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PROJECT: Spokane Traffic Calming – Altamont Boulevard Sub-Area Study

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## INTRODUCTION

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The purpose of this study is to investigate the concerns of residents in the Altamont Loop sub-area of the Lincoln Heights Neighborhood Council regarding excessive speeding and cut-through traffic. Data for existing traffic volumes, speeds, collision history, and origin and destination patterns were used to evaluate the need for traffic calming, and to determine potential solutions.

**Figure 1: Altamont Loop Area Map**



## BACKGROUND

The following is a basic overview of the existing features of the study roads and intersections, including basic characteristics of vehicle, pedestrian, and bike facilities, as well as a look at recent crash data.

### Roadway Characteristics

The Altamont Loop is located in the Lincoln Heights neighborhood in the South Hill region of Spokane. It is mostly residential, consisting of local roads with speed limits of 25 mph and bordered by 2 minor arterials, Altamont Street and 9<sup>th</sup> Avenue, with speed limits of 30 mph. Ray Street to the east is a principal arterial with a speed limit of 30 mph. Functional classifications were obtained from the City of Spokane Arterial Street Map<sup>1</sup>. Table 1 lists the general characteristics of each of the roads in the study area.

**Table 1: Roadway Characteristics**

Road	Functional Classification	Posted or Statutory Speed	Number of Lanes	Sidewalk(s)	Bicycle Facilities
Altamont Street	Minor Arterial	30	2	One	None
North Altamont Boulevard	Local Road	25	2	Both	None
South Altamont Boulevard	Local Road	25	2	Both	None
Woodfern Street	Local Road	25	2	Both	None
9 <sup>th</sup> Avenue	Minor Arterial	30	2	Both	None
11 <sup>th</sup> Avenue	Local Road	25	2	None	None
Ray Street	Principal Arterial	30	4	Both	None

<sup>1</sup> City of Spokane Arterial Street Map: <https://static.spokanecity.org/documents/smc/maps/city-of-spokane-arterial-street-map-oct-2022.pdf>

## Pedestrian and Bike Network

The pedestrian activity to and from the Altamont Loop includes multiple significant destinations. The northern portion of Lincoln Park, the Ben Burr Trail, and Franklin Elementary School each draw pedestrian and bike traffic from the Altamont Loop and surrounding areas. Most of the roads in the vicinity have sidewalks on both sides of the road, except for 11<sup>th</sup> Avenue and Altamont Street. There are no sidewalks on 11<sup>th</sup> Avenue between North Altamont Boulevard and Ray Street. Observations of 11<sup>th</sup> Avenue led to the recognition of a walk pattern for elementary school children being accompanied by adults along 11<sup>th</sup> Avenue to Regal Street and using the local road network (12<sup>th</sup> Avenue, Lacey Street, and 14<sup>th</sup> Avenue) to route to-from Franklin Elementary.

There are no dedicated bike facilities in the area. The Ben Burr Trail is a multi-use path listed on the City of Spokane Bicycle Master Plan which intersects the study area at Fiske St and accommodates both pedestrians and bikes. The City of Spokane classifies South Altamont Boulevard as a bike friendly route, and 9<sup>th</sup> Avenue and Altamont Street as moderate traffic routes where bikes share the road with cars.<sup>2</sup>

## Crash History

The crash history obtained from the City of Spokane spanned the five-year period from 2017 to 2021. Table 2 shows a breakdown of all collisions in the study area by location and crash type. As shown, a total of 23 crashes were reported in the project area during the study period, 20 of which occurred between a vehicle and a fixed object, such as a fence or parked car. Seven (7) of these fixed object collisions, or 35%, occurred while the road was covered in snow or ice. The majority of crashes resulted in no apparent injury, and there were no serious injuries or fatalities reported. The area with highest collision frequency was on Altamont Street between 9<sup>th</sup> Avenue and North Altamont Boulevard. This is where the two left turning collisions occurred between vehicles on Altamont Street and those turning left onto North Altamont Boulevard. This intersection is known to have poor visibility and a tight turn radius.

**Table 2: Altamont Loop Collisions by Crash Type (2017-2021)**

Location	Fixed Object	From opposite direction - one left turn, one straight	Other	Grand Total
Altamont Loop	14	2	1	17
11 <sup>th</sup> Avenue	6	0	0	6
<b>Total</b>	<b>20</b>	<b>2</b>	<b>1</b>	<b>23</b>

<sup>2</sup> City of Spokane Bike and Pedestrian Trails:  
<https://spokane.maps.arcgis.com/apps/webappviewer/index.html?id=92ef1c1eb120453e8356b320d2cc3003>



## EXISTING CONDITIONS ASSESSMENT

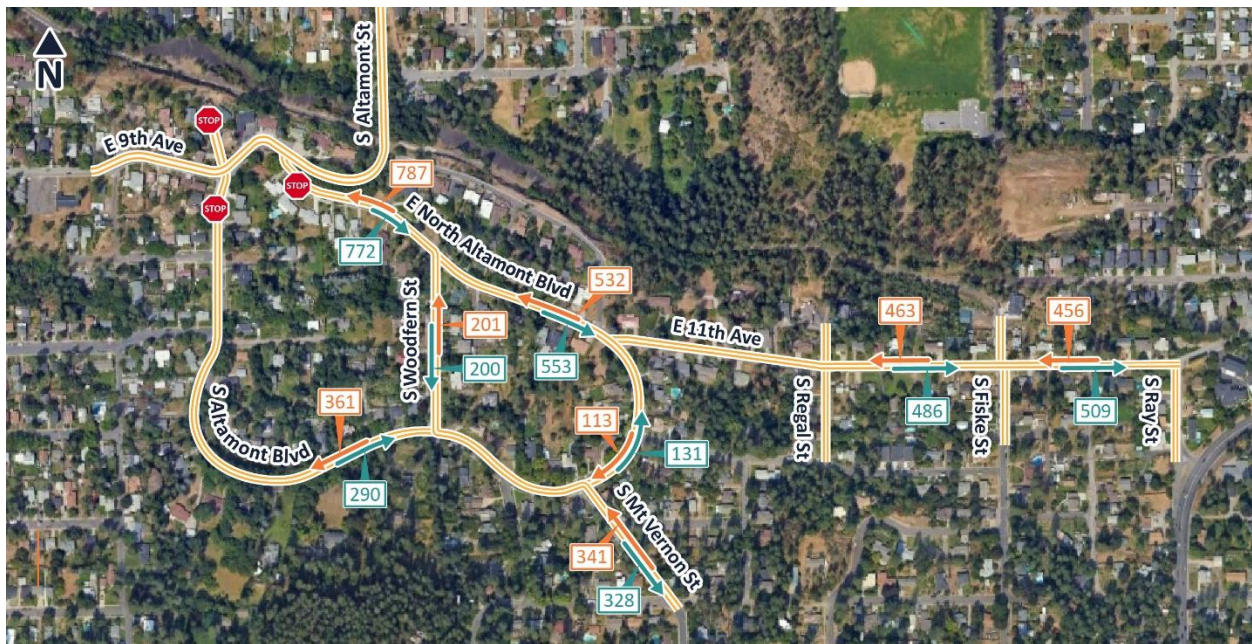
The existing conditions assessment includes an examination of current traffic volumes, speed data, travel patterns, and intersection operating conditions.

### Existing Traffic Volumes

Turning movement counts and speed/volume tube counts were collected within the study area after confirmation of count locations by City Staff.<sup>3</sup> Segment volumes are shown in Figure 2 and seasonally adjusted turning movement volumes are shown in Figure 3.

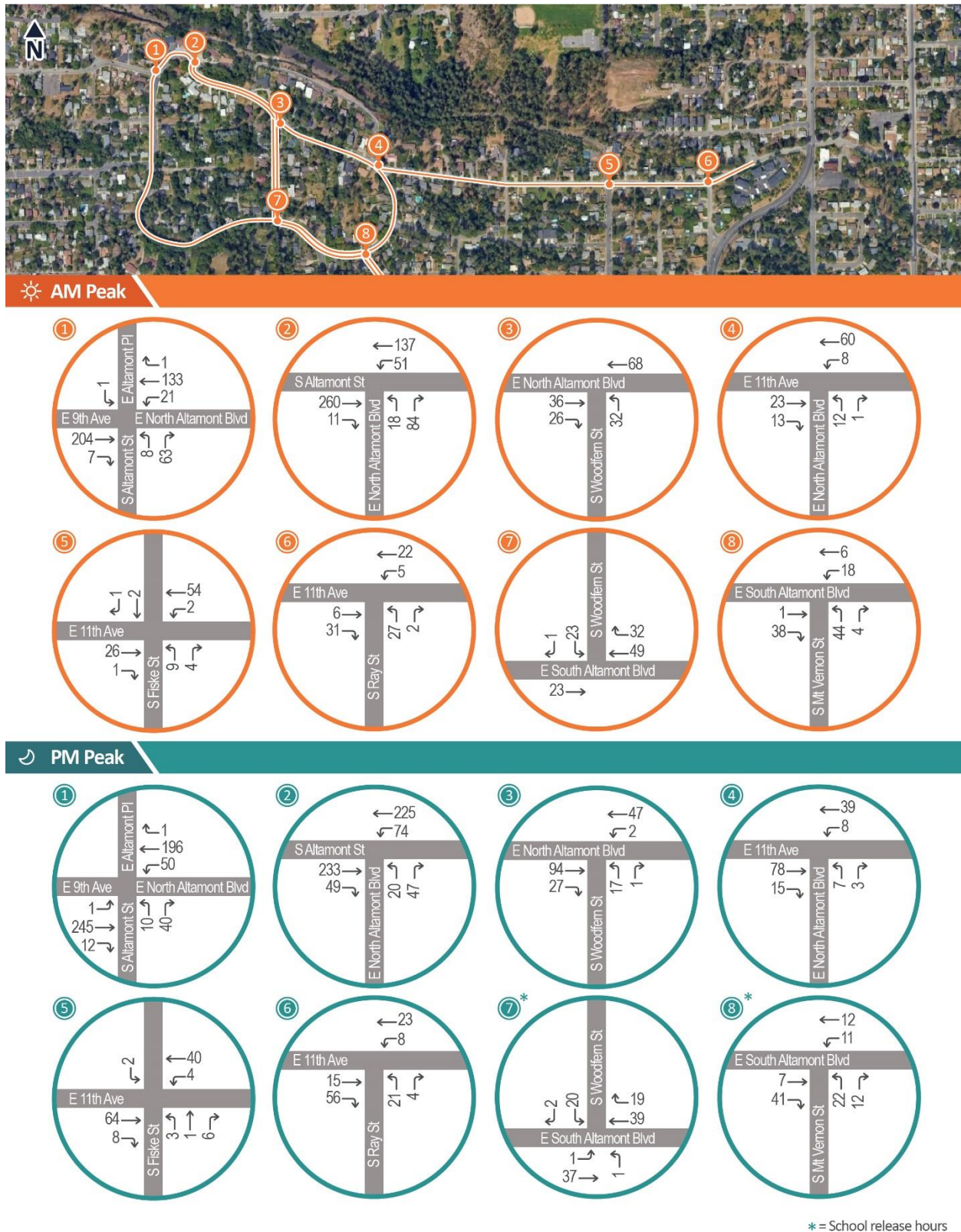
The AM Peak hour began at 7:30 or 7:45 AM for all study intersections. But the PM Peak hour was less consistent within the study area. For the majority of intersections, the PM Peak hour occurred between 4:30 and 5:30 PM. However, the Woodfern Street/ South Altamont Boulevard intersection and Mt Vernon Street/ South Altamont Boulevard intersection were unique in having PM Peak hours between 2:30 and 2:45 PM. This indicates these intersections are predominantly controlled by the Franklin Elementary School release time (3:00 PM). Synchronizing these intersections with the rest of the PM Peak hour led to significant reductions in overall intersection volume. For the purpose of this analysis, both intersections are shown in Figure 3 at their school release peak volumes.

**Figure 2: Directional Average Daily Traffic**



<sup>3</sup> Email with City Staff September 12, 2023. Traffic counts collected September 19<sup>th</sup>-21<sup>st</sup>, 2023.

Figure 3: Seasonally Adjusted Peak Hour Turning Movement Volumes





## Speed Evaluation

Speed and segment volume data was collected at six locations between study intersections. As shown in Figure 3, the most speeding (as a percent of all traffic) occurred along North Altamont Boulevard and 11<sup>th</sup> Avenue between Altamont Street and Fiske Street. Speeds were higher and speeding was more common in the downhill direction (westbound between Woodfern Street and Hilda Court on North Altamont Boulevard, and eastbound between Regal Street and Fiske Street on 11<sup>th</sup> Avenue). As shown in Figure 3, more than half of the vehicles traveling along North Altamont Boulevard and the western half of 11<sup>th</sup> Avenue are exceeding the speed limit. While speeding is occurring at other locations within the study area, the percentage is below 50% of the vehicles observed, and the 85<sup>th</sup> percentile speed is closer to the posted speed.

Traffic calming efforts aimed at speed reduction should focus on the following:

- Adding speed reduction measures along North Altamont Boulevard and 11<sup>th</sup> Avenue
- Consider traffic diversion measures to routes with more desirable speed profiles.

**Figure 4: 24-Hour Speed Data Summary**

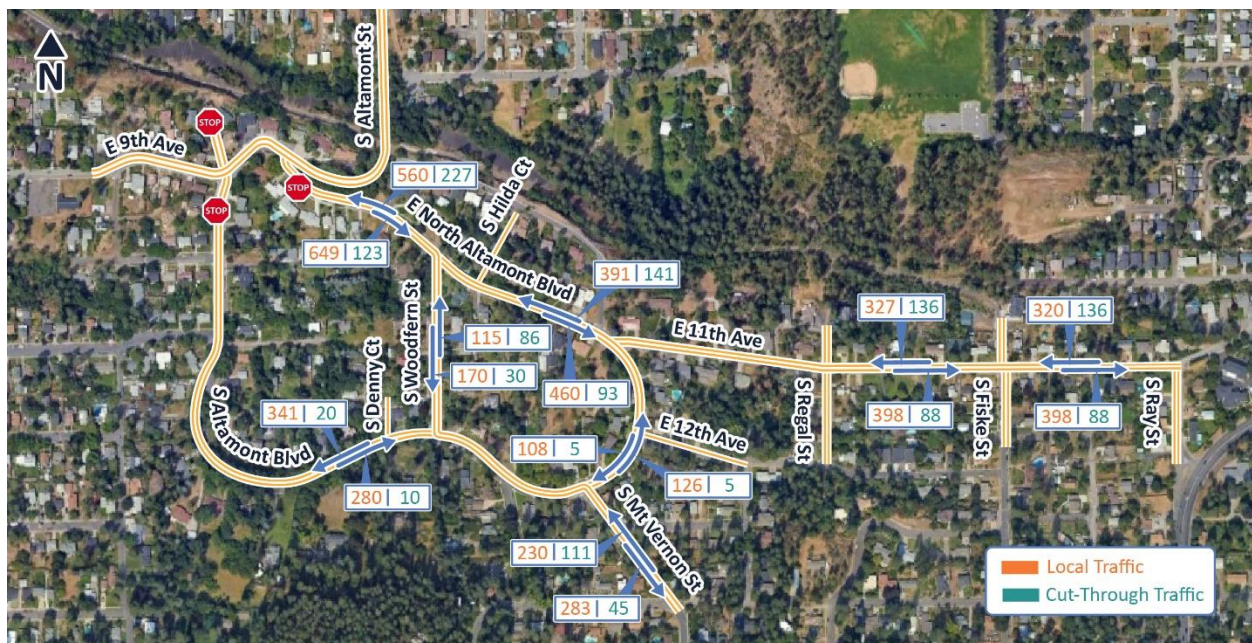


## Travel Patterns

Travel patterns were analyzed using origin destination data from Spring 2023.<sup>4</sup> This information reflects daily travel patterns and was used to assess the most common routes for local and cut-through traffic and the overall frequency of cut-through trips.

Local trips (those with origin or destination within the borders of 9<sup>th</sup> Avenue, 17<sup>th</sup> Avenue, Ray Street, Napa Street, and 17<sup>th</sup> Avenue) make up the majority of all traffic within the neighborhood. Common travel patterns revealed in the origin-destination data include routes to/from the Altamont Street/I-90 interchange, Perry District, and Franklin Elementary School. A small number of residents along 11<sup>th</sup> Avenue use North Altamont Boulevard to access Altamont Street, but most residents east of Regal Street travel east to Ray Street instead. Figure 5 shows the estimated distribution of local and cut-through traffic in the Altamont Loop.

**Figure 5: Local and Cut-Through Travel Daily Volumes**



Cut-through traffic most commonly follows an overall north-south pattern through the neighborhood. The two predominant routes are described below and shown in Figure 5:

- North Altamont Boulevard - Woodfern Street – Mt Vernon Street: This route appears to be used predominantly by neighboring residents directly north and south of the Altamont Loop to access I-90 or Franklin Elementary for school.
- North Altamont Boulevard – 11<sup>th</sup> Avenue – Ray Street: This route appears to be used predominantly by regional trips connecting I-90 to Ray Street or vice versa as a means of bypassing the Thor/Freya interchange. The pattern is heavier in the morning and

<sup>4</sup> Replica: <https://studio.replicahq.com>



afternoon peak hours.

## Mobility Standards and Traffic Operations

The efficiency of an intersection is measured by delay (in seconds) and level of service (LOS). LOS is rated from A to F, where LOS A represents free-flow conditions and LOS F is considered failing. The LOS was determined using the Highway Capacity Manual (HCM) 6<sup>th</sup> Edition. During the AM and PM peak hours, all uncontrolled intersections between local roads operated at LOS A, and the two-way stop-controlled intersections at the arterials operated at LOS B. Table 4 shows an overview of the operation conditions at each intersection.

There are no operational capacity concerns within the Altamont Loop.

**Table 3: Traffic Operations**

Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Highest Delay (sec/veh)	LOS	Highest Delay (sec/veh)
South Altamont Boulevard/ 9 <sup>th</sup> Avenue	B	12.9	B	11.2
North Altamont Boulevard/ Altamont Street	B	11.5	B	11.9
Woodfern Street/ North Altamont Boulevard	A	7.6	A	7.6
North Altamont Boulevard/ 11 <sup>th</sup> Avenue	A	7.4	A	7.3
Fiske Street/ 11 <sup>th</sup> Avenue	A	7.3	A	8.3
Ray Street/ 11 <sup>th</sup> Avenue	A	7.5	A	7.4
Woodfern Street/ South Altamont Boulevard	A	7.7	A	7.5
Mt Vernon Street/ South Altamont Boulevard	A	7.6	A	7.3

## Intersection Control Evaluation



Several members of the public have provided feedback that stop or yield signs should be added to the Altamont Loop as a traffic calming measure. While it should be noted the 11<sup>th</sup> edition of the Manual on Uniform Traffic Control Devices (MUTCD) explicitly states, “YIELD or STOP signs shall not be used for speed control”<sup>5</sup>, these citizen concerns may indicate a broader engineering concern with the current lack of any intersection control restriction for assigning the right-of-way.

For this reason, the MUTCD section on using no intersection control was evaluated to determine the possible sources of concern.

### No Intersection Control (Section 2B.09)

The use of no intersection control at an intersection is one of the most common scenarios for the intersection of local streets in Spokane. The MUTCD provides several guidelines for the use of this form of intersection control:

- A. Intersection sight distance is adequate on all approaches.
- B. All approaches to the intersection are a single lane and there are no separate turn lanes
- C. The combined motor vehicle, bicycle, and pedestrian volume (existing or projected) entering the intersection from all approaches averages less than 1,000 units per day or 80 units in the peak hour.
- D. There are no marked crosswalks or bicycle lanes on any approach.
- E. None of the approaches to the intersection are for a through highway, main road, or higher functional classification.
- F. The angle of intersection is between 90 and 75 degrees.
- G. The functional classification of the intersecting streets is either the intersection of two local streets or the intersection of a local street with a collector street.

If these conditions are not true, the use of additional intersection control may be needed to assist the public in determining the appropriate right-of-way. As shown in Table 5, all of the uncontrolled study area intersections fail at least two criteria (adequate sight distance<sup>6</sup> and total combined entering volume). The Woodfern Street/ North Altamont Boulevard and North Altamont Boulevard/ 11<sup>th</sup> Avenue intersections are also skewed beyond 75 degrees. Based on this evaluation, interventions which improve sight distance, reduce overall intersection volumes, and remove the skew from select intersections should be considered.

The City historical standard is consistent with the national practice of using the least amount of intersection control necessary and seeking to keep local street intersections uncontrolled. When local streets are controlled with stop signs the uncontrolled approaches often see an increase in travel speeds due to the dedicated right-of-way and the street begins to behave like a quasi-arterial. Similarly, adding unnecessary stops to a local street system has shown a tendency to increase speeds between stopped intersections as drivers seek to make up the time between stops.

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<sup>5</sup> Section 2B.06, 11<sup>th</sup> Edition MUTCD.

<sup>6</sup> Intersection sight distance for 25 mph is 115 feet. AASHTO 2018.

**Table 5: No Intersection Control Guidelines (2B.09)**

Condition	Intersection							
	South Altamont Boulevard/ 9 <sup>th</sup> Avenue	North Altamont Boulevard/ Altamont Street	Woodfern Street/ North Altamont Boulevard	North Altamont Boulevard/ 11 <sup>th</sup> Avenue	Fiske Street/ 11 <sup>th</sup> Avenue	Ray Street/ 11 <sup>th</sup> Avenue	Woodfern Street/ South Altamont Boulevard	Mt Vernon Street/ South Altamont Boulevard
A	N/A – Stop Controlled Existing	N/A – Stop Controlled Existing	N	Y	N	N	N	N
B			Y	Y	Y	Y	Y	Y
C			N	N	N	N	N	N
D			Y	Y	Y	Y	Y	Y
E			Y	Y	Y	Y	Y	Y
F			N	N	Y	Y	Y	Y
G			Y	Y	Y	Y	Y	Y
Conditions Not Met?			3	3	2	2	2	2

## CONCLUSION

The purpose of this study is to investigate the concerns of residents in the Altamont Loop sub-area of the Lincoln Heights Neighborhood Council regarding excessive speeding and cut-through traffic. After reviewing the available data and existing conditions within the study area, the following conclusions were determined:

- While most collisions in the Altamont Loop occurred between a vehicle and fixed object, the area with highest collision frequency was on Altamont Street between 9<sup>th</sup> Avenue and North Altamont Boulevard where two left turning collisions occurred between vehicles on Altamont Street and those turning left onto North Altamont Boulevard.
- Speeding is most common in the downhill direction (westbound between Woodfern Street and Hilda Court on North Altamont Boulevard, and eastbound between Regal Street and Fiske Street on 11<sup>th</sup> Avenue). Traffic calming efforts aimed at speed reduction or diverting traffic to routes with more desirable speed profiles should be focused along North Altamont Boulevard and 11<sup>th</sup> Avenue.



- Cut-through traffic most commonly follows an overall north-south pattern through the neighborhood.
  - North Altamont Boulevard - Woodfern Street – Mt Vernon Street: This route appears to be used predominantly by neighboring residents directly north and south of the Altamont Loop to access I-90 or Franklin Elementary for school.
  - North Altamont Boulevard – 11<sup>th</sup> Avenue – Ray Street: This route appears to be used predominantly by regional trips connecting I-90 to Ray Street or vice versa as a means of bypassing the Thor/Freya interchange. The pattern is heavier in the morning and afternoon peak hours.
- An evaluation of the intersection control for each study area intersection indicated all of the uncontrolled study area intersections fail at least two criteria (adequate sight distance<sup>7</sup> and total combined entering volume). Based on this evaluation, interventions which improve sight distance, reduce overall intersection volumes, and remove the skew from select intersections should be considered.

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<sup>7</sup> Intersection sight distance for 25 mph is 115 feet. AASHTO 2018.