



City of Shoreline
Annual Traffic Report
2017

Table of Contents

Introduction	3
Executive Summary.....	4
Data Sources	5
Definitions	5
Collision Summary	8
Total Collisions	8
Injury Collisions	9
Suspected Serious & Fatal Injury Collisions	10
Regional Comparison	11
Societal Costs	13
Contributing Circumstances.....	14
Pedestrian and Bicycle Collisions	19
Street Classification.....	21
High Collision Locations	22
Collision Reduction Strategies	25
Contributing Circumstance Strategies	25
High Collision Location Strategies.....	28
Completed Transportation Safety Improvements	31
Public Works	31
Shoreline Police Department	31
Traffic Speed Summary	34
Traffic Volume Summary	35
Transit Summary	36
Pedestrian and Bicycle Count Summary	37
Appendix	38

Introduction

This report provides an annual review and analysis of data collected by City of Shoreline Traffic Services staff and Shoreline Police Department. It summarizes collision, speed, volume, transit, pedestrian, and bike data, highlighting noteworthy trends. The data in this report guides the City's prioritization of Traffic Services capital improvement project resources, identifies potential projects for the upcoming year's Transportation Improvement and Capital Improvement plans, supports pursuit of grant opportunities, and identifies target enforcement areas for the Shoreline Police Department.

Engineering, enforcement, education and policy related improvement strategies generated by this report strive to accomplish the goal set by Washington State's Target Zero Plan; to achieve zero fatal and serious injury collisions by the year 2030. In addition, this report which specifically identifies safety improvement strategies, supports many goals set by Shoreline's Comprehensive Plan, as well as City Council Goal 5 - to promote and enhance the City's safe community and neighborhood programs and initiatives.

This report strives to provide clear and usable traffic safety and operational information for reference by staff, Council, residents, and businesses of Shoreline. To request additional information, please contact the Public Works Department, Traffic Services section or visit the Traffic Services webpage at <http://shorelinewa.gov/government/departments/public-works/traffic-services>.

Executive Summary

The Puget Sound region continues to experience growth, with a 2.1% increase in population from 2016 to 2017. Comparing 2016 traffic volume data in Shoreline, Average Daily Traffic Volumes are up 1.1%, with PM peak hour volumes increasing over 2.2% percent as represented by eight (8) regular traffic data collection sites. Similarly, there has been a slight uptick in transit use, with 0.13% more transit boardings in 2017 compared to 2016. At the annual pedestrian and bike monitoring location (N 175th Street and Midvale Avenue N), nonmotorized activity is again trending up.

Total collisions are up from 2016 by 3.6%, however both the total number of injury (Serious, Minor, and Fatal) collisions, as well as the percentage of injury collisions as part of total collisions, are trending slightly down. Fatal and Serious injury collisions remain relatively flat, however the percentage of these types of collisions as a part of the total is also trending down. The region as a whole is experiencing a similar total collision trend. This year's report also provides expanded comparison to other cities of similar size in King County. Comparative collision data showed that Shoreline's rate of Serious and Fatal Injury collisions per capita is relatively low as is the rate of pedestrian collision.

This year, WSDOT's collision data included additional information on Target Zero priorities. This helped to better identify potential focus areas for the City. While Distraction remains an important factor, Impairment related collisions were much lower in 2017; possibly as a result of significant emphasis patrols over the year which will continue in 2018. The Target Zero priorities also indicate that a focus on pedestrian safety, especially at intersections could be beneficial in terms of mitigating the risk of Serious or Fatal injury collisions. Notably, pedestrian and bicyclist injury collisions accounted for 41% of injury collisions in 2017, up from 30% in 2016.

Collision data terminology has changed slightly from 2016; with some renaming of collision severity types. For example, the category of Evident Injury Collision has now changed to Suspected Minor Injury Collision. These changes are further explained in the Definitions section.

There are some minor differences in the ranking methodologies for location based collision analysis and recommendations this year. Given that Aurora Ave N accounts for a large portion of collisions within the City, a separate section is provided for refined study and action steps. This also helps to highlight locations outside of the Aurora Corridor. Additionally, the Segment analysis was analyzed a little differently this year to account for length. Segments are now ranked in terms of collisions per linear foot. This helps to ensure that longer segments (areas of roadway between intersections) aren't overrepresented simply due to length.

Finally, staff is seeking Council direction on three policy topics, discussed in the Collision Reduction Strategies section. Policy direction is needed on the topics of: (1) automated school speed zone enforcement, (2) approval to use the recently legislated 20 mph speed limit as a tool for the Neighborhood Traffic Safety Program, and (3) updating the City's speed limit study.

Data Sources

This report summarizes collision data trends based on data from 2010 through 2017, with emphasis on years 2015 through 2017. Only collisions that occurred on City streets and are investigated by police officers are included in this report. Excluded are collisions on private property, locations outside of the City of Shoreline (i.e. N/NE 145th Street), phone reports, non-police investigated incidents, collisions under the threshold of \$1000, and other non-collision vehicle incident reports.

Collision data is obtained from the Washington State Department of Transportation (WSDOT). Data from WSDOT includes collisions investigated by other agencies such as Washington State Patrol. No citizen reports are included as WSDOT stopped providing this data to local jurisdictions as of January 1, 2009. The data contained in this report is based on reportable collisions only, as defined in the following section. Some additional comparative jurisdiction information is provided in this year's report with data supplied by the Washington State Department of Transportation's new Collision Data Portal tool. This tool is available to the public at:

<https://remoteapps.wsdot.wa.gov/highwaysafety/collision/data/portal/public/>

Traffic volume and speed data presented in this report was collected and analyzed by Shoreline Traffic Services staff or its consultants.

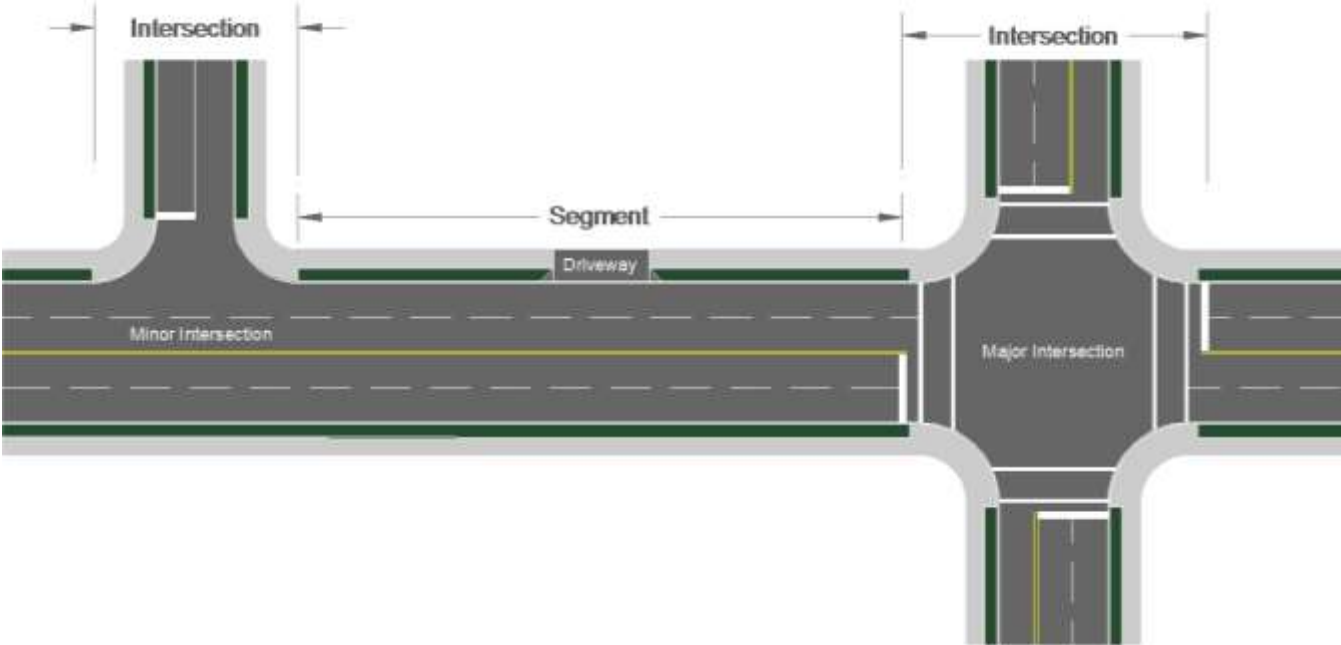
Transit data was provided by King County Metro and pedestrian and bicycle data is from WSDOT's Bicycle and Pedestrian Documentation Project.

Definitions

Reportable Collision	A collision which involves death, injury, or property damage in excess of \$1000 to the property of any one person.
Fatal Collision	Motor vehicle collision that results in fatal injuries to one or more persons.
Suspected Serious Injury Collision	Previously Serious Injury. A motor vehicle collision resulting in an injury assessed by the investigating officer as "any injury which prevents the injured person from walking, driving, or continuing normal activities at the time of the collision."
Suspected Minor Injury Collision	Previously Evident Injury. A collision resulting in an injury assessed by the investigating officer as "any injury other than fatal or serious at the scene. Includes broken fingers or toes, abrasions, etc. Excludes limping, complaint of pain, nausea, momentary unconsciousness, etc."
Possible Injury Collision	A collision resulting in an injury assessed by the investigating officer as "any injury reported to the officer or claimed by the individual as momentary

	unconsciousness, claim of injuries not evident, limping, complaint of pain, nausea, hysteria, etc.”
No Apparent Injury	Previously Property Damage Only. Motor vehicle collision in which there is no injury to any person, but only damage to a motor vehicle, or to other property, including injury to domestic animals.
Did Not Grant Right of Way	A contributing circumstance type which indicates that the driver failed to properly yield Right of Way; for example, a driver hitting a pedestrian in a crosswalk when the walk signal is on for the pedestrian movement.
High Collision Location	Locations with the highest number of reported collisions.
Collision Rate	For intersections, the number of collisions at an intersection divided by the average annual volume of vehicles entering the intersection. The resulting unit is collisions per million entering vehicles. For segments, the number of collisions along the segment divided by the length of the segment and the average annual volume of vehicles along the segment. The resulting unit is collisions per million vehicle miles.
85 th Percentile Speed	The speed at which 85% of traffic is traveling at or below; a traffic engineering standard for measuring and evaluating traffic speeds.
Target Zero	<p>Target zero is Washington State’s Strategic Highway Safety Plan for zero Fatal and Serious Injury collisions by the year 2030. This plan:</p> <ul style="list-style-type: none">• Sets statewide priorities for all traffic safety partners over a 3-4 year period.• Provides various strategies to address each emphasis area and factor.• Helps guide federal and state project funding toward the highest priorities and most effective strategies.• Monitors outcomes at a statewide level for each priority area. <p>Collision mitigation strategies include education, enforcement, engineering, policy and emergency medical service based efforts.</p> <p>http://www.targetzero.com/</p>

For High Collision Location analysis, intersections and segments are categorized as shown below.



Collision Summary

The following sections summarize collision data from public streets within the City of Shoreline from 2010 through 2017 with a focus on 2015-2017 collision data.

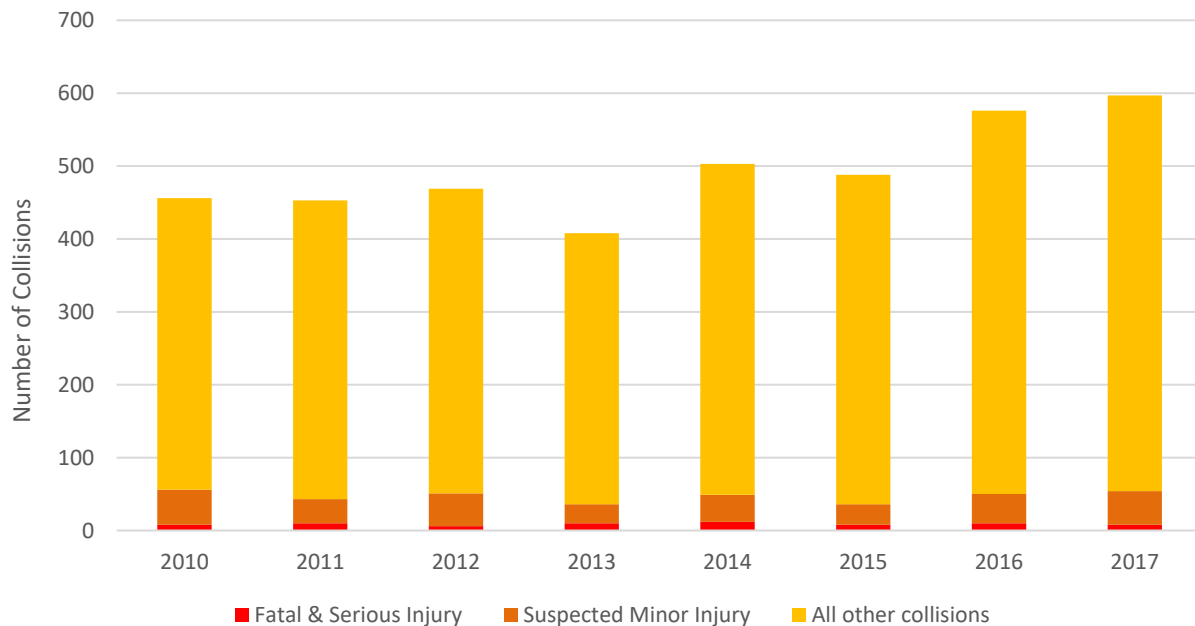
Total Collisions

There were 597 collisions reported on City of Shoreline streets in 2017. Below is a summary of collisions from 2010 through 2017.

	2010	2011	2012	2013	2014	2015	2016	2017
Fatal	2	1	1	1	1	1	1	0
Suspected Serious Injury	6	9	5	9	11	7	9	8
Suspected Minor Injury	48	33	45	26	37	28	40	46
Possible Injury	103	111	108	104	121	126	140	136
No Apparent Injury	286	290	302	264	318	317	374	398
Unknown	11	9	8	4	15	9	12	9
Total	456	453	469	408	503	488	576	597

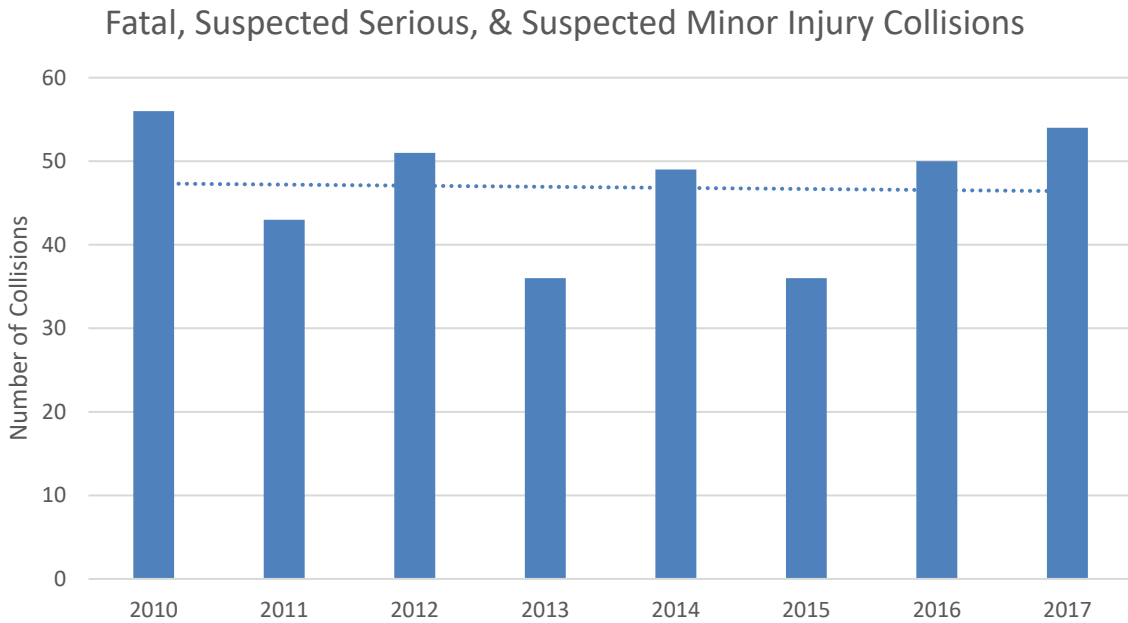
The total number of collisions in 2017 is up 3.6% from 2016. The overall collision trend line now shows an average increase of about 20 collisions per year. The number of Suspected Minor, Suspected Serious, and Fatal Injury collisions is trending slightly downward, generally accounting for about 9% of total collisions in 2017. Suspected Serious and Fatal Injury collisions alone account for only 1%. The Injury Collisions section provides more detailed analysis of injury collision trends.

Total and Injury Collisions by Year



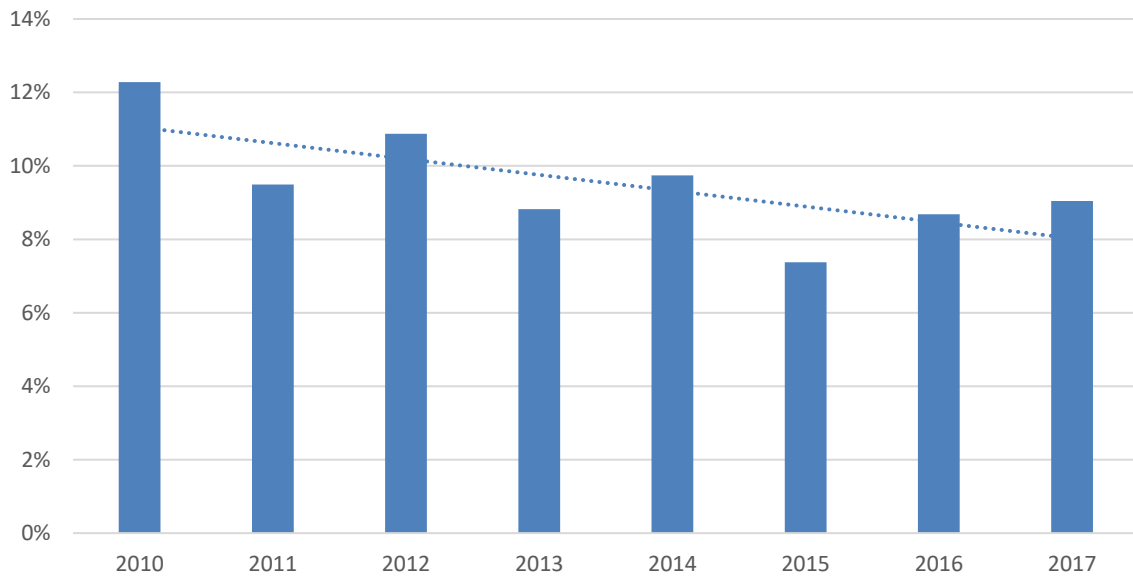
Injury Collisions

In this section, Fatal, Suspected Serious Injury, and Suspected Minor Injury collisions were analyzed, excluding Possible Injury collisions. As shown below, the trend for Injury Collisions is relatively flat, decreasing by .13 collisions per year on average.



Following a slightly steeper decline is the injury collision rate as a percent of total collisions. Despite the uptick in overall collisions, there has been a consistent decline in the number and percentage of resulting injuries.

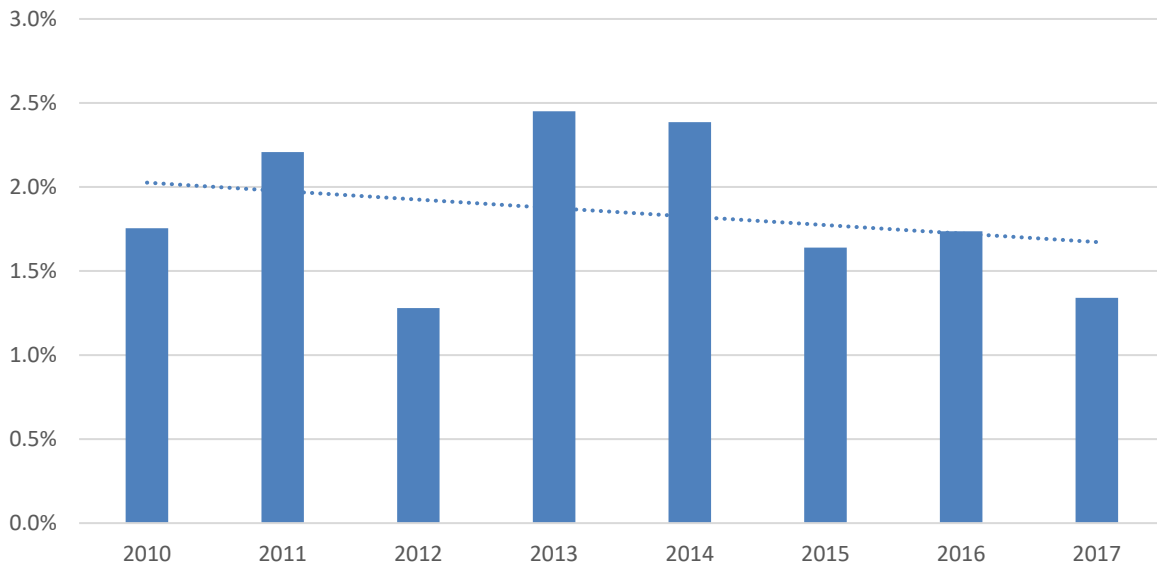
Fatal, Suspected Serious, & Suspected Minor Injury Collisions (as % of Total Collisions)



Suspected Serious & Fatal Injury Collisions

The chart below shows Suspected Serious & Fatal Injury collisions by year. The number of these collisions has remained relatively flat (an average of 9 per year since 2010) even though the overall rate of collision is rising, making up a lower percentage of total collisions year by year.

Fatal & Suspected Serious Injury Collisions (as % of Total Collisions)

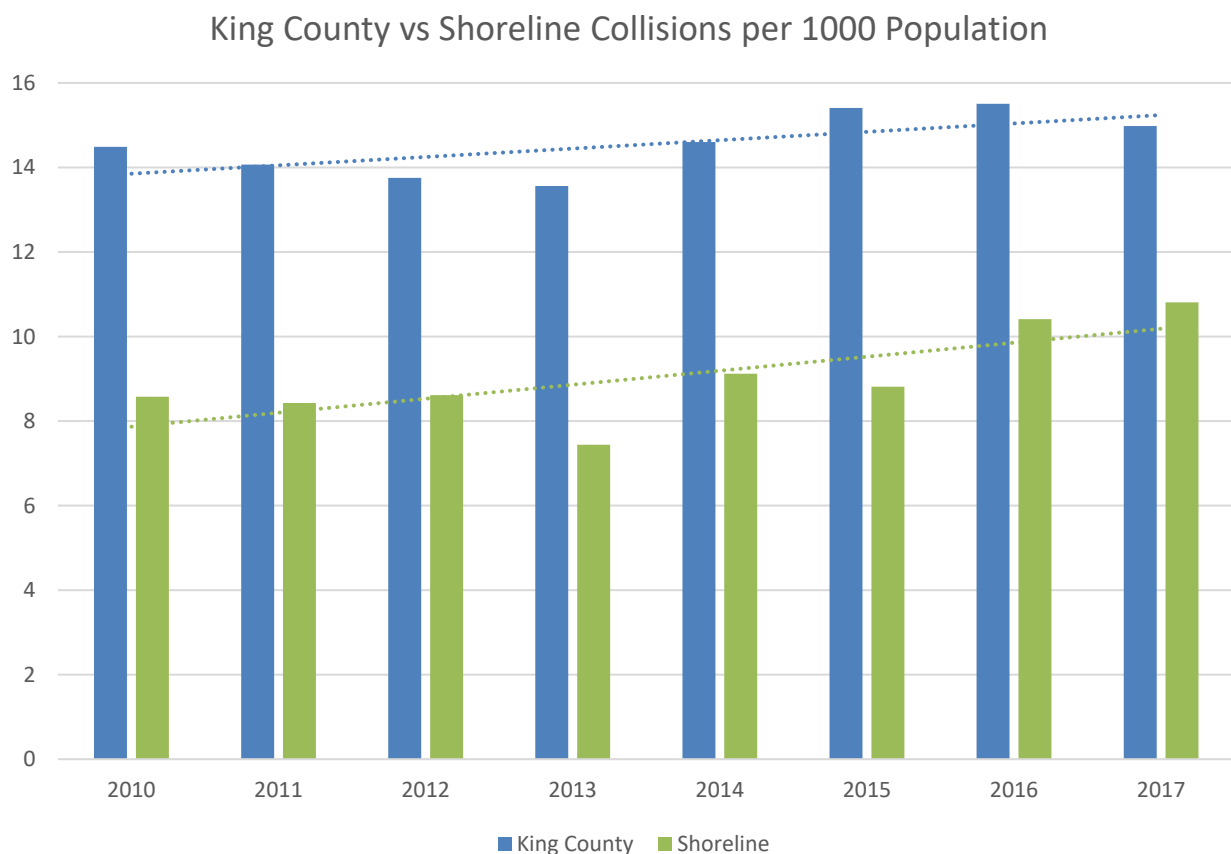


Regional Comparison

This section provides a comparison between King County collision data as well as comparable cities within King County.

Total Collision Regional Comparison

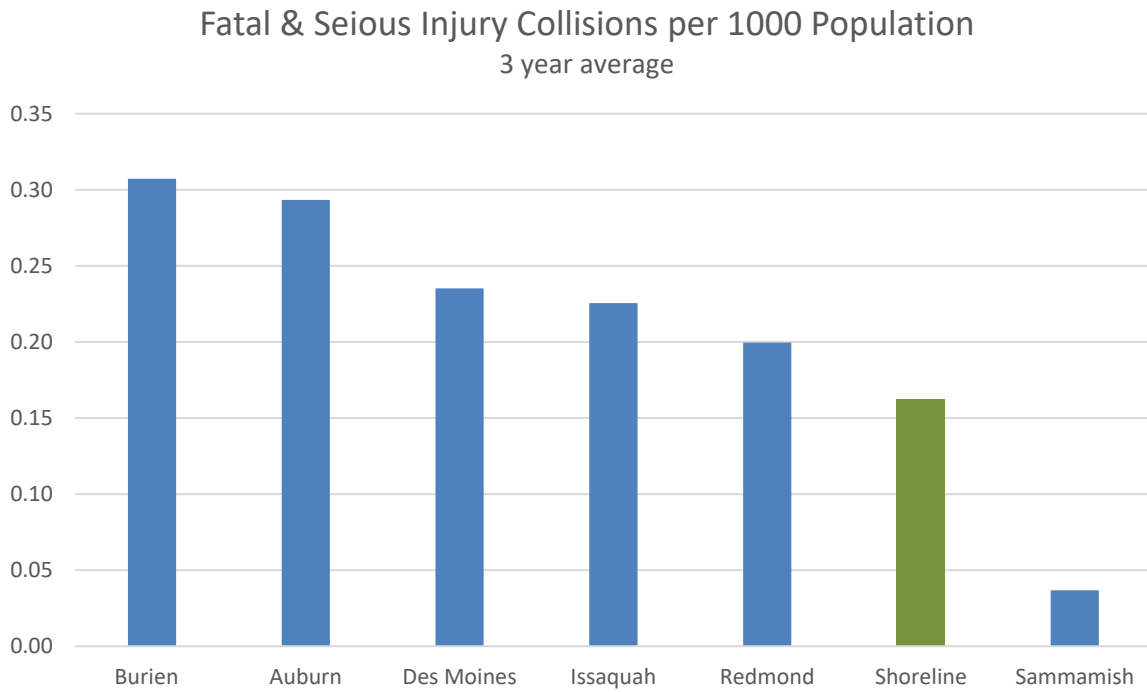
To better understand how the uptick in collisions in Shoreline relates to the broader region, a comparison to King County collision data was prepared. As shown in the chart below, the rate of total collisions in King County (as compared to population estimates for each year) has also been rising since 2010, with a slight drop in 2017. The King County data represented on this chart below excludes Shoreline population and collision data in order to provide a better comparison. King County collision data was provided by WSDOT Crash Data and Reporting Branch. Populations are from United States Census Data.



Suspected Serious & Fatal Injury Collision Regional Comparison

This year, data was also obtained for cities within a population range of 25,000 of Shoreline within King County. The rates of Serious and Fatal Injury Collision per thousand population were compared for the 2015-2017 time frame as were the rates of pedestrian collisions. Of all comparative cities, only Redmond and Des Moines have seen a downward trend in overall collision rate since 2015.

As shown in the next chart, Shoreline's rate of Fatal and Serious Injury Collisions is relatively low in comparison to King County cities of similar size.



Societal Costs

Traffic collisions have considerable impact not only on the people directly involved in the collision but also on the community as a whole. Below is the Washington State Department of Transportation’s assessment of motor vehicle collision costs by severity. The information provided includes estimates for the average economic cost per death, per injury, and per property damage collision. The economic cost estimates are a measure of the productivity lost and expenses incurred because of the collision; they do not reflect what society is willing to pay to prevent a statistical fatality or injury.

- Fatality \$2,000,000
- Suspected Serious Injury \$1,000,000
- Suspected Minor Injury \$100,000
- Possible Injury \$70,000
- No Apparent Injury \$10,000

Source: WSDOT Traffic Safety Management Office

Below is a summary of societal costs for collisions in Shoreline from 2015 through 2017. The overall societal cost is down from 2016, generally due to less injury collisions.

Type of Collision	2015	2016	2017
Fatality	\$2,000,000	\$2,000,000	\$0
Suspected Serious Injury	\$7,000,000	\$9,000,000	\$8,000,000
Suspected Minor Injury	\$2,800,000	\$4,000,000	\$4,600,000
Possible Injury	\$8,820,000	\$9,800,000	\$9,520,000
No Apparent Injury	\$3,170,000	\$3,740,000	\$3,980,000
Total	\$23,790,000	\$28,540,000	\$26,100,000

In averaging the most recent three years, collisions where injury occurred (including Fatal, Suspected Serious and Suspected Minor Injury) represent half the societal cost but only 8% of total collisions.

Contributing Circumstances

This section examines factors influencing a collision such as behavior, crash type and road user.

Target Zero Emphasis Priorities

State data this year includes collision data from 2010 on categorized by Target Zero priorities where applicable. The following table represents Washington State’s behavior, crash type and road user Target Zero priorities, with priority 1 being the highest and priority 3 being the lowest in terms of their contribution to statewide collisions. The sections below examine these priorities specific to City collision data.

Emphasis Areas	Priority
Impairment Involved	1
Speeding Involved	1
Lane Departure	1
Intersection Related	1
Young Drivers 16-25 Involved	1
Distraction Involved	2
Unrestrained Occupants	2
Unlicensed Driver	2
Motorcyclists	2
Pedestrians	2
Older Drivers 70+ Involved	2
Drowsy Driver Involved	3
Heavy Truck Involved	3
Bicyclists	3

The chart below represents the City’s significant priority areas; displaying the percent each emphasis area contributes toward total, all injury, and serious/fatal collisions over a 3 year average. Motorcyclists, Unlicensed Drivers, Heavy Truck and Unrestrained Occupants were relatively insignificant factors in total and injury collisions in Shoreline and are therefore not provided in the table.

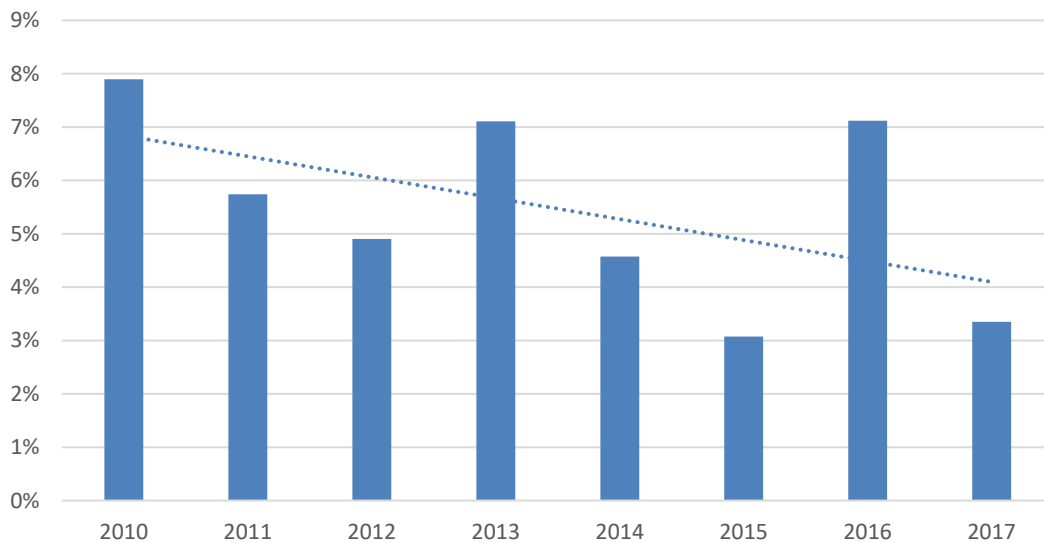
Emphasis Areas	2015-2017 Average Total Collisions	2015-2017 Average Serious, Fatal, & Minor Injury Collisions	2015-2017 Average Serious & Fatal Collisions
Intersection Related	50%	53%	62%
Distraction Involved	32%	33%	19%
Young Drivers 16-25 Involved	36%	29%	23%
Pedestrians	4%	24%	35%
Lane Departure	17%	21%	19%
Older Drivers 70+ Involved	13%	14%	12%
Speeding Involved	8%	12%	19%

Impairment Involved	5%	9%	8%
Bicyclists	6%	14%	12%

Impairment

With significantly less drug and/or alcohol impairment related collisions in 2017 in comparison to 2016, the trend line for this contributing circumstance is down again in 2017, with 20 collisions representing only 3% of total collisions. This may in part be due to increased emphasis patrols in 2017.

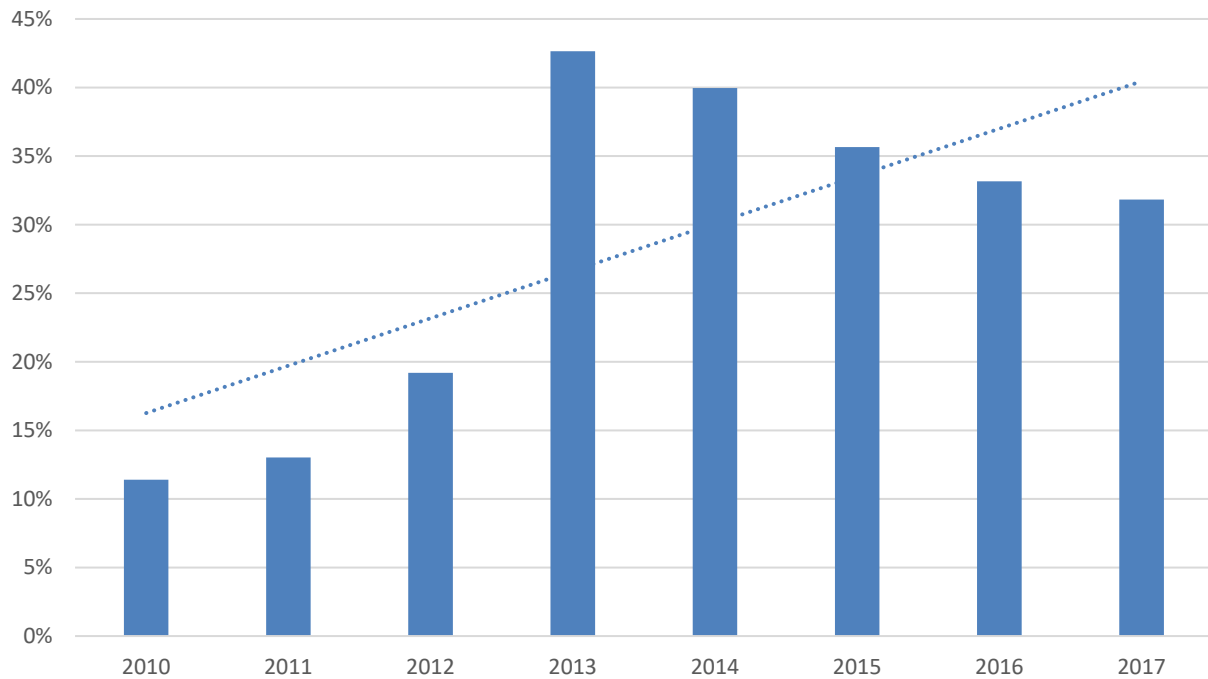
Target Zero Emphasis - Impairment
(as % of Total Collisions)



Distractions Driving

Shoreline’s distribution of distracted driving related collisions is 32%. Although the percentage of total collisions with distracted driving has been declining in recent years, it is deserving of ongoing education and enforcement emphases as one of the most significant factors in collisions, and is the most commonly cited contributing circumstance. In addition, part of this decline may be due to increased emphasis patrols in 2017 or other safety campaigns.

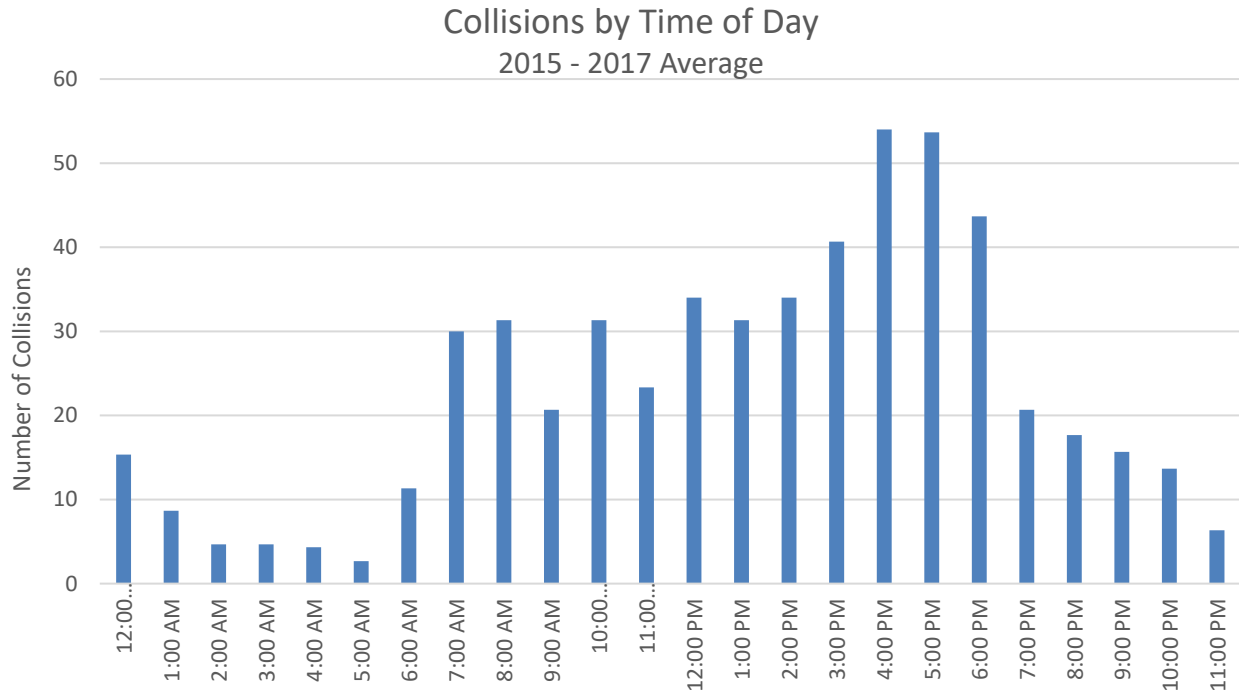
Target Zero - Distracted Driving (as % of Total Collisions)



Other Factors

Month and Time of Day

November is the month with the highest overall and injury collisions, consistent with the statewide trend. Collisions in Shoreline most often occur during the PM peak hour of 5 to 6 PM. Injury collisions most often occurred during the PM peak as well.



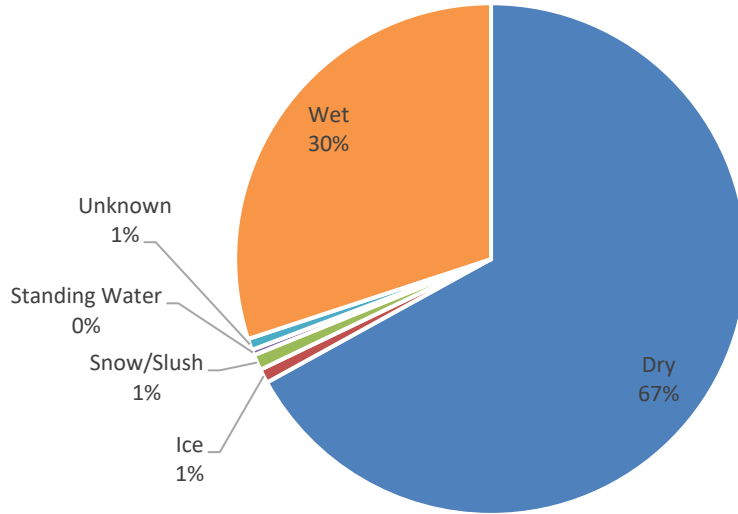
Light and Surface Condition

There are seven categories of light conditions and four categories of surface conditions for pavement. Most collisions occur during daylight hours. Injury collisions follow a similar trend. It is worth noting that pedestrian related collisions occur at a higher rate during hours of darkness; 45% of 2015-2017 collisions were reported to occur during hours of darkness (in comparison to 25% of general collisions).

Light Condition	2015-2017 Collisions	2015-2017 Pedestrian Collisions
Dark-No Street Lights	3%	13%
Dark-Street Lights Off	1%	4%
Dark-Street Lights On	21%	28%
Dawn	2%	4%
Dusk	3%	9%
Daylight	68%	41%
Other	0%	0%
Unknown	2%	0%

67% of collisions occur on dry pavement. Injury collisions follow a similar trend.

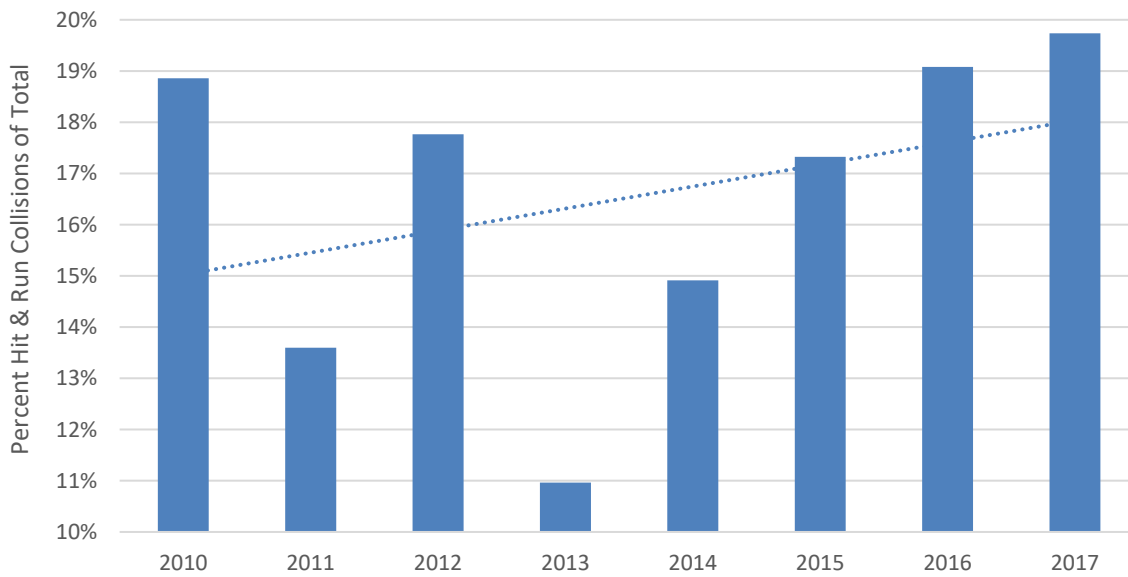
Collisions by Surface Condition (2015-2017)



Hit and Run

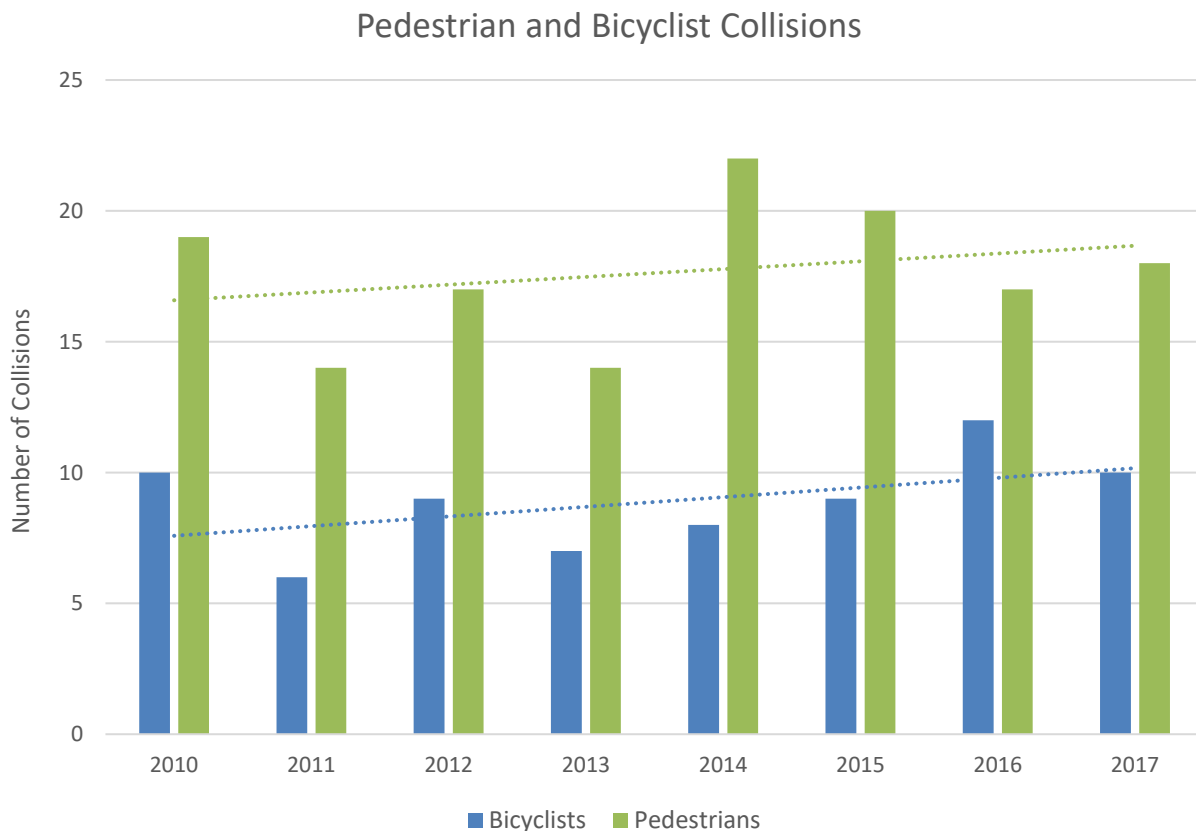
The number of reported hit and run collisions is on the rise, accounting for nearly 20% of total collisions in 2017.

Hit & Run Collisions
(as % of Total Collisions)



Pedestrian and Bicycle Collisions

Pedestrian versus motor vehicle collisions are up slightly from 2016, with an overall upward trend since 2010. The number of bicyclist versus motor vehicle collisions is down slightly from 2016, however the trend is still on the rise, roughly matching the rate of pedestrian collisions. In Washington State, 22% of fatalities involved a pedestrian or bicyclist.



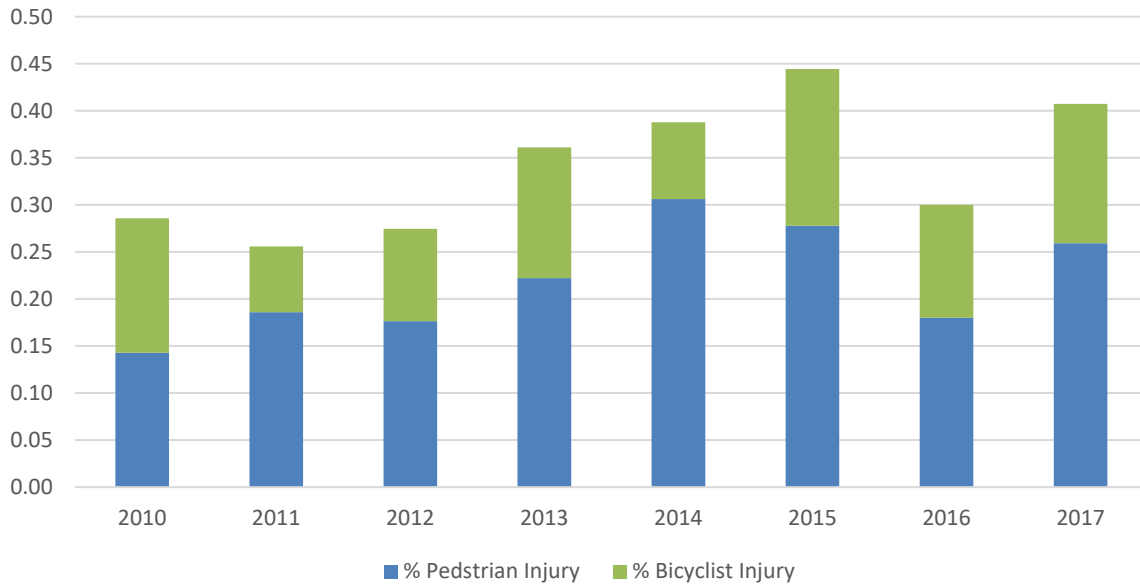
The primary motor vehicle contributing circumstance listed for pedestrian collisions has consistently been “Failure to Yield Right of Way to Pedestrian”. Additional information regarding pedestrian and bicycle collision locations is provided in the High Collision Locations section of this report.

	2010	2011	2012	2013	2014	2015	2016	2017
Bike Collisions	10	6	9	7	8	9	12	10
Pedestrian Collisions	19	14	15	14	22	20	17	19
Total Nonmotorized	29	20	24	21	30	29	29	29

Pedestrian related collisions occur at a higher rate during hours of darkness; 45% of 2015-2017 collisions were reported to occur during hours of darkness (in comparison to 25% of general collisions). Together, pedestrian and bicyclist injury collisions (including minor injury) accounted for 41% of injury collisions in 2017, up from 30% in 2016. Of the 18 pedestrian collisions in 2018, 15 of them were related to pedestrians

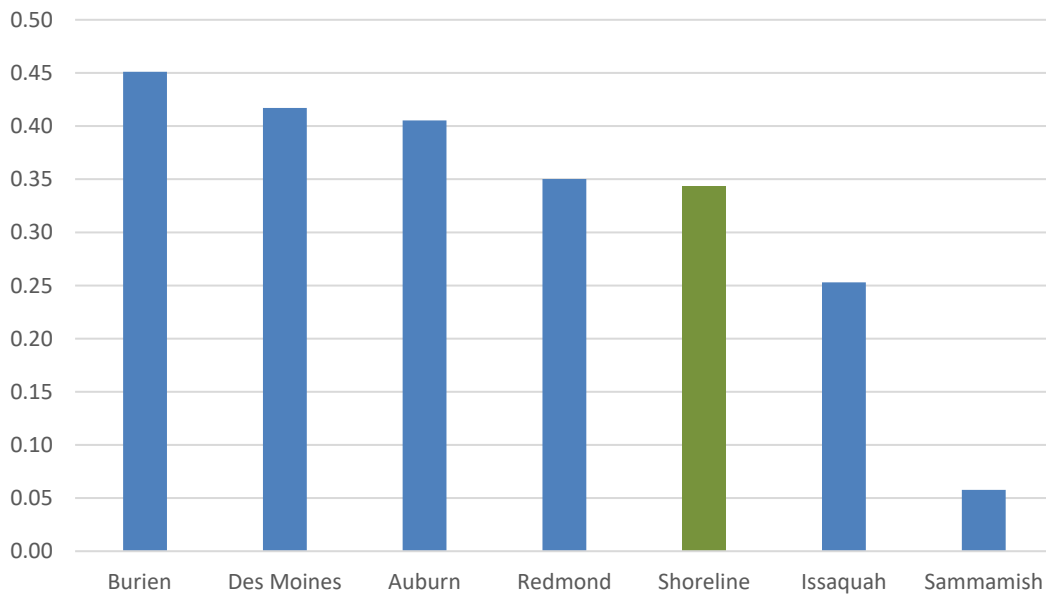
crossing the street. Drivers hitting pedestrians at a driveway accounted for an additional 2 and the remaining collision occurred when a worker was hit within an active work zone.

Pedestrian/Bicyclist Fatal, Serious, & Minor Injury Collisions
(as % of Total Injury Collisions)



The rate of Pedestrian Collisions in Shoreline is relatively low in comparison to similarly sized cities (with populations within 25,000 of Shoreline) in King County.

Pedestrian Collisions per 1000 Population
3 year average

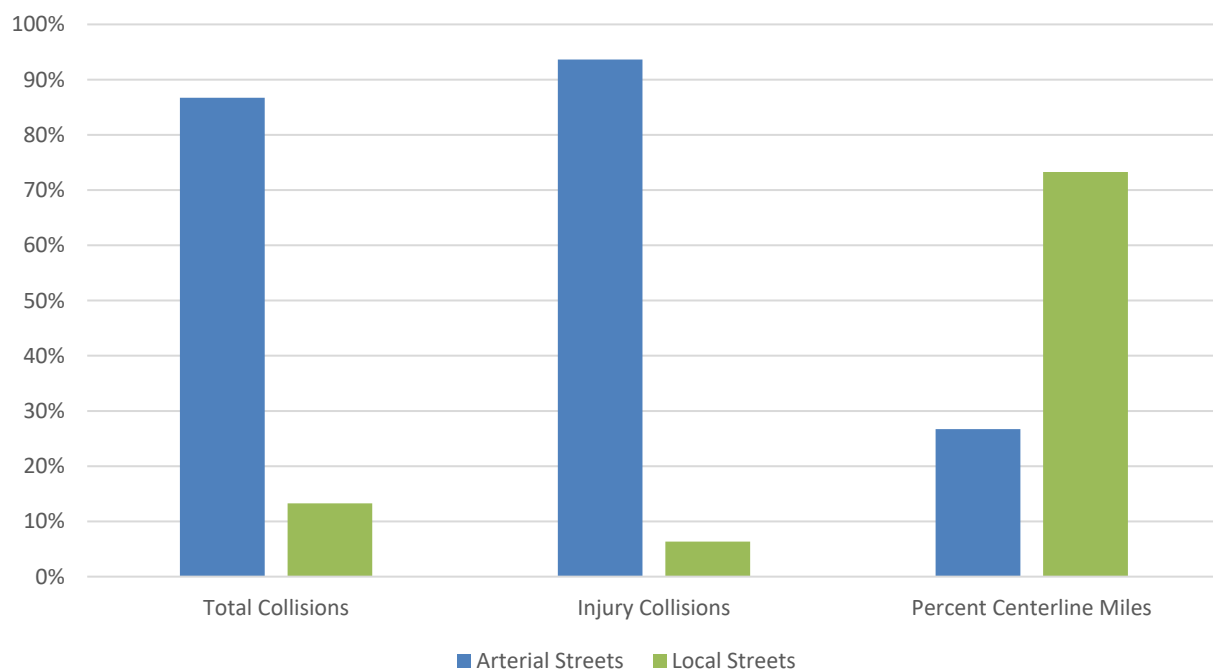


Street Classification

According to collision data and collision outcomes based on speed, the most benefit can be realized by focusing safety improvement efforts to generally higher speed arterial roadways. From 2013 to 2017, 73% of pedestrian and bicyclist fatalities in Washington occurred on roads with posted speed limits of 30 mph or higher. In Shoreline, all local streets are 25 mph. In addition, they carry significantly less volume.

Arterials in Shoreline account for only 27% of the total roadway centerline miles, yet in 2017, 87% of total collisions and 94% of injury collisions occurred on arterials, with only 12 (6%) injury collisions occurring on local streets. In this regard, safety improvements focused to arterial streets are likely to yield the most benefit.

2017 Collisions by Street Classification



High Collision Locations

This section provides location based analysis of collisions. There is no specific industry standard as to what number of collisions or collision rate is considered “high” for a location. Nationally, locations with 5 or more correctable collisions in a 12 month period may be considered for additional traffic control devices or revisions, such as stop signs or traffic signal phase changes.

The following sections organize top collision locations as they relate to intersections, segments (stretches of roadway between intersections), pedestrians, and bicyclists. This year, Aurora Ave N collisions are discussed separately in order to better address the corridor’s collision history and in to better highlight other important locations within the City. A chart of Aurora Corridor collisions is provided in Appendix H.

In addition to the following tables, Total, Injury, Serious Injury & Fatality, Pedestrian, and Bicycle collisions are displayed on maps in Appendices A-E.

Aurora Ave N Collisions (2015-2017)

Given high traffic volumes and speeds on Aurora, the corridor continues to experience a significant portion of the overall and injury collisions; 27% and 24% respectively. A plot showing number of collisions and their location along the Aurora Corridor for 2015-2017 is shown in Appendix H. The most prominent locations occur primarily at signalized locations, although one location near N 160th St and one near N 200th St also show larger than expected numbers. This is likely due to intersection queues, as well as possible misuse of BAT lanes. The majority of both total and injury collisions occurred from N 145th Street to N 175th Street.

High Collision Intersections (2015-2017)

The following table shows the top ten intersections with the most collisions from 2015-2017, Aurora locations excluded. The number of injury collisions in this time period is also reported for context, as well as the overall intersection collision rate, reported as collisions per million entering vehicles. The rate can be more reflective of the overall risk associated with an intersection however intersections with very low volume that experience one collision will result in a high rate, representing a skewed risk factor. In working toward the goals of Target Zero, focusing on locations with the highest number of collisions maximizes benefit.

Only two intersections, both located on Aurora had more than 3 injury collisions in the three year evaluation period. In this respect, the list of locations in this table also adequately represents injury locations. Locations shown in bold is new in comparison to the 2016 Annual Traffic Report.

	Location	Total Collisions	Injury Collisions	Rate (Collisions per Million Entering Veh)
1.	3 rd Ave NW & NW Richmond Beach Rd	27	2	1.30
2.	15 th Ave NE & Ballinger Way NE	26	1	.85
3.	19 th Ave NE & Ballinger Way NE	23	2	.78
4.	Meridian Ave N & N 175 th St	22	2	.60
5.	10 th Ave NE & NE 175 th St	21	3	1.28

6.	Meridian Ave N & N 185 th St	17	2	.60
7.	15 th Ave NE & NE 155 th St	15	2	.61
8.	Midvale Ave N & N 175 th ST	13	2	.44
9.	Westminster Way N & N 155 th St	13	0	.38
10.	Fremont Ave N & N 200th St	11	1	1.25

High Collision Segments (2015-2017)

The following table shows the top ten roadway segments with the most collisions from 2015-2017, Aurora locations excluded. For this year's report, segments were ranked according to rate of collision per linear foot to normalize the data for longer segments. In comparing rates, only segments with 2 or more collisions are represented, since shorter segments with only 1-2 collisions would be artificially skewed. No segment in the City experienced more than 2 injury collisions over the last 3 years. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

	Location	Rate (Collisions/LF)	Total Collisions	Injury Collisions
1.	Ballinger Way NE from 19 th Ave NE to 15 th Ave NE	.020	32	1
2.	15 th Ave NE from NE 172 nd St to NE 175 th St	.015	10	1
3.	15th Ave NE from NE 179th St to NE 180th St	.011	3	0
4.	NE 175 th St from 12 th Ave NE to 15 th Ave NE	.011	7	0
5.	N 160 th St from Linden Ave N to Aurora Ave N	.009	6	0
6.	N 155th St from Burke Ave N to Meridian Ave N	.009	3	1
7.	15 th Ave NE from Forest Park Dr NE to Ballinger Way NE	.009	10	1
8.	19 th Ave NE from NE 199 th St to Ballinger Way NE	.009	5	1
9.	N 160th St from Fremont Pl N to Linden Ave N	.008	4	2
10.	NW Richmond Beach Rd from 3 rd Ave NW to 8 th Ave NW	.008	10	1

Pedestrian Collision Locations (2013-2017)

The following table shows locations with 3 or more pedestrian collisions from 2013-2017. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

Location	Pedestrian Collisions
Aurora Ave N & N 160 th St	4
3rd Ave NW & NW Richmond Beach Rd	3
Aurora Ave N & N 185 th St	3
Aurora Ave N & N 192 nd St	3
Aurora Ave N – N 167th St to N 170th St	3
19 th Ave NE & Ballinger Way NE	3

Bicyclist Collision Locations (2013-2017)

The following table shows locations with 3 or more bicyclist collisions from 2013-2017. The intersection of Aurora and 160th is a shared top location for both pedestrians and bicyclists. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

Location	Bicyclist Collisions
Aurora Ave N & N 160 th St	3
Meridian Ave N & N 185 th St	3
15th Ave NE – N 172nd St to N 175th St	3

Collision Reduction Strategies

The Collision Summary section provided analysis of collisions within Shoreline's public streets, tracking overall and injury collision data from 2010 through 2017 and highlighting specific and significant contributing factors and locations. The following sections provide education, enforcement, engineering, and policy responsive strategies for mitigating collisions based on the prior section analysis.

Contributing Circumstance Strategies

The City of Shoreline strives to reduce overall, injury, and fatality collisions on its roadways consistent with the Washington State Strategic Highway Safety Plan's Target Zero Plan.

Education

The Shoreline Police Department and Traffic Services will continue to coordinate regularly to review speed differential and collision data to identify additional opportunities.

The Neighborhood Traffic Action Plans (NTAP) and Neighborhood Traffic Safety Program (NTSP) managed through Traffic Services will continue to utilize education to support neighborhood traffic safety concerns. Radar speed carts and the volunteer crosswalk flag program are examples of driver education tools frequently utilized. Police will continue to provide education outreach efforts through the following types of activities:

- Safe driving presentations to at-risk drivers ages 16-19 years old. The Shoreline Police School Resource Officer and Traffic Unit work jointly to support this effort.
- Safe driving and traffic complaint reporting presentations at neighborhood meetings. These are conducted through joint efforts between the Shoreline Police Community Outreach Officer and Traffic Unit.
- Ongoing contacts through enforcement emphasis activities regarding speeding, impairment, and distracted driving.

Enforcement

The City of Shoreline Traffic Services and Police departments will continue working together to identify and target speed enforcement. Speed data is collected throughout the year and compared to the posted speed limit in order to identify streets where speeding is a problem.

The Shoreline Police Department section within Completed Transportation Safety Actions section outlines emphasis areas that were carried out in 2017, as well as ongoing efforts into 2018. Multiple grants in 2017 focused on impairment, speeding, distraction, and pedestrian related enforcement activities. Washington Traffic Safety Commission grants will continue into 2018.

Engineering

The High Collision Location Strategies section provides the majority of engineering related mitigation strategies. Some additional components of the Traffic Services program that take an engineering responsive approach to safety are:

- Neighborhood Traffic Safety Program

- Routine signalized intersection reviews
- Asset management

Policy

Staff is seeking Council direction on the following three policy topics:

- 1) Automated school speed zone enforcement;
- 2) 20 mph speed limit as tool for Neighborhood Traffic Safety Program;
- 3) Arterial speed limit study update.

Additional context for these policies is provided below.

➤ **WA State Target Zero Plan Recommendation PED.5.1 Expand high visibility speed enforcement in school zones, including automated photo enforcement.**

In Washington State the law allows for automated enforcement in work zones, school zones, and at signalized intersections. The use of automated speed cameras has been shown to reduce crashes 20–25% if placed at conspicuous, fixed locations. Allowing wider use of speed cameras in Washington would save about 21 lives, prevent 1,700 injuries, and reduce taxpayer crash costs by almost \$50 million each year. Pedestrian collision trends from Target Zero 2012-2014 analysis showed that 42% of pedestrian fatalities occur on roads with speed limit of 30 or 35 mph and that more than 60% of both pedestrian fatalities and serious injuries occurred while the pedestrian was crossing the road. Staff has received many requests from members of the community to consider this tool.

Cities in the region that currently utilize school zone enforcement cameras are as follows:

- | | | |
|---------------------|------------|---------------|
| • Des Moines | • Lynnwood | • SeaTac |
| • Lake Forest Park | • Renton | • Seattle |
| • Issaquah | • Kent | • Fife |
| • Bellevue | • Everett | • Federal Way |
| • Mountlake Terrace | • Tacoma | |

With Council direction, staff will bring this policy topic back for further discussion.

➤ **WA State Target Zero Plan Recommendation SPE.2.1 Set speed limits which account for roadway design, traffic and environment including traffic volume, modal mixed-use, and local and regional function.**

20 mph speed limit as tool for Neighborhood Traffic Safety Program

Relatively recent legislation grants cities the authority to post speed limits at 20 mph (RCW 46.61.415 (3)(a)). The City of Seattle has a pilot program currently underway which implements this 20 mph speed limit in multiple locations throughout the City. At the time of the last Target Zero plan update, there were no fatalities on roads with posted speed of 20 mph. There are not many miles of 20 mph roads and as such there is very little before/after study data available. Staff has received many requests from NTSP participants to allow use of this speed limit option.

With Council direction, staff would utilize this 20 mph speed limit option for active Neighborhood Traffic Safety programs interested. A batch of locations would come back to Council for discussion and potentially again for adoption. The recommended frequency for this batch of implementations is once per year with initial discussion occurring as part of the Annual Traffic Report process.

Arterial speed limit study update.

Speed limits for arterials throughout the City have not been studied for over 10 years. Given changes in land use, roadway configurations in some cases, and collision occurrence over this time, conducting a new speed limit study is recommended.

Staff is seeking Council direction to move forward with this study since since any recommended changes would need to come back to Council for discussion and adoption. Timing of this study will depend somewhat on discussions around Automated School Speed Zone Enforcement.

High Collision Location Strategies

Shoreline Police and Public Works staff work together to review High Collision Locations each year. This data driven approach to collision reduction facilitates strategic and systematic prioritization of limited City resources. The top locations were prioritized based on number of collisions, with consideration of injury collisions and rates. The goal in prioritizing locations with significant collision history is to maximize the benefit of recommendations and improvements in decreasing the number of overall and injury collisions.

Referencing analysis from the Collision Summary section, and drawing from specific strategies outlined in the Target Zero Plan, recommendations were developed to address identified collision patterns. In some cases, greater resource than currently available is needed to address a location's need. These locations are added to the Transportation Improvement Plan (TIP) to identify potential project funding sources and to position the City for grant opportunities.

Aurora Ave N Corridor (2015-2017)

Given the high percentage of collisions along the Aurora Corridor, Traffic Services staff will review the south half of the corridor from N 175th Street to N 145th Street (where the majority of collisions occurred) for sight line or operational improvements, as well as work with Police on emphasis areas. In addition, staff will work toward implementing pedestrian specific strategies identified in the Pedestrian Collision Recommendations section.

High Collision Intersection Recommendations (2015-2017)

The table below provides mitigation strategies for intersections with the most collisions outside of the Aurora Corridor. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

	Location	Recommendation
1.	3 rd Ave NW & NW Richmond Beach Rd	Changes were recently implemented via the Richmond Beach Rd Rechannelization Project; monitor.
2.	15 th Ave NE & Ballinger Way NE	Project described in the Transportation Improvement Plan; pursue grant opportunities.
3.	19 th Ave NE & Ballinger Way NE	Project described in the Transportation Improvement Plan; pursue grant opportunities.
4.	Meridian Ave N & N 175 th St	Partially funded CIP/Growth Project. Will continue to pursue grants for implementation.
5.	10 th Ave NE & NE 175 th St	Review signal. Consider clearance interval adjustments.
6.	Meridian Ave N & N 185 th St	This is a Growth Project. Sound Transit Lynnwood Link Light Rail mitigation is likely to occur within the next two years as well. This intersection will be studied as part of the 185th Corridor Strategy. Pursue improvement opportunities related to redevelopment.
7.	15 th Ave NE & NE 155 th St	Will evaluate for protected signal phasing and/or leading pedestrian interval.
8.	Midvale Ave N & N 175 th ST	Recently added supplemental warning signs. Will review for changes to signal phasing, however this would result in significant additional delay.

9.	Westminster Way N & N 155 th St	Current CIP project in design phase. Adjacent development to make some improvements related to SEPA mitigation. Pursue grant and partnership opportunities with nearby redevelopment.
10.	Fremont Ave N & N 200th St	Improve stop control conspicuity; add stop lines where absent and possible LED border or flashing beacon treatment.

High Collision Segment Recommendations (2015-2017)

The highest priority segment locations outside of the Aurora Corridor and associated recommendations are shown below. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

	Location	Recommendation
1.	Ballinger Way NE from 19 th Ave NE to 15 th Ave NE	Project described in the Transportation Improvement Plan; pursue grant opportunities.
2.	15 th Ave NE from NE 172 nd St to NE 175 th St	Frontage improvements as part of adjacent development. Explore better transition opportunities from 3 lane to 4 lane roadway in this segment.
3.	15th Ave NE from NE 179th St to NE 180th St	Project described in the Transportation Improvement Plan; pursue grant opportunities.
4.	NE 175 th St from 12 th Ave NE to 15 th Ave NE	Project described in the Transportation Improvement Plan; pursue grant opportunities.
5.	N 160 th St from Linden Ave N to Aurora Ave N	Project described in the Transportation Improvement Plan; pursue grants and partnership opportunities with the anticipated adjacent redevelopment of the Sears lot.
6.	N 155th St from Burke Ave N to Meridian Ave N	A capital improvement project at 155th/Meridian intersection which encompasses this segment will be implemented within the next year.
7.	15 th Ave NE from Forest Park Dr NE to Ballinger Way NE	Evaluate parking as it relates to line of site from driveways.
8.	19 th Ave NE from NE 199 th St to Ballinger Way NE	Speed enforcement; shown to have 85 th percentile speeds 8-10 mph over posted speed.
9.	N 160th St from Fremont Pl N to Linden Ave N	Project described in the Transportation Improvement Plan; pursue grants and partnership opportunities with the anticipated adjacent redevelopment of the Sears lot.
10.	NW Richmond Beach Rd from 3 rd Ave NW to 8 th Ave NW	Changes were recently implemented via the Richmond Beach Rd Rechannelization Project; monitor.

Pedestrian Collision Recommendations (2013-2017)

The following table shows locations with 3 or more pedestrian collisions in a five year period and associated recommendations. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

Location	Pedestrian Collisions	Recommendation
Aurora Ave N & N 160 th St	4	Implement leading pedestrian interval signal timing.
3rd Ave NW & NW Richmond Beach Rd	3	Changes were recently implemented via the Richmond Beach Rd Rechannelization Project; monitor.
Aurora Ave N & N 185 th St	3	Implement leading pedestrian interval signal timing.
Aurora Ave N & N 192 nd St	3	Implement leading pedestrian interval signal timing.
19 th Ave NE & Ballinger Way NE	3	Project described in the Transportation Improvement Plan; pursue grant opportunities.
Aurora Ave N – N 167th St to N 170th St	3	Jaywalking enforcement emphasis.

Bicyclist Collision Recommendations (2013-2017)

The table below shows locations with 3 or more bicyclist collisions in a five year period and associated recommendations. Locations shown in bold are new in comparison to the 2016 Annual Traffic Report.

Location	Bicyclist Collisions	Recommendation
Aurora Ave N & N 160 th St	3	Implement leading pedestrian interval signal timing.
Meridian Ave N & N 185 th St	3	Applied for bicycle related grant improvements for this intersection in 2018. Some signal improvements will be implemented with Sound Transit Lynnwood Link Light Rail project, likely within the next 2 years.
15th Ave NE – N 172nd St to N 175th St	3	Gap in bike lane connectivity; pursue opportunities for dedicated facilities in this gap and/or off-corridor alternatives/green streets.

Completed Transportation Safety Improvements

Below are some of the transportation safety improvements implemented in 2017. Outcomes related to some of these projects will be included in next year’s Annual Traffic Report.

Public Works

- Efforts to study and design the Richmond Beach Rechannelization project began in 2017 and the project is now substantially complete. There were 4 pedestrians hit on this corridor in 2017 prior to the project’s implementation. Thorough before/after analysis will be provided as part of committed follow up studies, and data from this will be included as part of next year’s Annual Traffic Report, including reporting on:
 - Collisions
 - Travel times
 - Cut through traffic
- Incorporated into the Bike Plan Implementation project, the intersection of Carlyle Hall Rd and Dayton Ave N was restriped to allow for better traffic flow and improved sight lines. The City received many complimentary contacts following the completion of this work.
- The Echo Lake Safe Routes to School project was completed, including 2 blocks of new sidewalk and new pedestrian crossing beacons at N 195th Street and Meridian Ave N.
- The Einstein Middle School Safe Routes to School project was completed, including 6 blocks of new sidewalk, and 4 new school speed zone flashing beacons.
- Radar Speed Signs were installed for 9 locations throughout the City as part of a Federal safety grant.
- Flashing Yellow Arrow signal operation was installed at 19th Ave NE and NE 205th Street.
- A School Zone Flashing Beacon sign and other school zone sign updates were installed for Highland Terrace Elementary.
- Using information from the 2016 Annual Traffic Report, Traffic Services applied for 7 grants in early 2018 to improve traffic safety. One grant from the Washington Traffic Safety Commission has been awarded so far.

Shoreline Police Department

Summary statistics for Shoreline Police Department are provided in the table below.

Year	Citations	Arrest	Warning	Other
2017	3540/5453	510	2,321	1,928
2016	2,157/3,520	625	3,969	1,575
2015	2,533/5,108	709	3,812	1,487
2014	1,874/3,659	675	2,897	1,459

Washington Traffic Safety Commission Grants (Traffic Unit)

The WTSC grant included seatbelt, speed, distracted driving, pedestrian traffic directed patrols. Each directed patrol was primarily a team approach in 4 hour patrols. The 4 grants covered in 2017 accounted for the following:

- 346 contacts
- 326 violations cited
- 5 arrest (DUI, felony warrant, Driving While License Suspended (DWLS), other)

8 officers attended Advanced Roadside Impaired Driving Education training, funded through the Washington State Traffic Safety Commission. This helps an officer expand ability to detect drug impaired drivers.

Target Zero - DUI emphasis (Patrol & Traffic)

August/September (3 officers)

- 62 contacts
- 4 DUI arrests
- 2 DWLS arrests
- 37 violations cited

December (2 officers)

- 35 contacts
- 1 Reckless Driving
- 2 DWLS
- 1 No Valid Operator License (NVOL)
- 5 violations cited

Washington Impaired Driving Advisory Council (WIDAC) Grant funded by Kent PD

Held May 5th, hosted by Shoreline PD conducted a 5 hour emphasis effort with partnership from WSP, Department of Liquor and Cannabis, and Kenmore PD. Shoreline PD alone had 69 contact, 4 DUI's, 2 arrested for DWLS-3, and 1 arrested for NVOL-1. Impairment related collisions were substantially lower in 2017 in comparison to 2016.

Cell Phone law

July 2017, the cell phone law changed significantly in Washington State. The Traffic unit and patrol provided education to the public through media outreach, warnings, and issuing citations.

Coordination with Public Works

New Bike lanes installed throughout the City as part of Bike Plan Implementation grants. The Traffic Unit spent additional hours educating the community about parking restrictions by placing cards on cars and writing notes. The deputies in this unit frequently drove the areas with highest violations that were being reported which helped identify some problem areas that were relayed to the Public Works for additional refinements.

Also in 2017, each traffic deputy has identified at least one traffic safety concern in the City. These concerns were clearly articulated and were accompanied by potential solutions. The engineering department has been very open to discussion and suggestions when a hazard is identified. In many cases the deputy's solution is implemented.

School Zones

With help from the Patrol unit, Shoreline PD was present at every school the first few days of the year. Traffic Officers routinely work areas throughout the year, with the primary focus at the start of the school year.

Abandon Vehicles

Shoreline Police Department and the City's Customer Response Team created a new system to better streamline the abandon vehicle process. Now all abandon reports are received via Coplogic and 911 calls are processed first through CRT. Those that remain unresolved are assigned to the PD.

Year	Traffic Complaints to Shoreline PD	Abandon Vehicle / Impounds
2017	72	335 / 34
2016	72	322 / 54
2015	197	172 / 41
2014	286	196 / 48

School Education/H.S. outreach

Washington State Patrol has a vehicle that was involved in a fatal collision caused by a teen driver texting that is used as a resource for teen driver education. CRT helped us transport the car to Shorewood and Shorecrest High Schools for two days of teen driver education. Driver Education was also provided in health classes and for entire senior classes at each high school. In addition, Shoreline PD worked with school groups to educate classmates on distracted and impaired driving.

DUI outreach

Several presentations were made on DUI education at Shoreline Community College. This included conversations with students about alcohol and drug impairment and the use of "drunk goggles" while students attempted to perform standardized field sobriety tests.

Child Restraint Inspection.

Deputy Obstler continues providing the community with child restraint inspections and installations. She performed approximately 17 in 2017. She was only able to provide this service August-December.

Traffic Speed Summary

The City of Shoreline Traffic Services and Police departments have been working together to identify and target speed enforcement. Speed data is collected throughout the year and compared to the posted speed limit in order to identify streets where speeding is a problem.

Appendix F is the Traffic Speed Differential Map which shows the difference between the measured 85th percentile speed and the posted speed limit. Shoreline Police will use this data, as well as a mid-year update to it, to target streets with measured speeding problems.

In addition, Traffic Services will continue to rotate radar speed trailers and radar speed carts to help with the driver education component of speed reduction on problem corridors.

The street segments shown in the table below represent the locations with the highest difference between posted and measured travel speeds.

Streets with Differential Speed 10-14 mph Over Posted Limit
Carlisle Hal Rd N/3 rd Ave NW from NW 175 th to Dayton Ave N
NW 175 th Street from 10 th Ave NW to 14 th Ave NW
N 160 th St from Greenwood Ave to Aurora Ave N
5 th Ave NE from NE 155 th St to NE 185 th St

Traffic Volume Summary

Traffic volume data is regularly collected at eight (8) locations in the City. They are:

- Aurora Ave N south of N 175th St
- Meridian Ave N south of N 175th St
- NW Richmond Beach Rd east of 3rd Ave NW
- 5th Ave NE south of NE 175th St
- 15th Ave NE south of NE 172nd St
- 25th Ave NE south of NE 171st St
- NE 175th St west of 5th Ave NE
- NW 175th St west of 3rd Ave NW

Below is a summary of data collected at these locations. As shown in the table, average weekday daily traffic volumes are up from 2016 by 1.10%. AM peak volumes are up by 1.60% and the PM peak volumes are up by 2.23%. The Puget Sound Region gained another 82,000 people in the last year, a 2.10% growth from 2016-2017 (Source: U.S. Census Bureau, Washington State Office of Financial Management)

	2013	2014	2015	2016	2017	5 Year Average
AM Peak Aggregate AAWDT	7444	6169	6399	6528	6632	6634
PM Peak Aggregate AAWDT	9521	7722	8033	8197	8380	8371
Daily Aggregate AAWDT	111441	96972	99719	101426	102546	102421

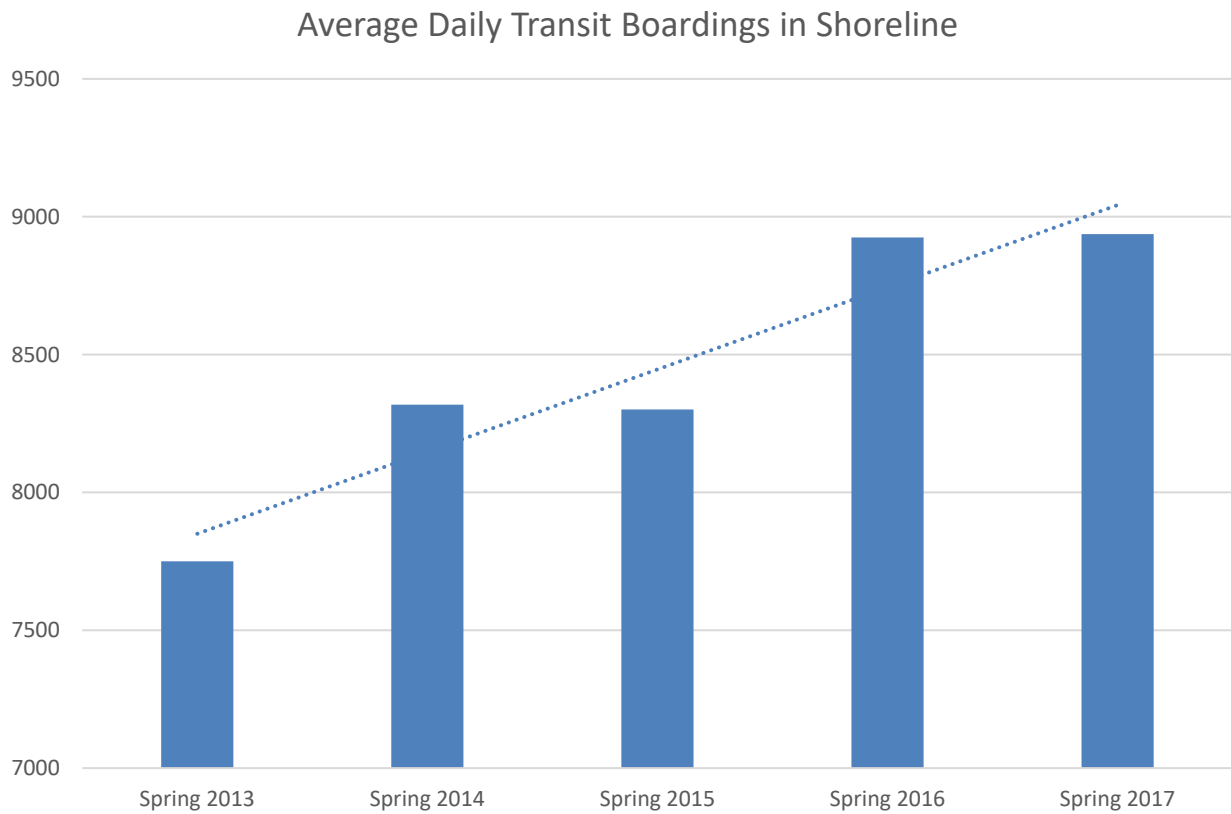
See Appendix G for the 2017 Traffic Flow Map which shows average daily weekday traffic volumes on additional City of Shoreline Streets.

Transit Summary

Transit ridership is up only slightly (0.13%) compared to spring 2016, with 8937 average daily transit boardings.

	Average Daily Transit Boardings in Shoreline	% Change
Spring 2017	8937	0.13%
Spring 2016	8925	7.5%
Spring 2015	8301	-0.2%
Spring 2014	8318	7.3%
Spring 2013	7750	-

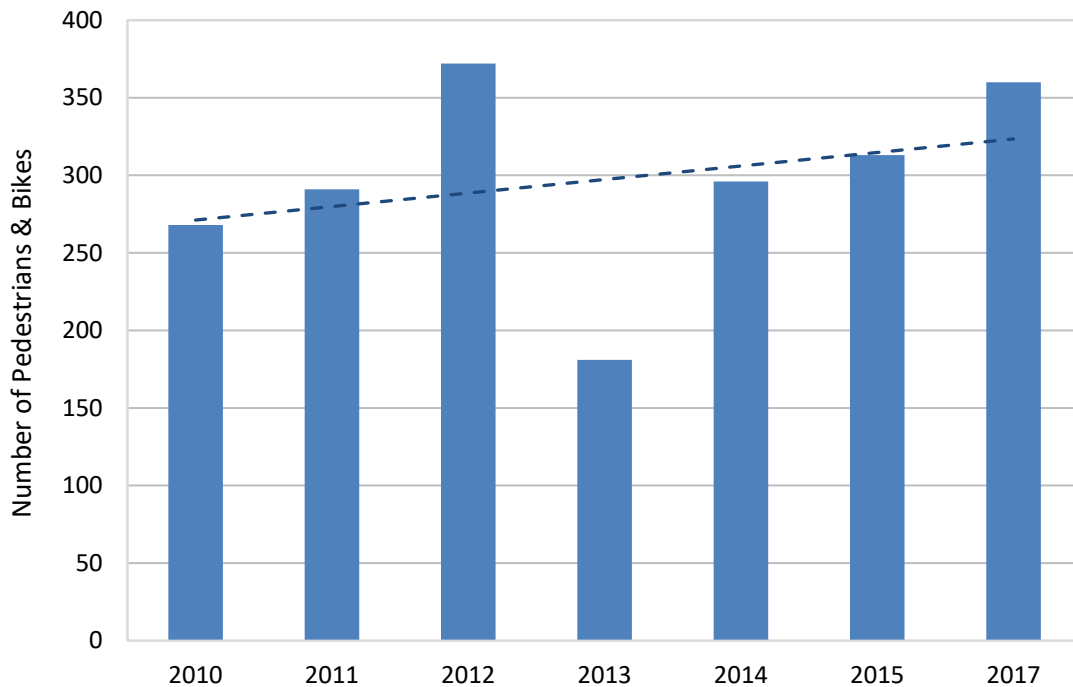
**King County Metro data only*



Pedestrian and Bicycle Count Summary

The Washington State Bicycle and Pedestrian Documentation Project collects bicycle and pedestrian data in cities throughout the State. It occurs annually in the early fall. Pedestrian and bicyclist counts have been collected in Shoreline since 2010. The chart below summarizes 2 hours for both the AM and PM peak (4 hours total) for pedestrian and bicyclist counts at the intersection of N 175th Street and Midvale Ave N. Data is collected in fall each year so weather can be an influencing factor. The overall trend of nonmotorized activity at this location since 2010 is on the rise.

Pedestrian & Bicyclist Counts - 175th & Midvale



*2016 data incomplete – omitted from chart.

The State is no longer providing an overall regional summary of pedestrian and bicycle count data due to concerns about statistical validity. More information about the Washington State Bicycle and Pedestrian Documentation Project can be found online at: <http://www.wsdot.wa.gov/bike/Count.htm>

Appendix

Appendix A – 2015-2017 Total Collisions Map

Appendix B – 2015-2017 Injury Collisions Map

Appendix C – 2013-2017 Pedestrian Collisions Map

Appendix D – 2013-2017 Bicyclist Collision Map

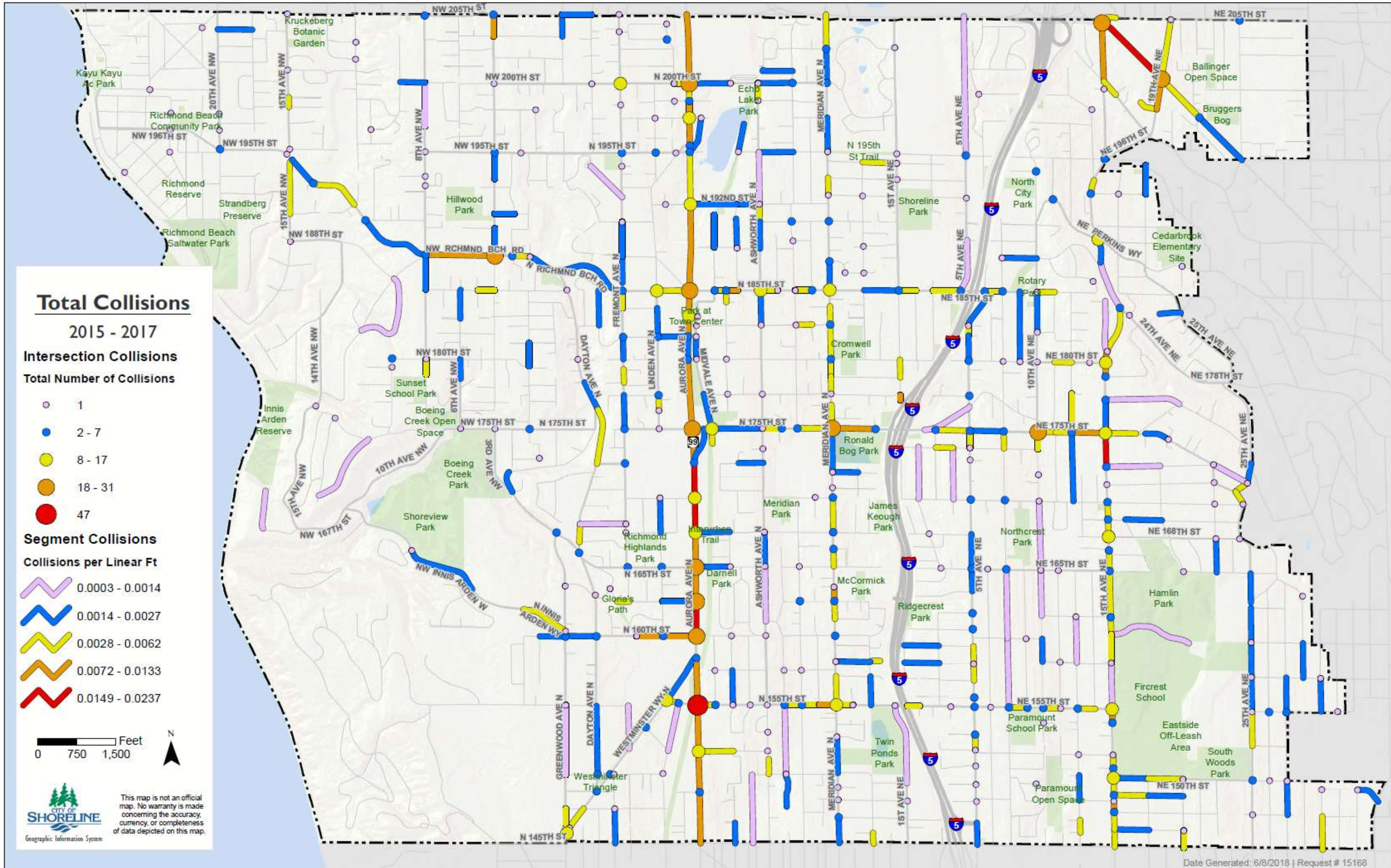
Appendix E – 2015-2017 Fatal and Serious Injury Collisions Map

Appendix F – 2017 Traffic Flow Map

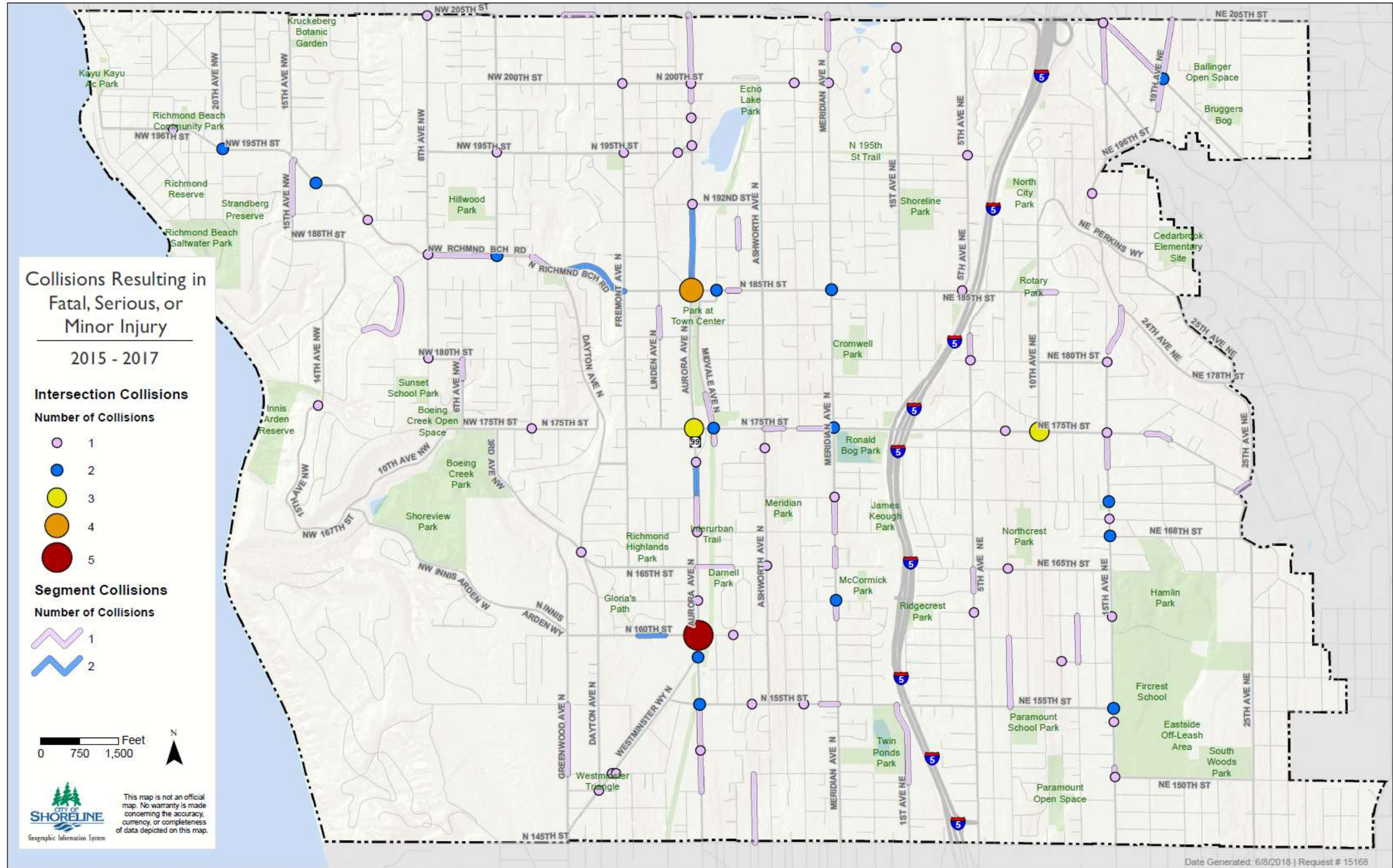
Appendix G – 2017 Speed Differential Map

Appendix H – 2015-2017 Aurora Ave N Collisions Map

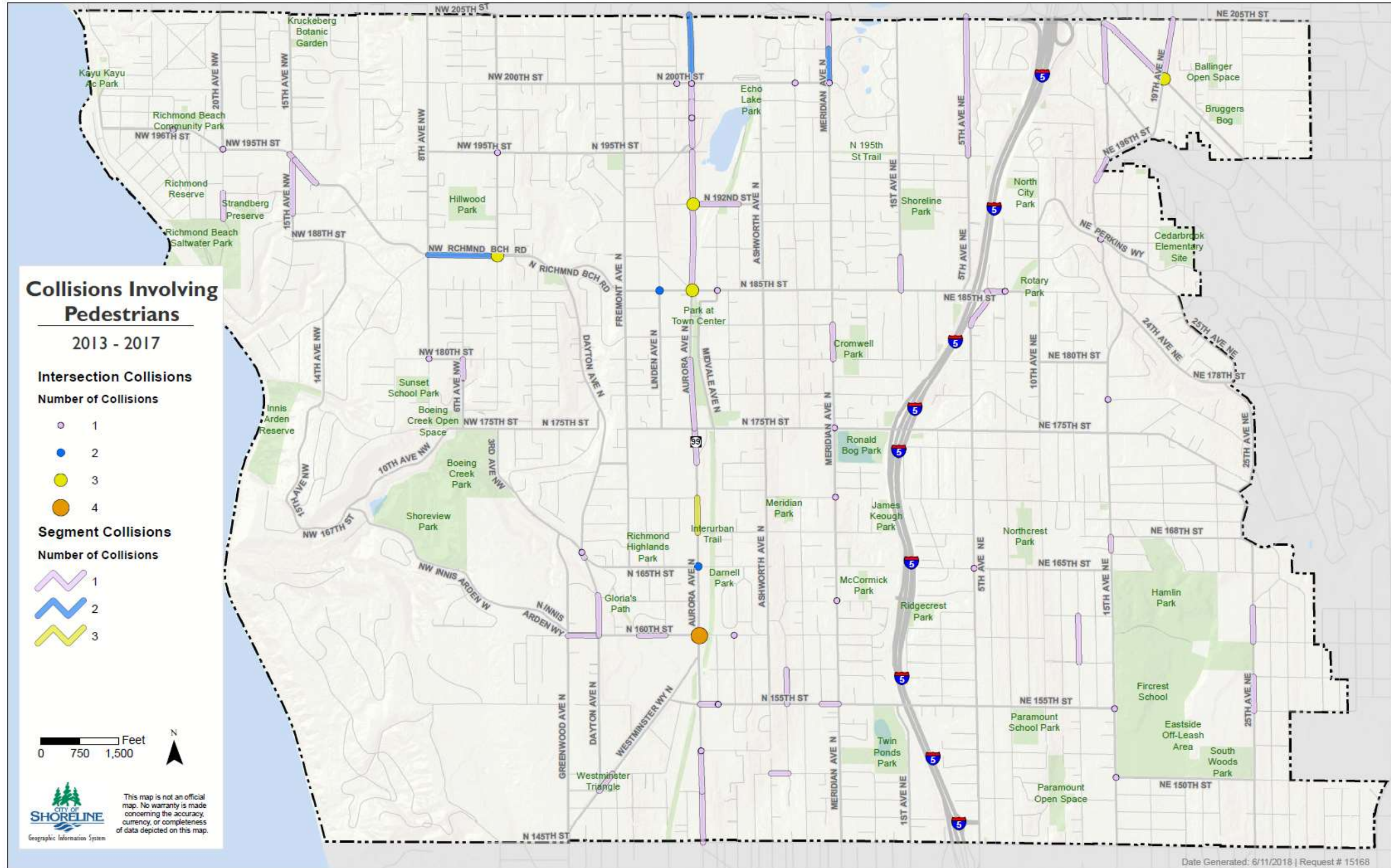
Appendix A - 2015-2017 Total Collisions Map



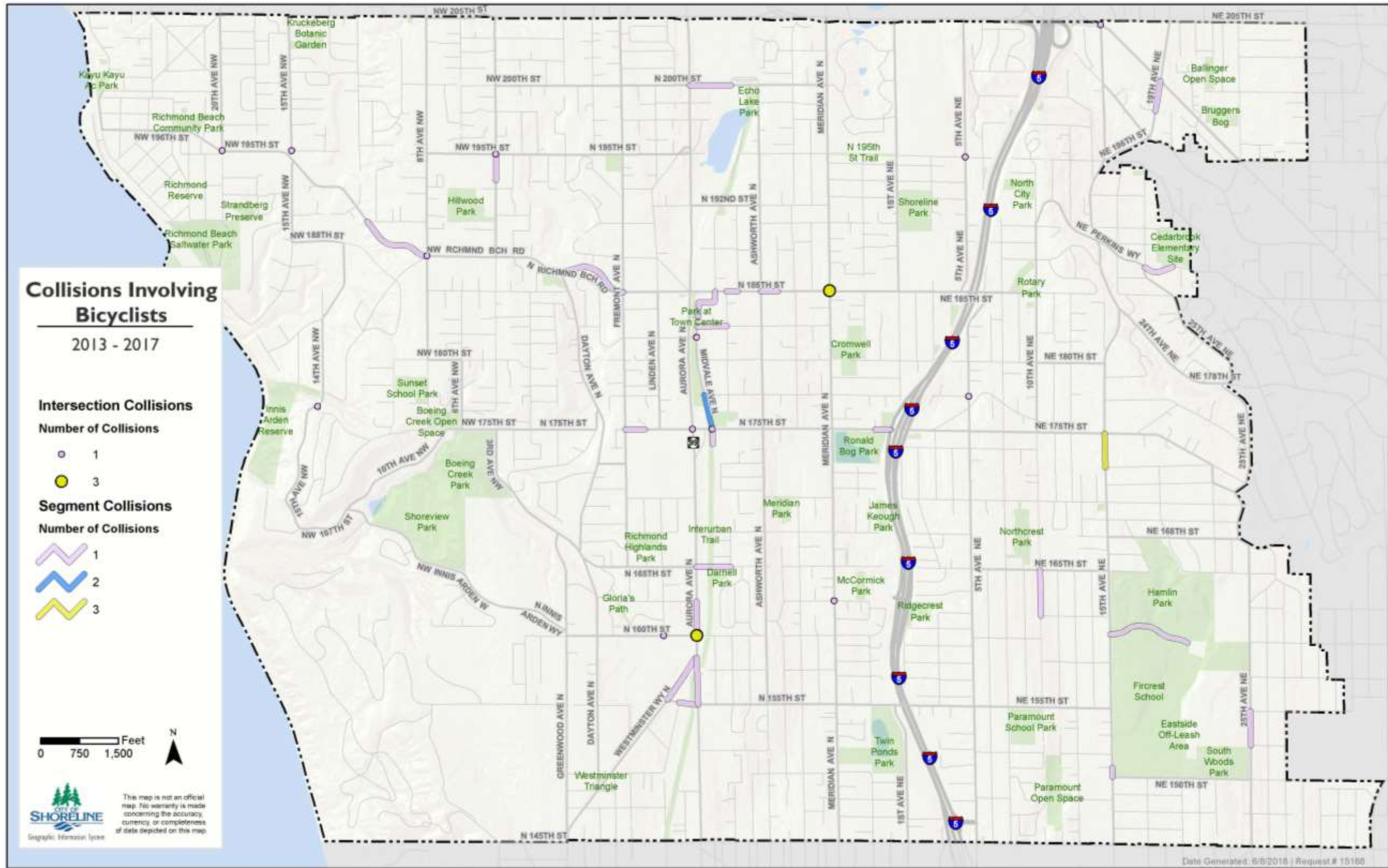
Appendix B - 2015-2017 Injury Collisions Map



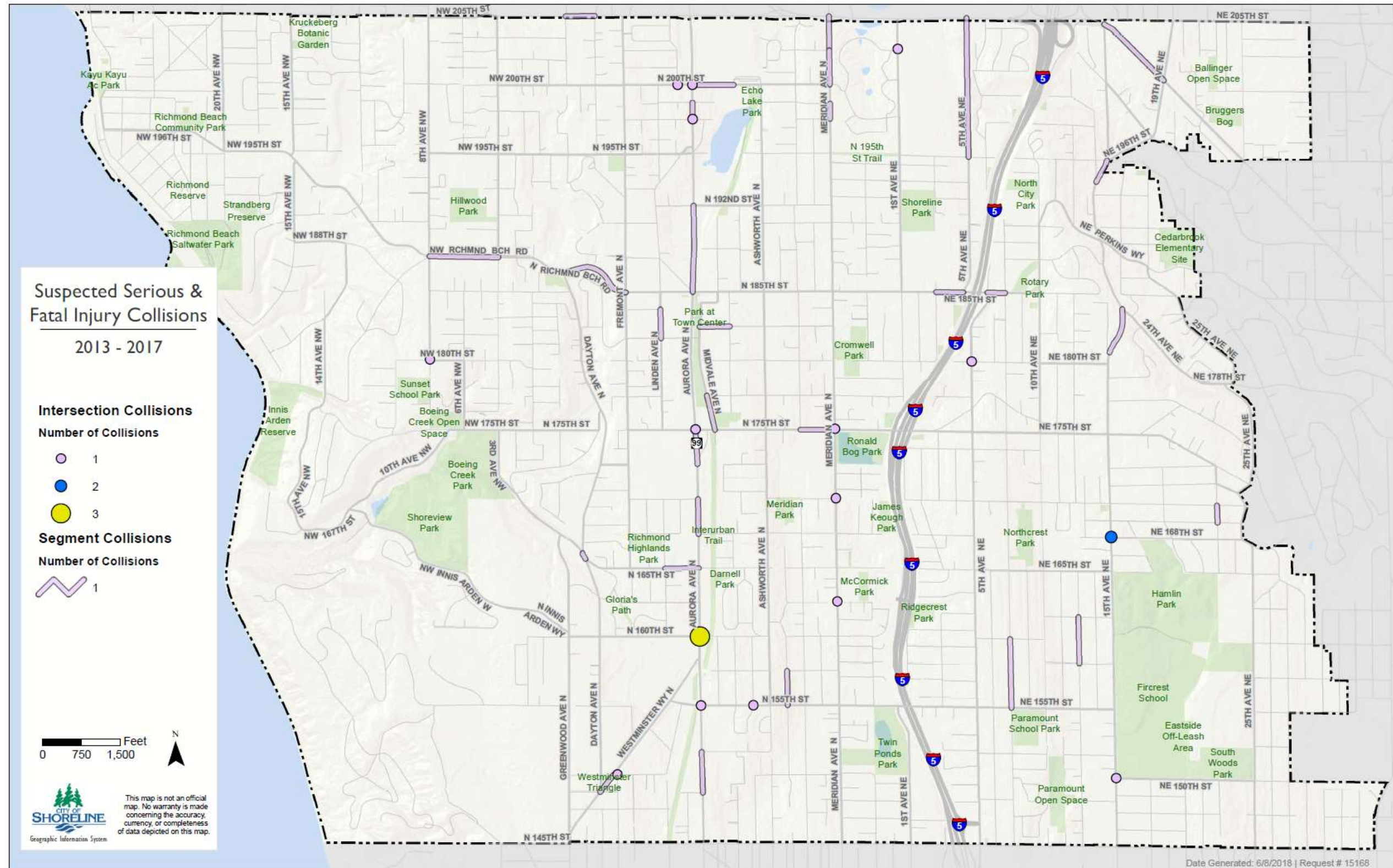
Appendix C - 2013-2017 Pedestrian Collisions Map



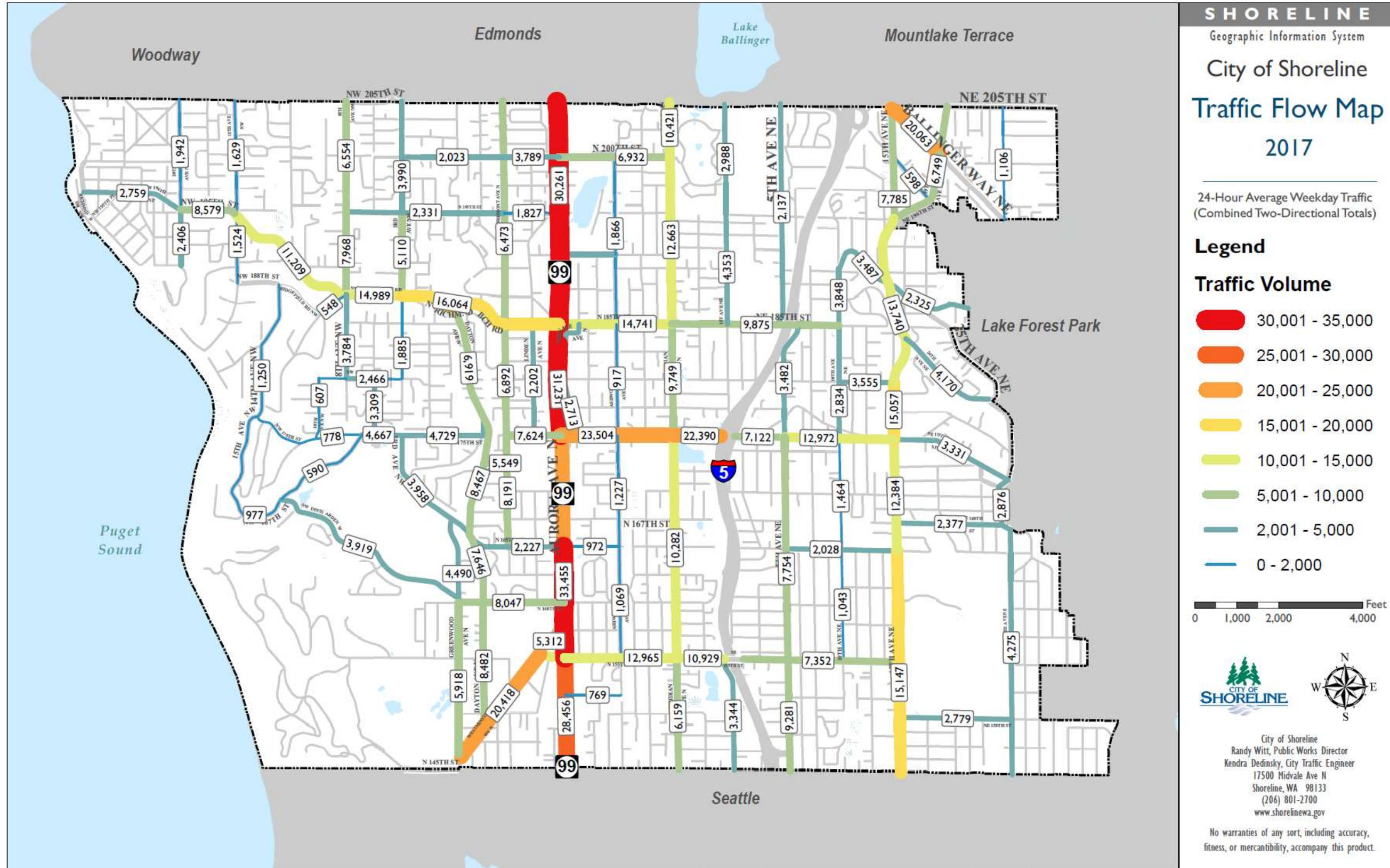
Appendix D - 2013-2017 Bicyclist Collisions Map



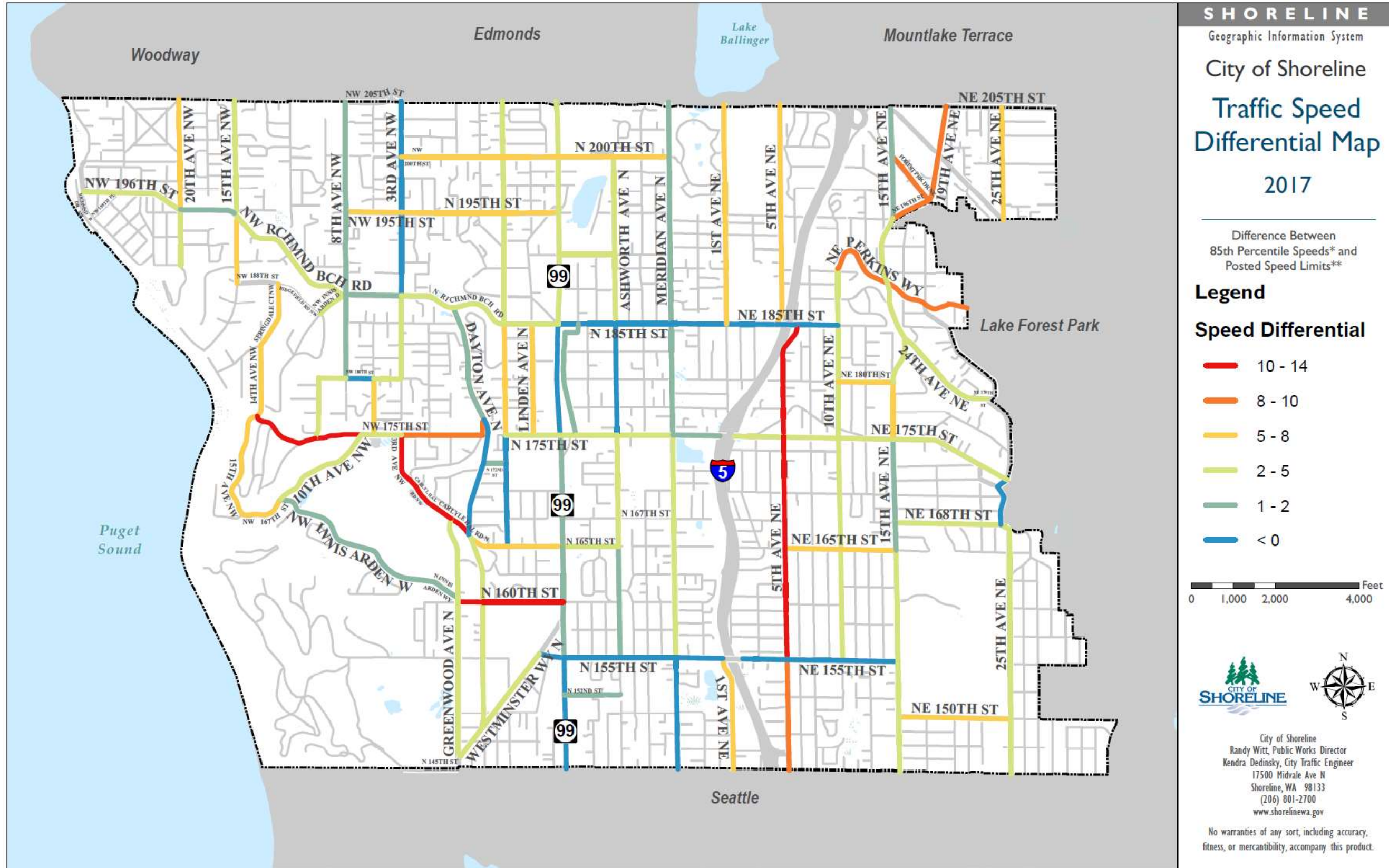
Appendix E - 2013-2017 Fatal and Serious Injury Collisions Map (WA State Target Zero Priority)



Appendix F - 2016 Traffic Flow Map



Appendix G - 2016 Speed Differential Map



Appendix H – Aurora Ave N Collisions (2015-2017)

