one movement.

27th Avenue and Spenard Road

Collision Summary

This location had 22 recorded collisions during the 3-year period consisting of 14 angle (64%), 5 rear-end (23%), and 1 each head-on, fixed-object and lane-change. See collision diagram in Appendix B, page 8.

A contributing factor was identified for 20 collisions (91%). These include: 9 (41%) failure to yield, 3

(14%) unsafe speed, 3 (14%) improper turning, 2 (9%) driver inattention, 1 (5%) improper passing and 1 (5%) alcohol. Citations were issued for 18 (82%) of the collisions. There were 2 (9%) injury collisions at this location.

Thirteen collisions (59%) occurred during daylight with the remaining 9 collisions (41%) occurring under streetlight conditions. Eleven collisions (50%) occurred under snow/ice roadway conditions, 6 collisions (27%) occurred under dry roadway conditions and 5 collisions (23%) occurred under wet roadway conditions.

Collision Reduction Measures

Angle collisions consisting of left-turns and through traffic from the side street accounted for 9 collisions (41%). Several factors may contribute to this situation. These include: the 30 foot offset intersection configuration; sight distance problems associated with parked vehicles or staggered vehicle lane use on Spenard; and increased through vehicle volumes on 27th due to people avoiding Northern Lights. Intersection realignment would provide a 40% reduction in all collisions and sight distance improvements would provide a 30% reduction in all collisions (2).

Left-turning traffic from Spenard accounted for 7 collisions (32%). Providing a left-turn lane would reduce these collisions by approximately 50% and reduce overall intersection collisions by 30% (2).

Spot Collision Analysis Summary

Several contributing factors were common to all spot locations. The proximity of buildings, signs and parked cars to the roadway and the narrow right-of-way reduce sight distance. To improve sight distance, additional right-of-way can be acquired or the roadway cross section can be reduced.

Left turns from Spenard to side streets and driveways are a common movement along Spenard and contribute to several collision types including lane-change, rear-end and angle. Providing left-turn channelization or lanes in the form of a two-way continuous left-turn lane will reduce the frequency of

these collisions. Reducing the number of through lanes will reduce the number of lane-change collisions. Other methods to reduce the number of these collisions include improving cross street alignment, improving driveway locations and combining or closing duplicate or unused driveways.

3.2 Segment Analysis

Two segments were analyzed, 36th Avenue to Benson and Northern Lights to Fireweed. Collisions included in this analysis are those that are not considered to be intersection related. Collision rates for these 2 segments were found to be 0.77 for 36th to Benson and 1.68 for Northern Lights to Fireweed. Both segment's collision rates are below the statewide average of 1.80. The majority of segment collisions consisted of fixed-object, head-on and backing. The same measures identified in the Spot Collision Analysis Summary will reduce the frequency of segment collisions.