
City of Shoreline

Annual Traffic Report

# 2015

# Table of Contents

# Introduction

This report provides an annual review and analysis of data collected by the City of Shoreline Traffic Services section. It summarizes collision, speed, and traffic volume data and highlights noteworthy trends. The data in this report guides the department in prioritizing Traffic Safety and Signal Rehabilitation resources, applying for grants to help finance capital improvement projects, and identifying target enforcement areas for the Shoreline Police Department.

This report strives to provide clear and usable traffic safety and operational information for reference by staff, Council and the citizens 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

Overall collisions are down 8% in comparison to 2014 numbers and have continued a downward trend since 2008. For this year's report, Evident and Serious Injury collisions were specifically analyzed in order to identify trends and mitigation strategies for these types of collisions. This year Evident and Serious Injury collisions are at a near record low although one notable trend emerged; the proportion of Evident and Serious Injury collisions which involved a bike or pedestrian is at a record high.

Last year, the overall number of pedestrian and bicycle collisions were the highest on record. Bike and pedestrian collisions are down this year similar to overall collisions however the cumulative trend since 2008 is still increasing. Part of this increase may be due to shifting modes of transportation; bike and pedestrian trips are on the rise. This highlights the need for continued investment in non-motorized transportation improvements. In addition, the need to educate drivers, pedestrians, and bicyclists about the rules of the road is evident in that the majority of these collisions resulted from failure to yield right of way.

Similar to last year's findings, the number of total and injury collisions related to distracted and inattentive driving continues to rise. Additional enforcement is recommended for cell phone use while driving in order to bring the number of injury collisions down.

High Collision Locations and associated recommendations are included in this report and are prioritized by total number of collisions. In addition, locations with 3 or more pedestrian or bike collisions over a 5 year period are included for consideration of mitigation strategies.

## Data Sources

This report summarizes collision data trends based on data from 2008 through 2015, with emphasis on data from 2013 through 2015. 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 145$^{th}$ Street), Limited Access locations (i.e. I-5 interchanges), phone reports, non-police investigated incidents, collisions under the threshold of $700, and other non-collision vehicle incident reports.

Collision data is obtained from Shoreline Police Department reports and is merged with data 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 no longer provides 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.

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

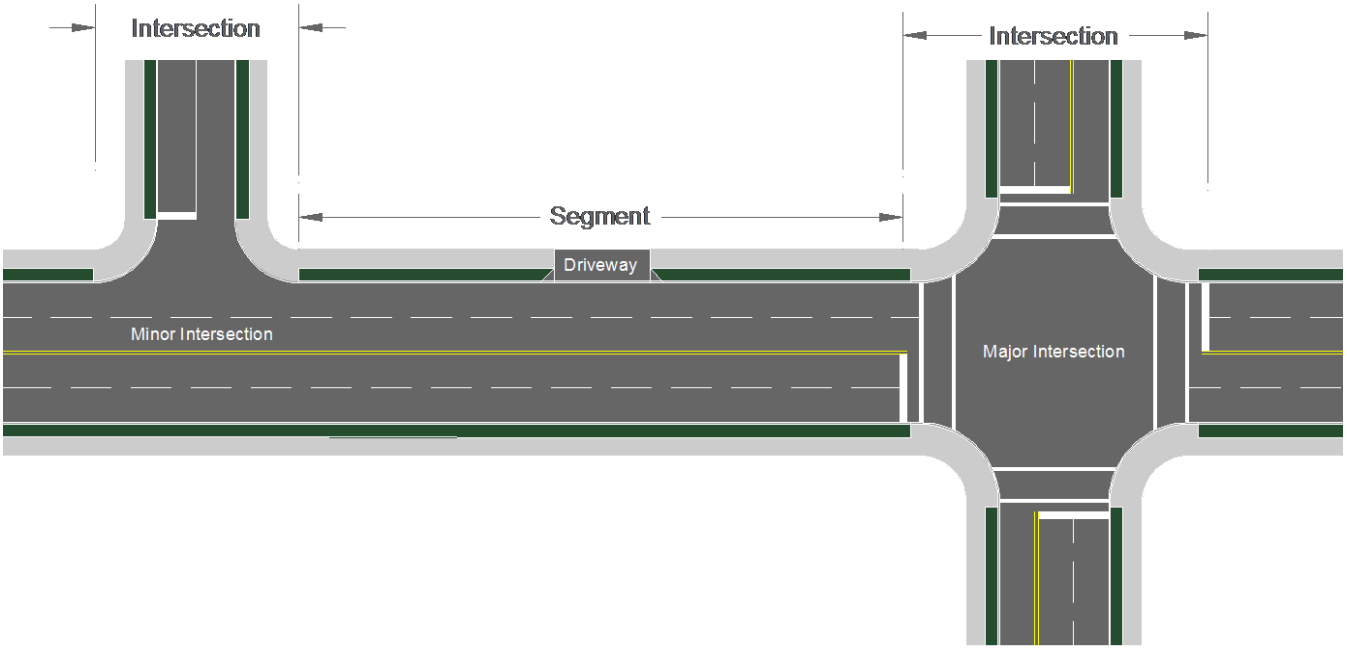
Transit data was provided by King County Metro and pedestrian and bicycle data is from WSDOT's Bicycle and Pedestrian Documentation Project.

## Definitions

| | |
|---|---|
| Reportable Collision | A collision which involves death, injury, or property damage in excess of $700.00 to the property of any one person. |
| Fatal Collision | Motor vehicle collision that results in fatal injuries to one or more persons. |
| Serious Injury Collision | 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." |
| Evident Injury Collision | 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." |
| Property Damage Only Collision (PDO) | 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 indicating 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. |
| 85th Percentile Speed | The speed at which 85% of traffic is traveling at or below; a traffic engineering standard for measuring and evaluating traffic speeds. |

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

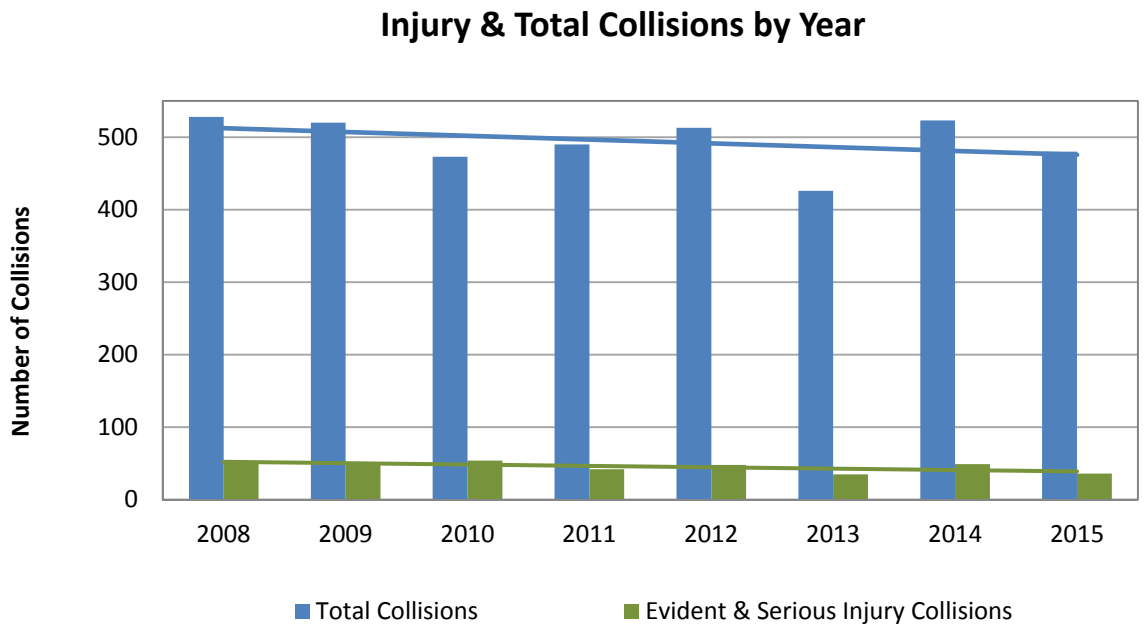


## Collision Summary

There were 480 collisions reported on City of Shoreline streets in 2015. Below is a summary of collisions from 2008 through 2015.

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| Property Damage | 340 | 321 | 292 | 306 | 318 | 265 | 322 | 310 |
| Possible Injury | 100 | 122 | 101 | 109 | 106 | 99 | 118 | 124 |
| Evident Injury | 42 | 39 | 49 | 33 | 43 | 26 | 38 | 28 |
| Serious Injury | 9 | 11 | 5 | 9 | 5 | 9 | 11 | 8 |
| Fatal | 0 | 1 | 2 | 1 | 1 | 1 | 1 | 1 |
| Unknown | 37 | 26 | 24 | 32 | 40 | 26 | 33 | 9 |
| **Total** | **528** | **520** | **473** | **490** | **513** | **426** | **523** | **480** |

The total number of collisions in 2015 is down from 2014 and has continued to trend downward since 2008 as shown below. The number of Evident and Serious Injury collisions is trending slightly downward, generally accounting for between 8-11% of total collisions. Evident and Serious Injury collisions are near an all-time low, with a combined total of 36 in 2015.



## 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. 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
- Serious Injury $1,000,000
- Evident Injury $100,000
- Possible Injury $70,000
- Property Damage Collision $10,000

*Source: WSDOT Traffic Safety Management Office*

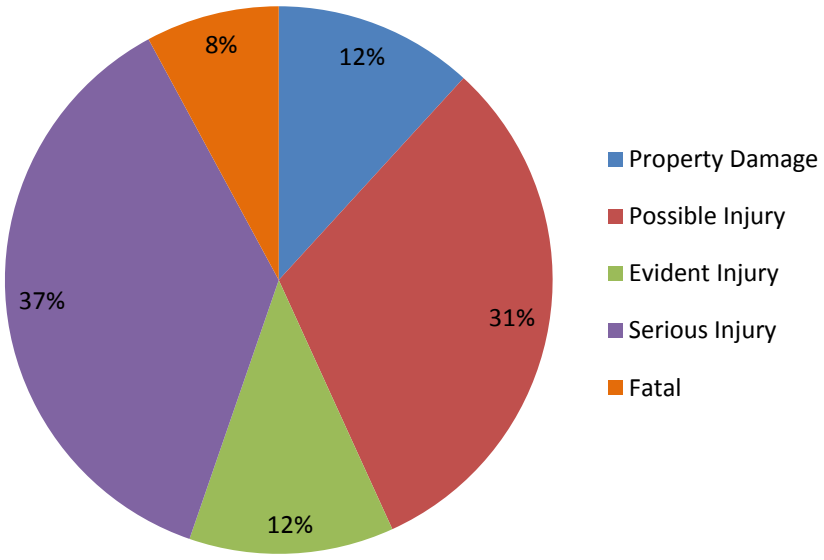
Below is a summary of societal costs for collisions in Shoreline from 2013 through 2015.

| | 2013 | 2014 | 2015 |
|---|---|---|---|
| Property Damage | $2,650,000 | $3,220,000 | $3,100,000 |
| Possible Injury | $6,930,000 | $8,260,000 | $8,680,000 |
| Evident Injury | $2,600,000 | $3,800,000 | $2,800,000 |
| Serious Injury | $9,000,000 | $11,000,000 | $8,000,000 |
| Fatal | $2,000,000 | $2,000,000 | $2,000,000 |
| **Total** | **$23,180,000** | **$28,280,000** | **$24,580,000** |

Analysis of the most recent 3 years of data shows that Serious Injury collisions account for the majority of the societal cost at 37%. The chart below summarizes the 3 year average societal cost by collision type.

**Societal Costs by Collision Type**

3 Year Average (2013-2015)

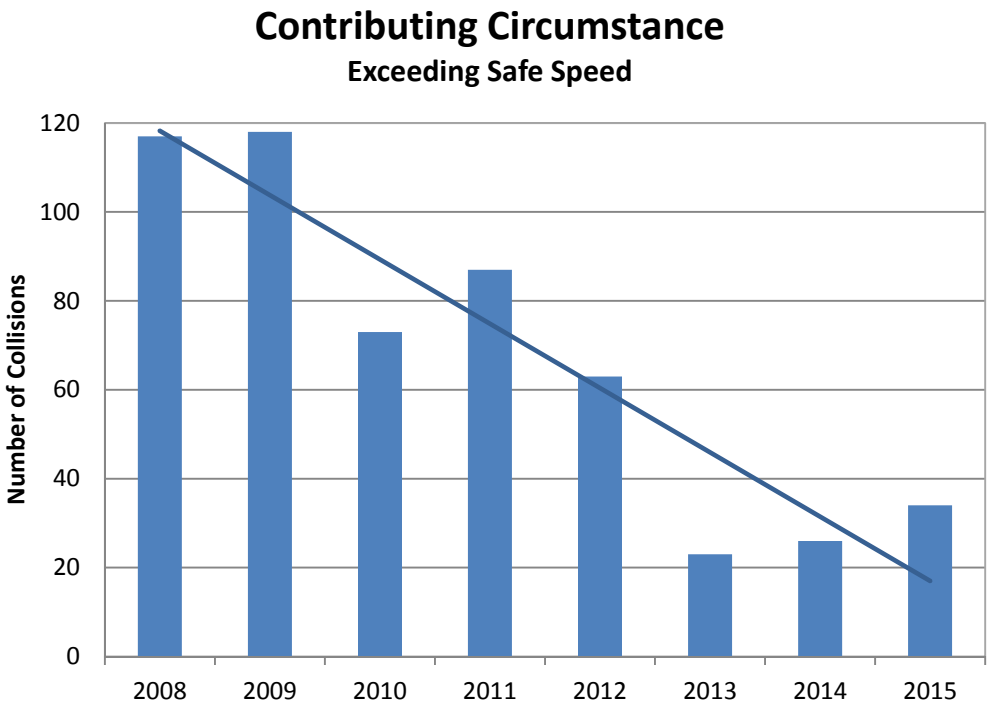


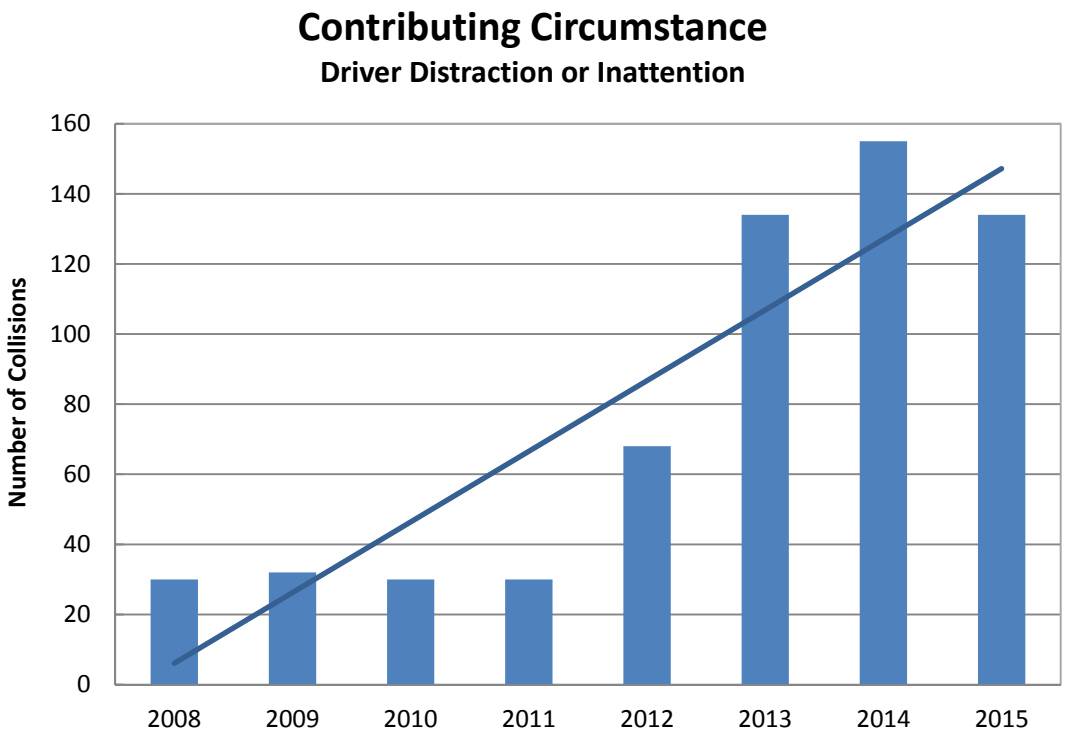
## Contributing Circumstances

The top three contributing circumstances for collisions continue to be “Did Not Grant Right of Way”, “Driver Distraction or Inattention”, and “Exceeding Safe Speed”.

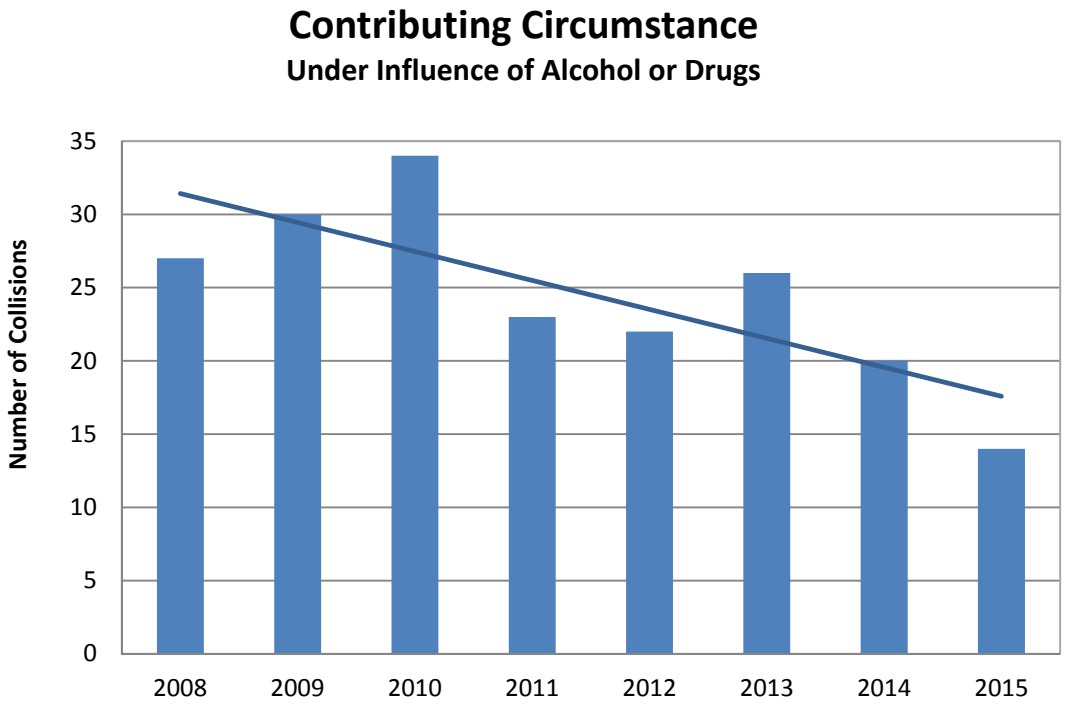
| Contributing Circumstance | Percent of 2015 Collisions |
|---|---|
| Did Not Grant Right of Way | 28% |
| Driver Distraction or Inattention | 28% |
| Exceeding Safe Speed | 7% |

Two significant trends can be seen in the following graphs. Since 2008, there has been a clear decrease in the number of collisions with “Exceeding Safe Speed” listed as a contributing circumstance. In sharp contrast, the number of collisions attributed to “Driver Distraction and Inattention” has risen inversely.

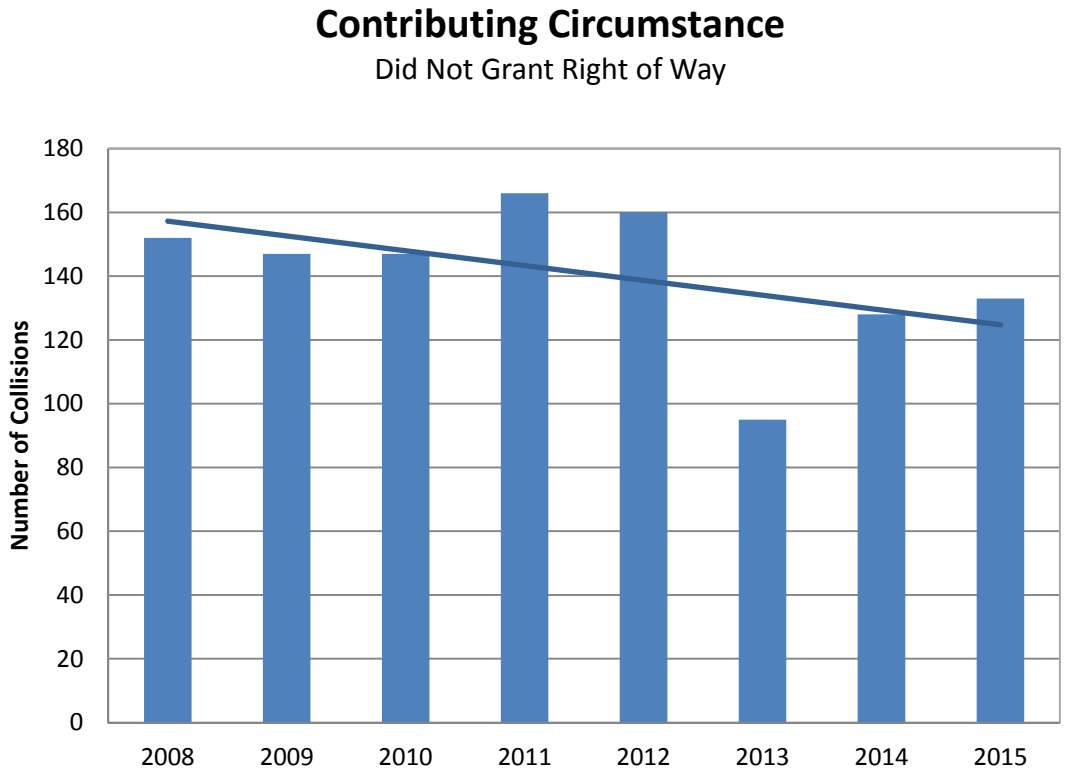





Collisions in Shoreline related to impaired driving continue to decline.

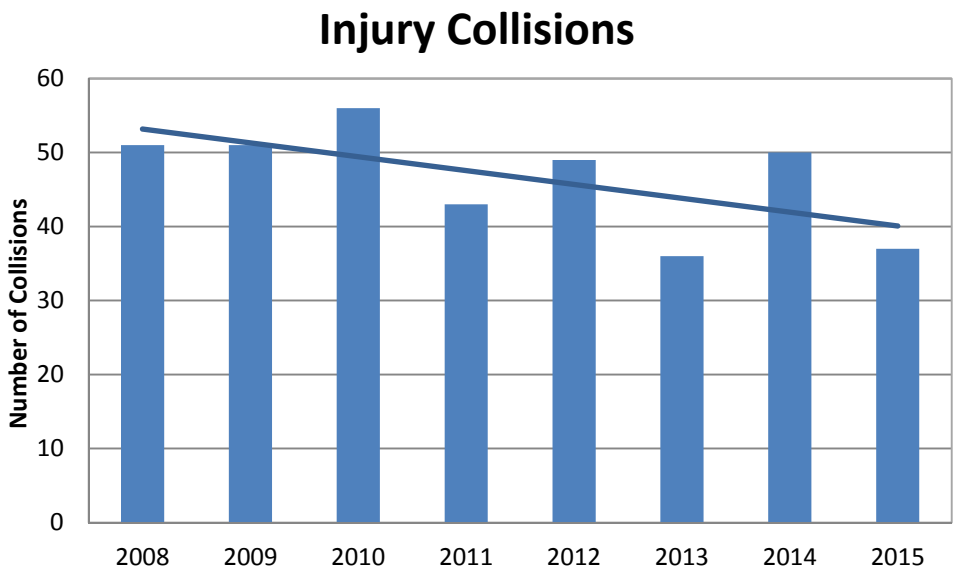


"Did Not Grant Right of Way" is the leading contributing circumstance which has been trending downward consistent with overall collisions.



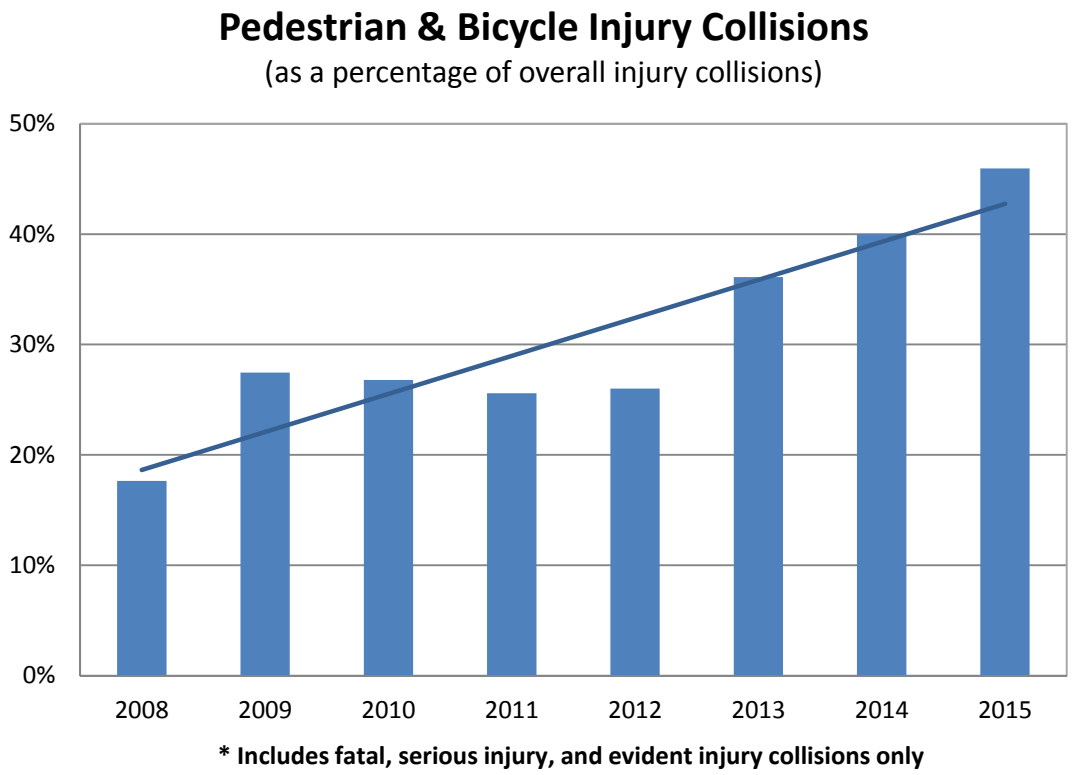
## Injury Collisions

For the purpose of injury collision analysis, Fatal, Serious Injury, and Evident Injury collisions were analyzed, excluding Possible Injury collisions. The majority contributing circumstance accounting for fatal or injury collisions was listed as “Did Not Grant Right of Way” (31%). “Driver Distraction or Inattention” accounted for another large portion at 29%. There were a total of 37 injury collisions in 2015, down from 50 in 2014. Overall, injury collisions have been trending downward since 2008.




*** Includes fatal, serious injury, and evident injury collisions**

Although injury collisions are decreasing, one important trend to note regarding injury collisions is the portion of pedestrian or bike collisions as part of the overall number of injuries is on the rise. In 2015, 46% of injury collisions were pedestrian or bicycle related, representing the highest proportion on record. A summary is provided in the graph below.



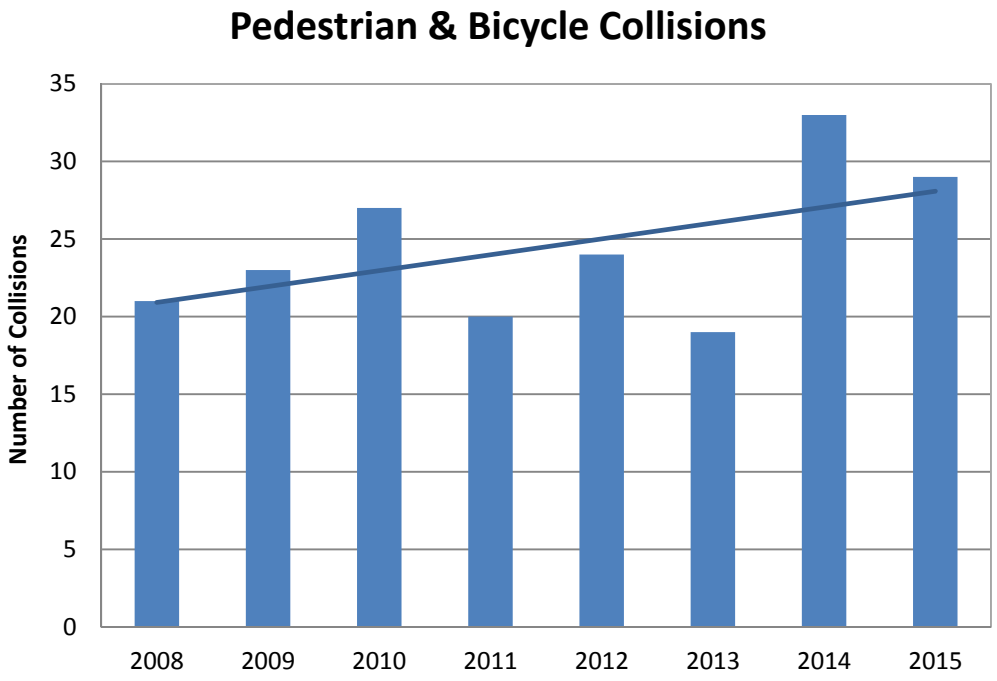

No other notable trends for injury collisions were revealed during analysis such as light or surface condition, time of day, or time of year.

WSDOT's most current Annual Collision Summary (2013) provides Statewide and County Serious Injury and Fatal Injury rates per 10,000 population. In comparison, Shoreline's Serious and Fatal Injury rates are significantly lower as summarized in the table below.

| | Serious Injury Rate per 10,000 Population | Fatal Injury Rate per 10,000 Population |
|---|---|---|
| **Statewide (2013)** | 2.78 | 0.63 |
| **King County (2013)** | 2.64 | 0.39 |
| **Shoreline (2015)** | 1.48 | 0.18 |

## Pedestrian and Bicycle Collisions

The total number of pedestrian and bicycle collisions are down in comparison to 2014 however the overall trend since 2008 is still on the rise.

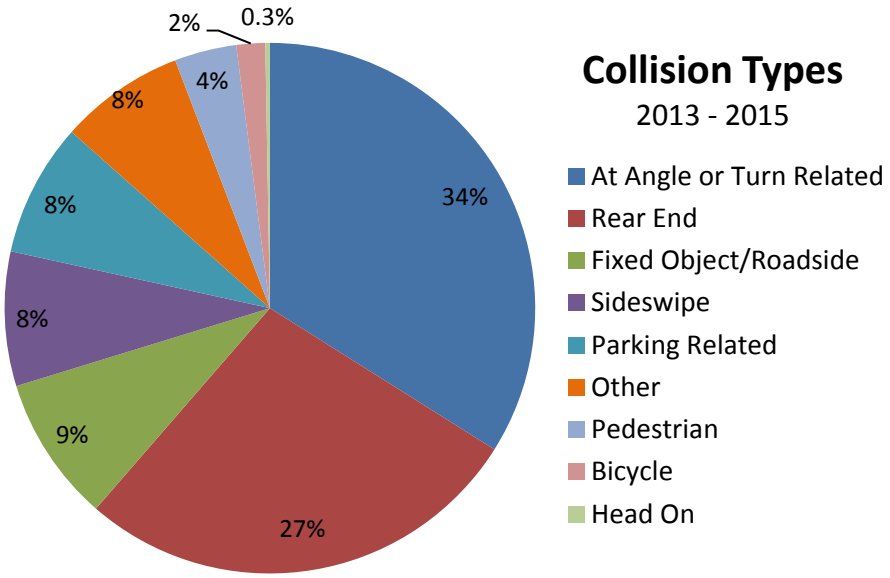



The primary contributing circumstance listed for pedestrian and bicycle collisions is “Did Not Grant Right of Way”. Additional information regarding pedestrian and bicycle collision locations is located in the High Collision Locations section of this report.

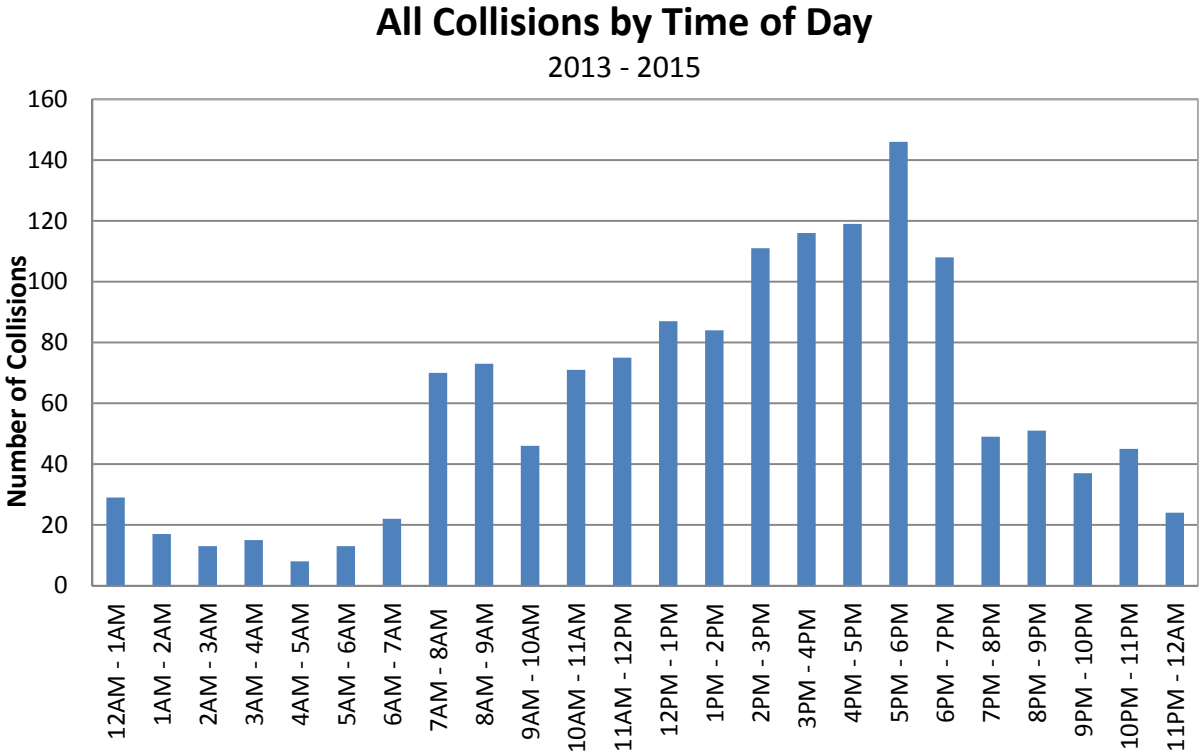
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| **Bike Collisions** | 4 | 5 | 9 | 6 | 8 | 7 | 9 | 9 |
| **Pedestrian Collisions** | 17 | 18 | 18 | 14 | 16 | 12 | 24 | 20 |

## Other Collision Statistics

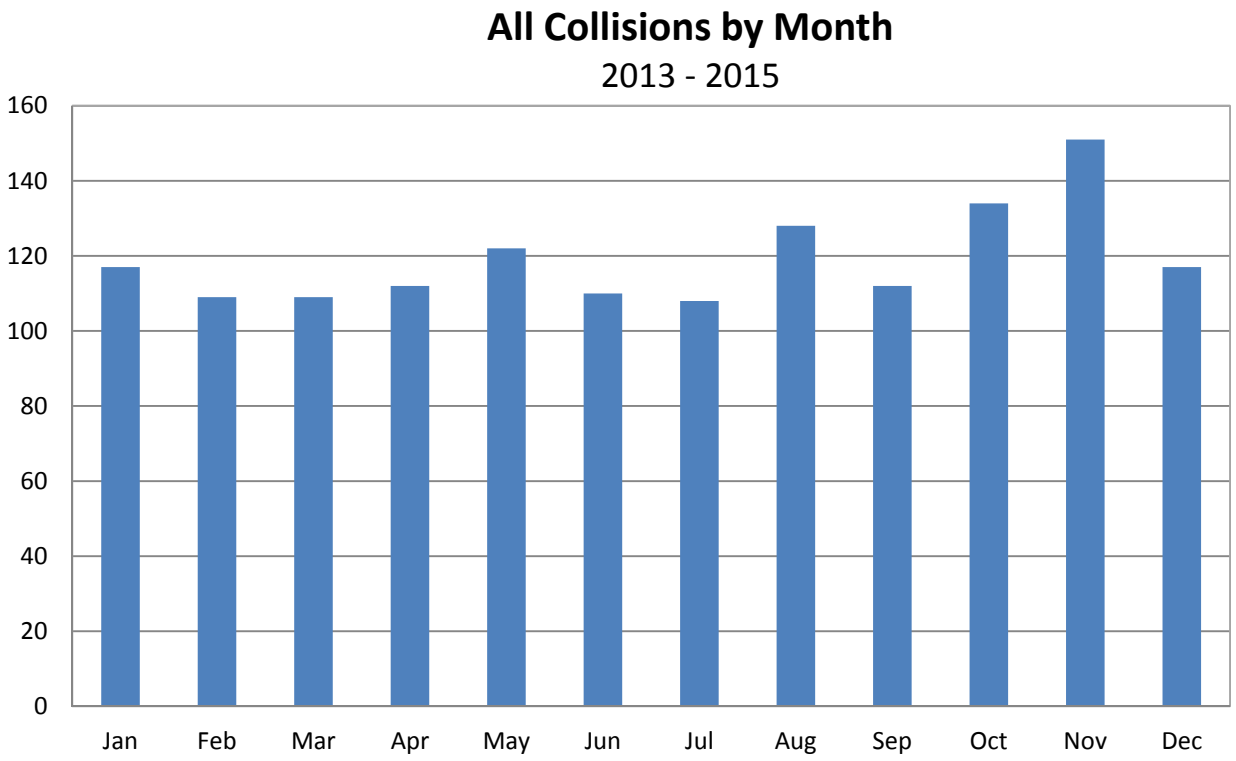
As shown in the following chart, “At Angle or Turn Related” and “Rear End” collisions make up the majority of collision types. Approximately 14% of all collisions were listed as “Hit and Run”.



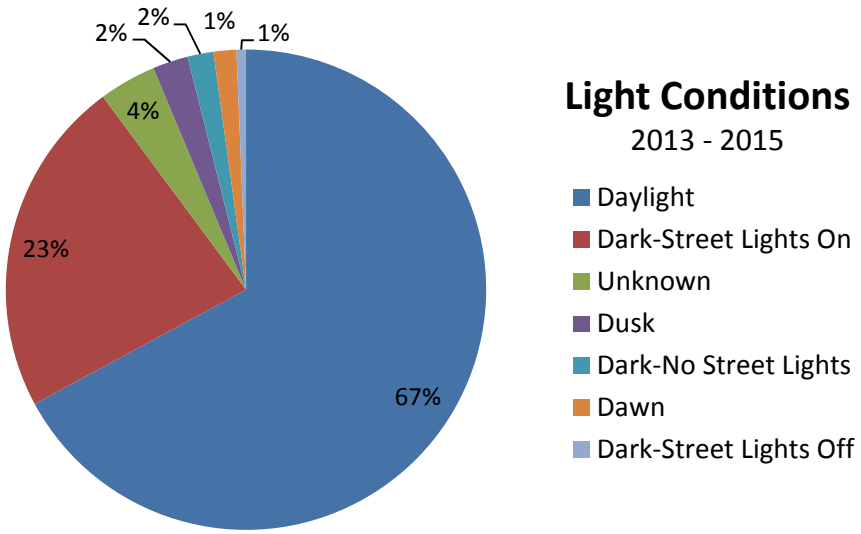

Collisions in Shoreline most often occur during the PM peak hour of 5 to 6 PM. Injury collisions most often occurred in the middle of the day and during the PM peak.



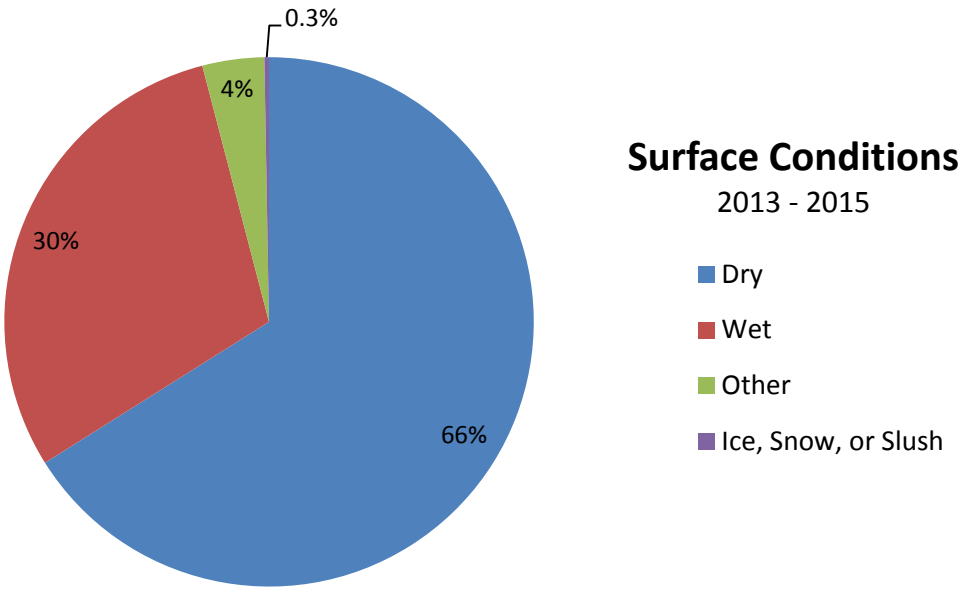
November is the month with the highest overall and injury collisions, consistent with the statewide trend.




Most collisions occur during daylight hours, with "Dark – Street Lights On" representing the next highest category. Injury collisions follow a similar trend.



Nearly 66% of collisions occur on dry pavement. Injury collisions follow a similar trend.



## High Collision Locations

The top 25 High Collision Locations are identified by reviewing 3 years of collision data, separating locations into Intersections or Segments in order to better target mitigation strategies. The High Collision Locations tables list locations with the highest number of reported collisions in descending order. Also included is the collision rate associated with the location in order to provide context; while a high number of collisions may seem alarming, when traffic volumes and segment lengths are taken into account, the rate may be more reflective of the overall risk associated with a location. Number of injuries at the location is also included for reference. In addition, a review of pedestrian and bicycle locations over a 5 year period is included in this section.

There is no industry standard as to what number of collisions or collision rate is considered "high". Nationally, locations with 5 or more correctable collisions in a 12 month period may be considered for some additional traffic control devices, such as stop signs and traffic signal revisions.

The following tables provide information regarding High Collision Locations based on intersection, street segment, or whether pedestrian or bicycle related. Consistent with previous sections within this report, injury collisions presented in these tables represent Fatal, Serious, or Evident Injury collisions.

The top 25 High Collision Location intersections, sorted by number of collisions, are presented in the table below. At locations with 5 collisions, collision rates were evaluated to determine the last position in the table. Although the overall number of collisions in the analysis period is down in comparison to last year's report, many High Collision Locations have seen a marked increase, further highlighting the need to focus safety improvements on these specific locations.

**High Collision Location – Intersections (2013 – 2015)**

| Rank | Location | Signalized | Total Collisions | Injury Collisions | % Change from 2014 Report | Collision Rate |
|---|---|---|---|---|---|---|
| 1 | Aurora Ave N & N 163rd St | No | 26 | 1 | 117% | 0.62 |
| 2 | 3rd Ave NW & Rchmnd Bch Rd | Yes | 20 | 3 | 18% | 0.89 |
| 3 | Aurora Ave N & N 200th St | Yes | 15 | 0 | 7% | 0.35 |
| 4 | 15th Ave NE & Ballinger Way | Yes | 14 | 0 | 100% | 0.35 |
| 5 | 19th Ave NE & Ballinger Way NE | Yes | 13 | 1 | 0% | 0.45 |
| 6 | Aurora Ave N & N 160th St | Yes | 13 | 1 | 160% | 0.29 |
| 7 | Aurora Ave N & N 175th St | Yes | 13 | 1 | 18% | 0.22 |
| 8 | Aurora Ave N & N 185th St | Yes | 12 | 1 | 50% | 0.24 |
| 9 | Aurora Ave N & N 155th St | Yes | 11 | 1 | 38% | 0.20 |
| 10 | Linden Ave N & N 185th St | Yes | 10 | 1 | 11% | 0.58 |
| 11 | 8th Ave NE & NE 175th St | No | 10 | 3 | 67% | 0.49 |
| 12 | 15th Ave NE & NE 180th St | Yes | 9 | 2 | 29% | 0.47 |
| 13 | 15th Ave NE & NE 155th St | Yes | 9 | 1 | 29% | 0.40 |
| 14 | 5th Ave NE & NE 175th St | Yes | 9 | 0 | -18% | 0.37 |
| 15 | 15th Ave NE & NE 175th St | Yes | 9 | 1 | 13% | 0.33 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 16 | 10th Ave NE & NE 175th St | Yes | 8 | 0 | 33% | 0.44 |
| 17 | Aurora Ave N & N 165th St | Yes | 8 | 0 | New | 0.18 |
| 18 | Meridian Ave N & N 185th St | Yes | 8 | 0 | 0% | 0.33 |
| 19 | Ashworth Ave N & N 192nd St | No | 7 | 0 | -29% | 1.43 |
| 20 | Westminster Way N & N 155th St | Yes | 7 | 1 | New | 0.38 |
| 21 | Fremont Ave N & N 185th St | Yes | 6 | 0 | -25% | 0.26 |
| 22 | Meridian Ave N & N 155th St | Yes | 6 | 0 | -25% | 0.32 |
| 23 | Meridian Ave N & N 200th St | Yes | 6 | 3 | -14% | 0.42 |
| 24 | Wallingford Av N & N 200th St | Yes | 6 | 1 | New | 0.68 |
| 25 | Linden Ave N & N 182nd St | No | 5 | 0 | New | 0.65 |

The following table represents the top 25 High Collision Location segments sorted by number of collisions.

**High Collision Location – Segments (2013 – 2015)**

| Rank | Location | Total Collisions | % Change from 2014 Report | Injury Collisions | Collision Rate |
|---|---|---|---|---|---|
| 1 | Ballinger Way NE from 19th Ave NE to 15th Ave NE | 32 | -20% | 1 | 4.56 |
| 2 | Aurora Ave N from N 149th St to N 152nd St | 22 | 22% | 3 | 3.87 |
| 3 | Aurora Ave N from N 160th St to N 163rd St | 22 | -8% | 1 | 4.80 |
| 4 | Aurora Ave N from N 199th St to N 200th St | 21 | -13% | 0 | 9.64 |
| 5 | Aurora Ave N from N 152nd St to N 155th St | 18 | -18% | 0 | 2.74 |
| 6 | Aurora Ave N from Ronald Pl N to N 175th St | 18 | 13% | 1 | 5.23 |
| 7 | NW Richmond Bch Rd from 3rd Ave NW to 8th Ave NW | 16 | 33% | 1 | 3.88 |
| 8 | Aurora Ave N from N 175th St to Ronald Pl N | 15 | -6% | 2 | 1.65 |
| 9 | N 175th St from Meridian Ave N to Corliss Ave N | 15 | 0% | 1 | 2.72 |
| 10 | Aurora Ave N from N 170th St to Ronald Pl N | 14 | -22% | 2 | 2.11 |
| 11 | Aurora Ave N from N 200th St to N 205th St | 14 | -26% | 0 | 1.69 |
| 12 | Aurora Ave N from N 163rd St to N 165th St | 13 | 18% | 1 | 2.82 |
| 13 | Aurora Ave N from Firlands Way N to N 192nd St | 12 | -8% | 1 | 2.59 |
| 14 | Aurora Ave N from N 155th St to Westminster Way N | 12 | 0% | 1 | 1.72 |
| 15 | N 175th St from Midvale Ave N to Ashworth Ave N | 12 | 33% | 0 | 2.94 |
| 16 | Aurora Ave N from N 184th St to Firlands Way N | 11 | -8% | 1 | 7.86 |
| 17 | Aurora Ave N from Echo Lake Pl N to Firlands Way N | 10 | -23% | 1 | 6.42 |
| 18 | Aurora Ave N from N 165th St to N 167th St | 10 | New | 1 | 1.91 |
| 19 | NE 175th St from 12th Ave Ne to 15th Ave NE | 10 | New | 0 | 5.07 |
| 20 | 15th Ave NE from Forest Park Dr NE to Ballinger Way NE | 9 | -18% | 0 | 4.06 |
| 21 | 15th Ave NE from NE 175th St to NE 177th St | 9 | 0% | 2 | 4.33 |
| 22 | 5th Ave NE from NE 183rd Ct to 7th Ave NE | 9 | New | 0 | 16.85 |
| 23 | N 155th St from Aurora Ave N to Midvale Ave N | 9 | -18% | 1 | 9.80 |
| 24 | Aurora Ave N from N 182nd St to N 184th St | 8 | 60% | 0 | 3.17 |

| | | | | | |
|---|---|---|---|---|---|
| 25 | Aurora Ave N from N 145th St to N 149th St | 8 | -33% | 0 | 1.12 |

Below is a table which presents locations with 3 or more pedestrian or bicycle collisions in the last 5 years (2011 – 2015). Last year's summary had 7 locations with 3 or more collisions. This year, the top two locations have increased by 1 collision for the new analysis period. The Aurora and N 165th location is new to the list this year. The remaining two locations retained the same number of collisions in comparison to last year's analysis.

**Pedestrian and Bicycle Collision Locations (2011 – 2015)**

| Location | Signalized | Pedestrian & Bicycle Collisions |
|---|---|---|
| 3rd Ave NW & NW Richmond Bch Rd | Yes | 4 |
| Linden Ave N & N 185th St | Yes | 4 |
| Aurora Ave N & N 165th St | Yes | 4 |
| Aurora Ave N from N 170th St to Ronald Pl N | No | 3 |
| Meridian Ave N & N 200th St | Yes | 3 |

## Collision Reduction 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 Initiative. The goal of this initiative is to achieve zero deaths and serious injury collisions by 2030.

Shoreline engages in the 'Three E's' in working toward this goal. They are:

| | |
|---|---|
| Education | Gives drivers, pedestrians, and bicyclists information about how to make safer choices. Examples of this include Shoreline's Neighborhood Traffic Safety and Action Plans, outreach to residents that provides information about the dangers speeding and collisions and encourages safer travel, utilizing radar speed carts to remind drivers of their speed, web-based information, and working with schools on Safe Routes to School plans. |
| Enforcement | Utilizes the Shoreline Police Department Traffic Division to focus enforcement efforts on problem areas to increase community awareness and compliance. Emphasis patrols can target specific violations such as speeding, failure to yield to pedestrians, cell phone use while driving, and disobeying traffic control devices. |
| Engineering | Implements best engineering practices to prevent or reduce the severity of collisions. This includes operational evaluation of facilities (including signals, signs, striping and guardrail, etc.), designing capital improvements with safety as a guiding factor, installing traffic calming devices (such speed humps, chicanes, or traffic circles, etc), and providing routine maintenance of traffic assets. |

Roadway users can make Shoreline roads safer too:

- Get educated on the rules of the road.
- Obey the law.
- Share the road with bicyclists.
- When biking and walking, wear reflective bright clothing to increase visibility.
- Stop, look, and listen before crossing the street.
- Be alert.
- Don't be a distracted driver and never text and drive.
- Never drive while under the influence of alcohol and/or drugs.
- Be courteous and patient.

# Recommendations

Shoreline Police and Public Works staff work together to review the top 10 High Collision Locations. Focusing on the top 10 locations facilitates strategic and systematic prioritization of limited City resources. This year, the top 10 locations were prioritized based on number of collisions in order to maximize the benefit of recommendations and improvements, working toward the goal of decreasing the number of overall and injury collisions.

Using the Three E's discussed in the previous section, recommendations were developed to address identified collision patterns. Staff also considered long-term strategies to address identified issues.

**High Collision Location (2013 – 2015) – Intersection Recommendations**

| Location | Total Collisions | Injury Collisions | Recommendation |
|---|---|---|---|
| Aurora Ave N & N 163rd St | 26 | 1 | Improved signal coordination in 2016 will help to address queueing patterns that form in the vicinity of 163rd. |
| 3rd Ave NW & Richmond Bch Rd | 20 | 3 | Phase changes were recently implemented at this intersection and should help to decrease collisions. |
| Aurora Ave N & N 200th St | 15 | 0 | Intersection was reconstructed in 2015 and will be retimed in 2016. |
| 15th Ave NE & Ballinger Way | 14 | 0 | Review signal timing, phasing and channelization with WSDOT. |
| 19th Ave NE & Ballinger Way NE | 13 | 1 | Signal phase changes were made in 2015 to add a flashing yellow arrow which should help to decrease the number of collisions. |
| Aurora Ave N & N 160th St | 13 | 1 | Signal timing will be revised in 2016. Possibly add leading ped interval. In addition, a flashing yellow arrow phase change was added in 2015. |
| Aurora Ave N & N 175th St | 13 | 1 | Signal timing will be revised in 2016. |
| Aurora Ave N & N 185th St | 12 | 1 | Signal timing will be revised in 2016. Southbound right turn on red was restricted in mid-2015. |
| Linden Ave N & N 185th St | 10 | 1 | Included in current TIP. Pursue grant funding for intersection improvements. |
| 8th Ave NE & NE 175th St | 10 | 3 | Evaluate sight distance and potential turn restrictions. |

The top ten segment locations and associated recommendations are shown below.

**High Collision Location (2013 – 2015) – Intersection Recommendations**

| Location | Total Collisions | Injury Collisions | Recommendation |
|---|---|---|---|
| Ballinger Way NE from 19th Ave NE to 15th Ave NE | 32 | 1 | Access control project included in the current TIP. |
| Aurora Ave N from N 149th St to N 152nd St | 22 | 3 | Signal retiming will be completed in 2016. |
| Aurora Ave N from N 160th St to N 163rd St | 22 | 1 | Signal retiming will be completed in 2016. |
| Aurora Ave N from N 199th St to N 200th St | 21 | 0 | Signal retiming will be completed in 2016. |
| Aurora Ave N from N 152nd St to N 155th St | 18 | 0 | Signal retiming will be completed in 2016. |
| Aurora Ave N from Ronald Pl N to N 175th St | 18 | 1 | Signal retiming will be completed in 2016. |
| NW Richmond Bch Rd from 3rd Ave NW to 8th Ave NW | 16 | 1 | Rechannelization project included in the proposed 2016-2021 CIP. |
| Aurora Ave N from N 175th St to Ronald Pl N | 15 | 2 | Signal retiming will be completed in 2016. |
| N 175th St from Meridian Ave N to Corliss Ave N | 15 | 1 | Receiving funding from PSRC for design/environmental. Project description included in current TIP, CIP, and TMP. |
| Aurora Ave N from N 170$^{th}$ St to Ronald Pl N | 14 | 2 | Signal retiming will be completed in 2016. |

The table below shows locations with 3 or more pedestrian collisions in a five year period and associated recommendations.

**Pedestrian and Bicycle Collision Location (2011 – 2015) – Recommendations**

| Location | Pedestrian & Bike Collisions (2011-2015) | Recommendation |
|---|---|---|
| 3rd Ave NW & NW Richmond Bch Rd | 4 | Phase changes implemented in 2016 should improve pedestrian safety. Consider |

| | | |
|---|---|---|
| | | installing count down pedestrian heads in 2016. |
| Linden Ave N & N 185th St | 4 | Pursue grant funding for intersection improvements. Project included in current TIP. |
| Aurora Ave N & N 165th St | 4 | Consider phase changes or leading pedestrian interval during Aurora signal retiming. |
| Aurora Ave N from N 170th St to Ronald Pl N | 3 | Jaywalking emphasis patrol. |
| Meridian Ave N & N 200th St | 3 | Consider phase changes or leading pedestrian interval. |

In addition to High Collision Locations, staff recommends focusing on pedestrian and bicycle safety strategies. Many cities have been successful in implementing safety campaigns to educate drivers, pedestrians, and bicyclists about the rules of the road and safe practices. It is recommended that outlets such as Currents, the City website, and neighborhood groups be utilized to spread key messages in order to reduce the number of bicyclist and pedestrian collisions which would help to reduce injury collisions.

There continue to be some notable trends in collision contributing circumstance. It is recommended that police enforcement continue to target cell phones use while driving in order to reduce the number of collisions related to distracted driving. In addition, enforcement should continue to focus on speeding since excessive speed is another leading contributing circumstance. It is important to note that focused enforcement often results in opportunities to educate drivers of their behavior rather than simply issuing citations.

The Police Department and Traffic Services will continue to meet quarterly 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. Police will also 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.

## Implemented Recommendations (2014)

- All way stop control was installed at Ashworth and 192nd.
- Signal phase changes at 3rd Ave NW and Richmond Beach Road were implemented to address left turn related collisions.
- Flashing yellow arrow phase changes were made at Ballinger and 19th Ave NE to address left turn related collisions.
- Flashing yellow arrow phase changes were made at Aurora and 160th to increase pedestrian safety.
- Substantial completion of the third mile of Aurora.
- Pedestrian signage was installed at Meridian and 200th to bring attention to pedestrian crossings at the intersection.
- Accessible Pedestrian Pushbutton units were installed at multiple locations.

## 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.

Speed data collected in 2015 shows that there are less locations with speeds in excess of 8 mph over the speed limits in comparison to 2014.

See the Appendix for the 2014 and 2015 Traffic Speed Differential Maps which show the difference between the measured 85$^{th}$ percentile speed and the posted speed limit.

## Traffic Volume Summary

Traffic volume data is regularly collected at eight (8) locations which include:

- 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, daily traffic volumes are down from 2014 by 1.06%. This may be in part due to shifting modes of transportation; see Transit and Pedestrian and Bicycle Count Summaries.

| | 2011 | 2012 | 2013 | 2014 | 2015 | 5 Year Average |
|---|---|---|---|---|---|---|
| **AM Peak Aggregate AAWDT** | 6599 | 7064 | 7444 | 6935 | 7039 | 7016 |
| **PM Peak Aggregate AAWDT** | 9012 | 9314 | 9521 | 8804 | 8666 | 9063 |
| **Daily Aggregate AAWDT** | 105313 | 108025 | 111441 | 109070 | 107913 | 108352 |

In comparison to 2014 volumes, the AM peak volumes are up by 1.5% and the PM peak volumes are down by 1.57%.

Streets near the Shoreline Community College (not included in the aggregate counts described above) have seen significant increase in traffic volumes.

See the Appendix for the 2015 Traffic Flow Map which shows average daily weekday traffic volumes on City of Shoreline Streets.

## Transit Summary

Transit ridership is similar to last year with average daily transit boardings down slightly (-.2%) from Spring of 2014.

| | Average Daily Transit Boardings in Shoreline | % Change |
|---|---|---|
| **Spring 2015** | 8301 | -.2% |
| **Spring 2014** | 8318 | 7.3% |
| **Spring 2013** | 7750 | - |

**King County Metro data only*

Transit ridership is similar to last year with average daily transit boardings down slightly (-.2%) from

## Pedestrian and Bicycle Count Summary

The Washington State Documentation Project collects bicycle and pedestrian data in cities throughout the State. It occurs annually in the early fall. One table taken from the 2014 short report shows that there has been a significant increase in pedestrian and bicycle activity since 2009. Other reports by national agencies show the same trend; there has been a general uptick in the amount trips taken by bike or on foot. The State's report shows an increase of 2.98% (combined bike and pedestrian) from 2013 to 2014 and a 36.82% difference from 2009 to 2014.

**Comparison between 2009 and 2014 Results[5]**

| Mode | AM Locations | | | PM Locations | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|
| | 2009 | 2014 | Difference | 2009 | 2014 | Difference | 2009 | 2014 | Difference |
| Bicycle | 2,658 | 3,651 | 37.36% | 4,212 | 5,712 | 35.61% | 6,870 | 9,363 | 36.29% |
| Pedestrian | 5,934 | 11,450 | 92.96% | 13,060 | 14,574 | 11.59% | 18,994 | 26,024 | 37.01% |
| Total | 8,592 | 15,101 | 75.76% | 17,272 | 20,286 | 17.45% | 25,864 | 35,387 | 36.82% |

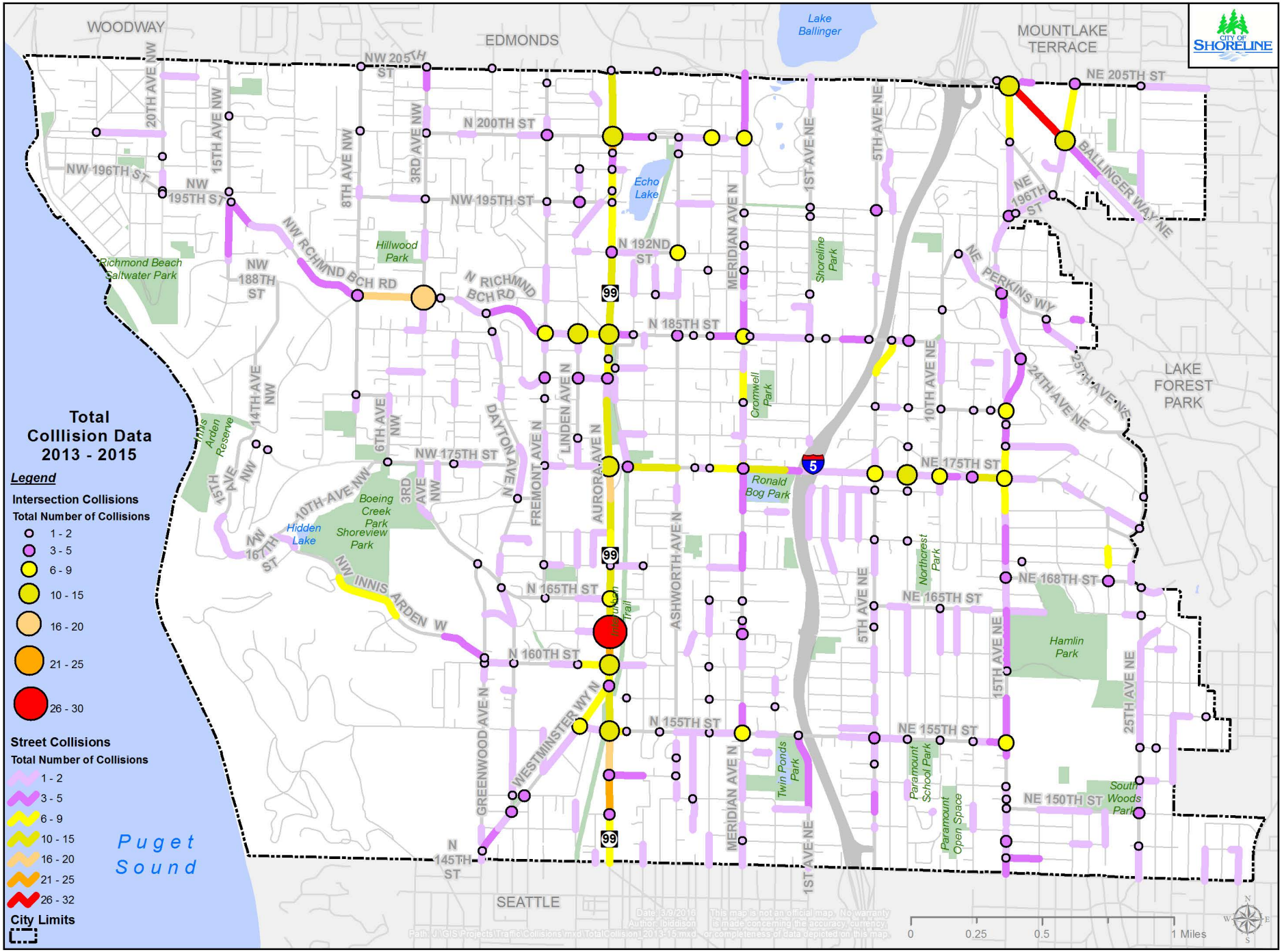
[5] Comparison based on 89 total locations; 88 consistent AM locations and 80 consistent PM locations counted in 2009 & 2014.

More information about this project can be found online at:

http://www.wsdot.wa.gov/bike/Count.htm

# Appendix

1. 2015 Traffic Flow Map
2. 2014 Traffic Speed Differential Map
3. 2015 Traffic Speed Differential Map


Total
Colllision Data
2013 - 2015
Legend
Intersection Collisions
Total Number of Collisions
1 - 2
3 - 5
6 - 9
10 - 15
16 - 20
21 - 25
26 - 30
Street Collisions
Total Number of Collisions
1 - 2
3 - 5
6 - 9
10 - 15
16 - 20
21 - 25
26 - 32
City Limits
Puget Sound
WOODWAY
EDMONDS
MOUNTLAKE TERRACE
LAKE FOREST PARK
SEATTLE
Lake Ballinger
Echo Lake
NW 205TH ST
NE 205TH ST
N 200TH ST
NW 196TH ST
NW 195TH ST
NE 196TH ST
BALLINGER WAY NE
20TH AVE NW
15TH AVE NW
8TH AVE NW
3RD AVE NW
1ST AVE NE
5TH AVE NE
MERIDIAN AVE N
Shoreline Park
Hillwood Park
Richmond Beach Saltwater Park
NW 188TH ST
NW RICHMOND BCH RD
N RICHMOND BCH RD
N 192ND ST
N 185TH ST
NE PERKINS WY
10TH AVE NE
24TH AVE NE
25TH AVE NE
Cromwell Park
14TH AVE NW
6TH AVE NW
DAYTON AVE N
LINDEN AVE N
AURORA AVE N
NW 175TH ST
NE 175TH ST
Ronald Bog Park
Innis Arden Reserve
15TH AVE NW
10TH AVE NW
3RD AVE NW
FREMONT AVE N
Boeing Creek Park
Shoreview Park
Hidden Lake
NW 167TH ST
NW INNIS ARDEN W
N 165TH ST
NE 168TH ST
NE 165TH ST
Interurban Trail
ASHWORTH AVE N
Northcrest Park
Hamlin Park
15TH AVE NE
25TH AVE NE
N 160TH ST
GREENWOOD AVE N
WESTMINSTER WY N
N 155TH ST
NE 155TH ST
MERIDIAN AVE N
Twin Ponds Park
Paramount School Park
Paramount Open Space
South Woods Park
NE 150TH ST
N 145TH ST
99
5
0
0.25
0.5
1 Miles
Date: 3/9/2016
Author: lbiddison
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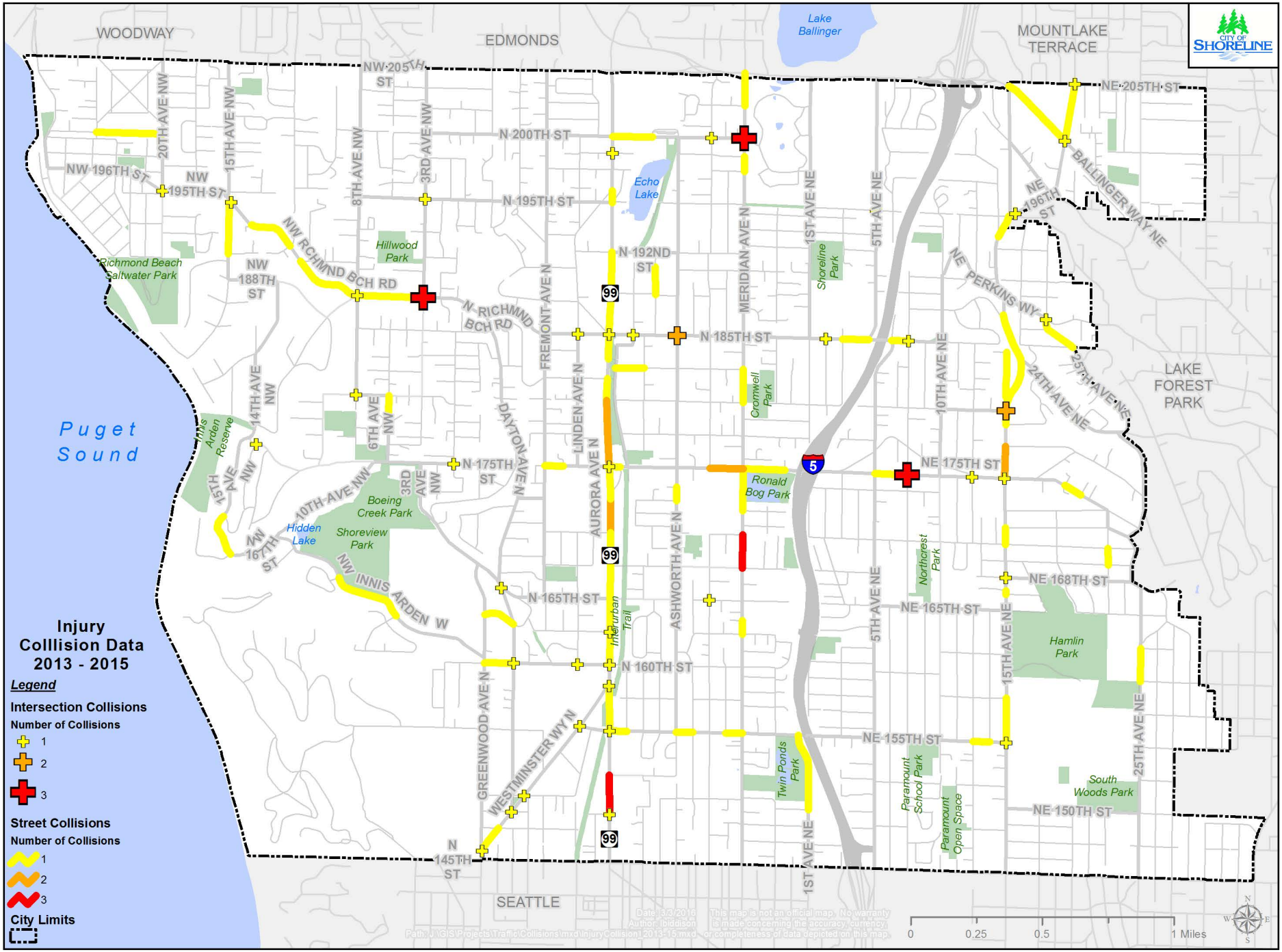
This map is not an official map. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.


WOODWAY
EDMONDS
Lake Ballinger
MOUNTLAKE TERRACE
CITY OF SHORELINE
NW 205TH ST
NE 205TH ST
N 200TH ST
NW 196TH ST
NW 195TH ST
N 195TH ST
Echo Lake
BALLINGER WAY NE
NE 196TH ST
20TH AVE NW
15TH AVE NW
8TH AVE NW
3RD AVE NW
Hillwood Park
Richmond Beach Saltwater Park
NW 188TH ST
NW RICHMND BCH RD
N RICHMND BCH RD
N 192ND ST
FREMONT AVE N
MERIDIAN AVE N
1ST AVE NE
5TH AVE NE
Shoreline Park
NE PERKINS WY
99
N 185TH ST
LINDEN AVE N
Cromwell Park
10TH AVE NE
24TH AVE NE
25TH AVE NE
LAKE FOREST PARK
Puget Sound
14TH AVE NW
6TH AVE NW
DAYTON AVE N
Innis Arden Reserve
15TH AVE NW
N 175TH ST
NE 175TH ST
5
Ronald Bog Park
10TH AVE NW
3RD AVE NW
Boeing Creek Park
Hidden Lake
Shoreview Park
NW 167TH ST
AURORA AVE N
ASHWORTH AVE N
Interurban Trail
Northcrest Park
NE 168TH ST
NW INNIS ARDEN W
N 165TH ST
NE 165TH ST
Hamlin Park
N 160TH ST
GREENWOOD AVE N
WESTMINSTER WY N
NE 155TH ST
Twin Ponds Park
Paramount School Park
Paramount Open Space
South Woods Park
NE 150TH ST
N 145TH ST
SEATTLE
Injury Colllision Data 2013 - 2015
Legend
Intersection Collisions
Number of Collisions
1
2
3
Street Collisions
Number of Collisions
1
2
3
City Limits
Date: 3/3/2016
Author: lbiddison
This map is not an official map. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.
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0
0.25
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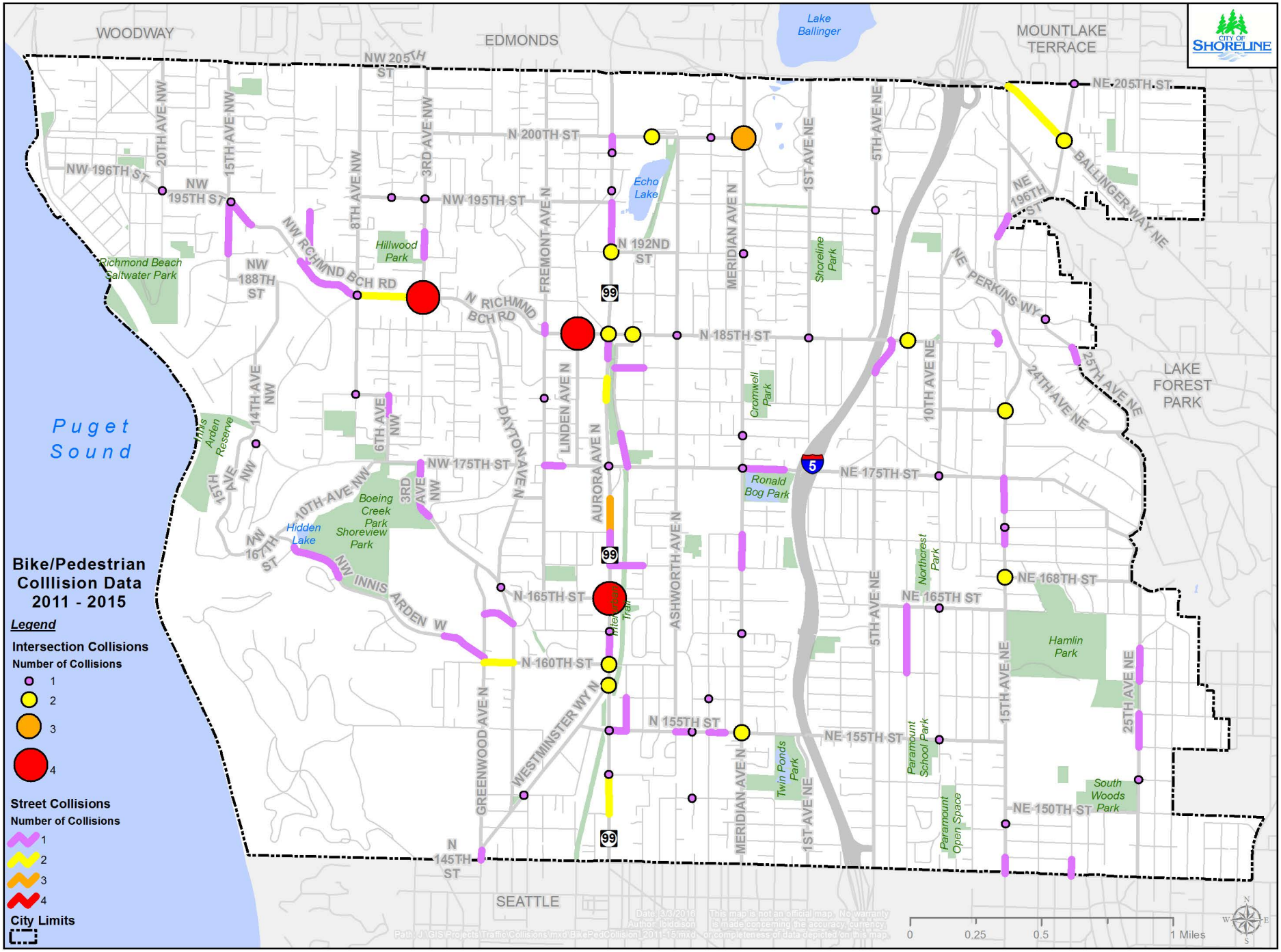
WOODWAY
EDMONDS
Lake Ballinger
MOUNTLAKE TERRACE
CITY OF SHORELINE
NW 205TH ST
NE 205TH ST
N 200TH ST
NW 196TH ST
NW 195TH ST
NW 195TH S7
20TH AVE NW
15TH AVE NW
8TH AVE NW
3RD AVE NW
FREMONT AVE N
Echo Lake
1ST AVE NE
5TH AVE NE
NE 196TH ST
BALLINGER WAY NE
Hillwood Park
Richmond Beach Saltwater Park
NW 188TH ST
NW RICHMND BCH RD
N RICHMND BCH RD
N 192ND ST
MERIDIAN AVE N
Shoreline Park
NE PERKINS WY
99
N 185TH ST
LAKE FOREST PARK
Cromwell Park
10TH AVE NE
24TH AVE NE
25TH AVE NE
14TH AVE NW
6TH AVE NW
DAYTON AVE N
LINDEN AVE N
AURORA AVE N
Innis Arden Reserve
15TH AVE NW
NW 175TH ST
NE 175TH ST
5
Ronald Bog Park
10TH AVE NW
3RD AVE NW
Boeing Creek Park
Shoreview Park
Hidden Lake
NW 167TH ST
NW INNIS ARDEN W
ASHWORTH AVE N
Interurban Trail
Northcrest Park
NE 168TH ST
N 165TH ST
NE 165TH ST
5TH AVE NE
Hamlin Park
15TH AVE NE
25TH AVE NE
N 160TH ST
GREENWOOD AVE N
WESTMINSTER WY N
N 155TH ST
NE 155TH ST
Paramount School Park
Twin Ponds Park
South Woods Park
NE 150TH ST
Paramount Open Space
N 145TH ST
SEATTLE
Puget Sound
Bike/Pedestrian Colllision Data 2011 - 2015
Legend
Intersection Collisions
Number of Collisions
1
2
3
4
Street Collisions
Number of Collisions
1
2
3
4
City Limits
Date: 3/3/2016
Author: lbiddison
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This map is not an official map. No warranty is made concerning the accuracy, currency, or completeness of data depicted on this map.
0
0.25
0.5
1 Miles
N
W
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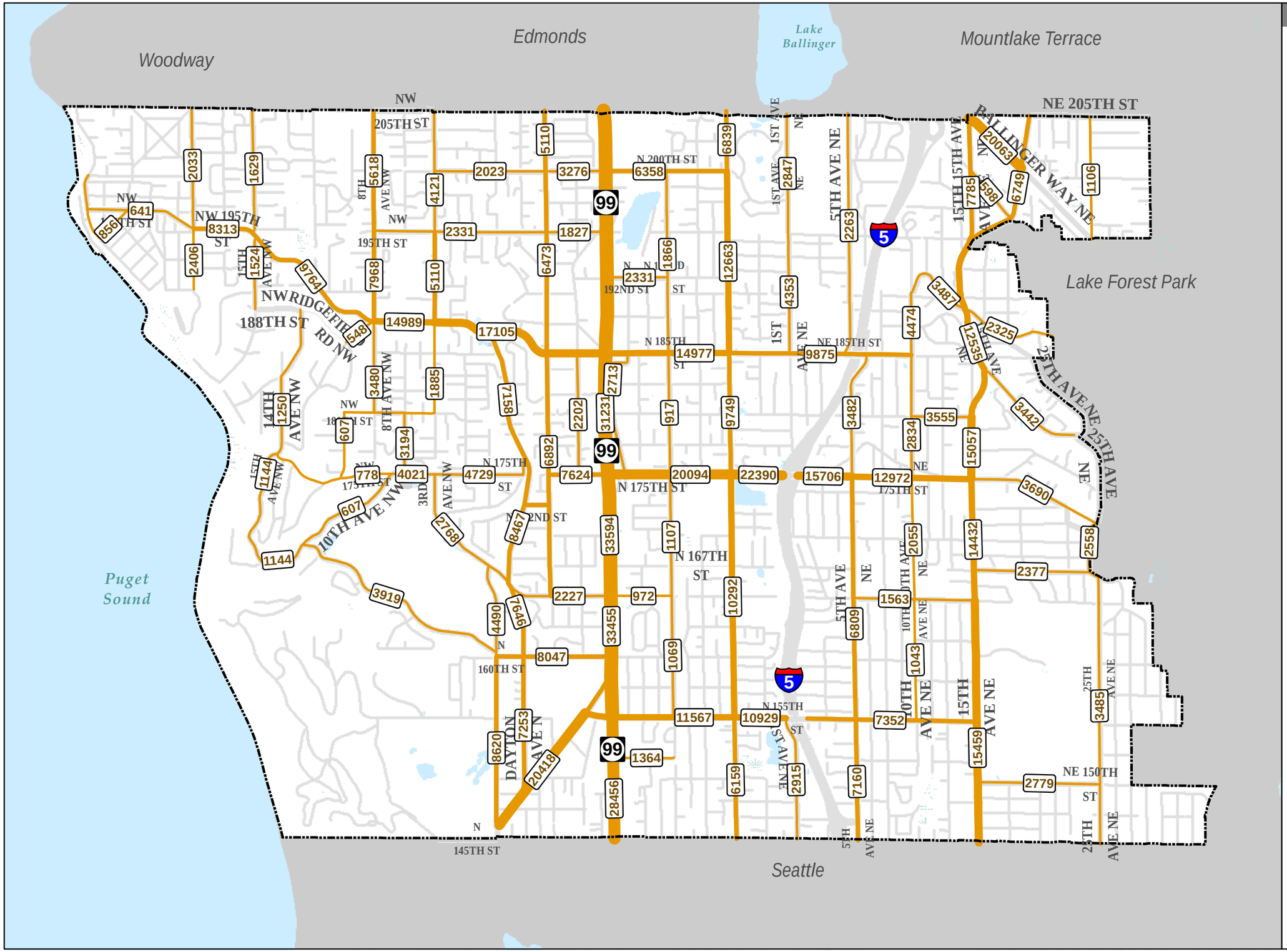



SHORELINE

Geographic Information System

# City of Shoreline
# Traffic Flow Map
## 2015

24-Hour Average Weekday Traffic
(Combined Two-Directional Totals)

## Legend

### Traffic Volume

- 35001 - 40000
- 30001 - 35000
- 25001 - 30000
- 20001 - 25000
- 15001 - 20000
- 10001 - 15000
- 5001 - 10000
- 0 - 5000

0 1,000 2,000 4,000 Feet

CITY OF SHORELINE

N W E S


City of Shoreline
Randy Witt, Public Works Director
Kendra Dedinsky, City Traffic Engineer
17500 Midvale Ave N
Shoreline, WA 98133
(206) 801-2700
www.shorelinewa.gov

# SHORELINE

Geographic Information System

# City of Shoreline Traffic Speed Map 2014

Difference Between
85th Percentile Speeds* and
Posted Speed Limit**

## Legend for Speed Ranges

- 10 to 13 MPH Over
- 8 to 9 MPH Over
- 6 to 7 MPH Over
- 3 to 5 MPH Over
- 1 to 2 MPH Over

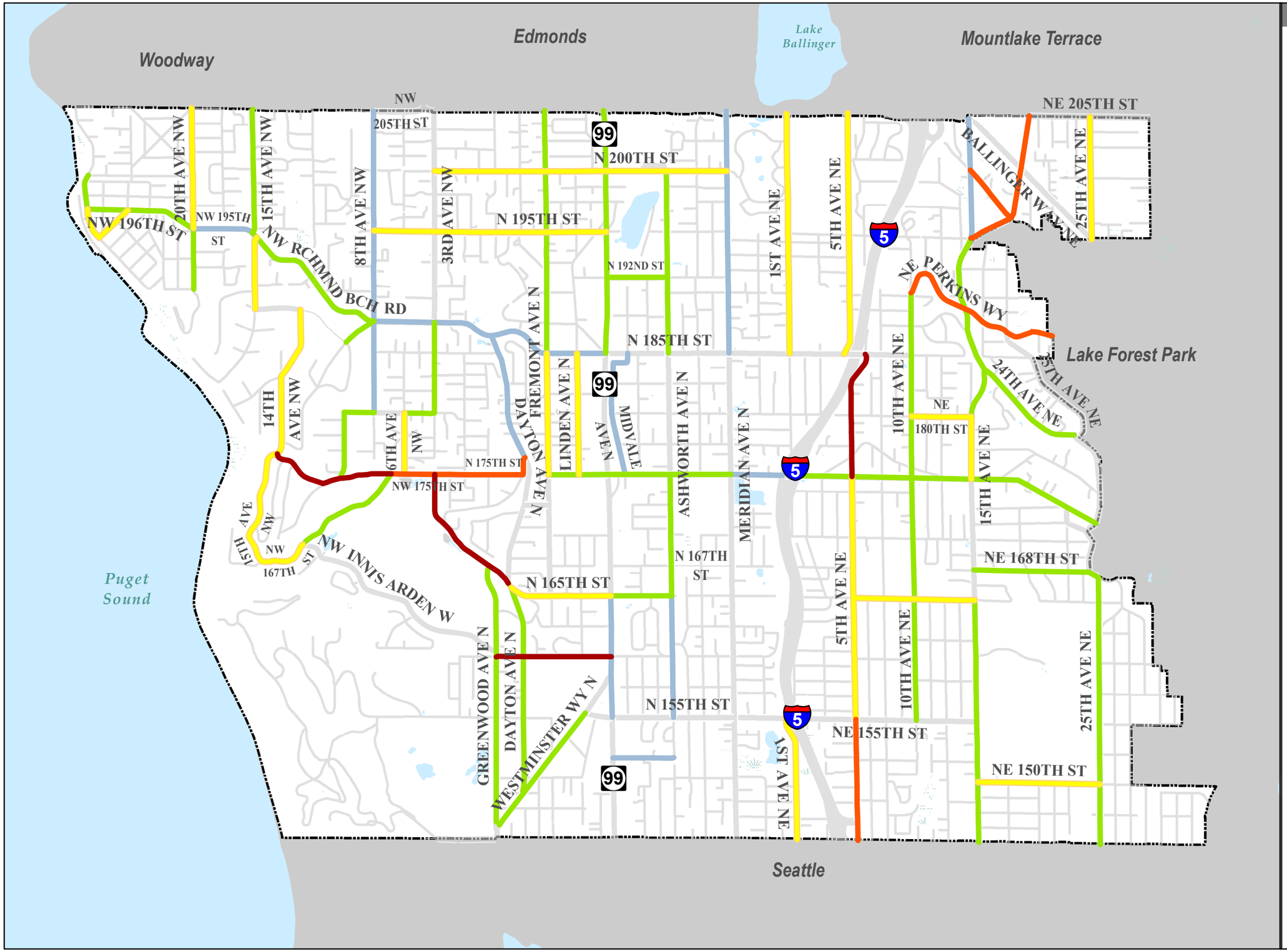
0 462.5 925 1,850 2,775
Feet
1 inch = 1,875 feet

City of Shoreline
Mark J. Relph, Public Works Director
Rich Meredith, City Traffic Engineer
17500 Midvale Ave N
Shoreline, WA 98133
(206) 801-2700
www.shorelinewa.gov

Map Data: Through December 2013



Woodway
Edmonds
Lake Ballinger
Mountlake Terrace
Lake Forest Park
Puget Sound
Seattle
SR 104
SR 99
I-5
NW 196TH ST
20TH AVE NW
15TH AVE NW
NW 200TH ST
N 200TH ST
NW 195TH ST
N 195TH ST
8TH AVE NW
N 192ND ST
1ST AVE NE
5TH AVE NE
15TH AVE NE
NE PERKINS WY
NW 188TH ST
14TH AVE NW
FREMONT AVE N
LINDEN AVE N
MIDVALE AVE N
ASHWORTH AVE N
10TH AVE NE
NW 180TH ST
3RD AVE NW
N 175TH ST
NE 175TH ST
N 172ND ST
22ND AVE NE
23RD AVE NE
10TH AVE NW
NW INNIS ARDEN W
AURORA AVE N
NE 168TH ST
NE 165TH ST
GREENWOOD AVE N
N 155TH ST
WESTMINSTER WY N
25TH AVE NE
NE 150TH ST
N 145TH ST
SR 523
SR 522




SHORELINE

Geographic Information System

# City of Shoreline Traffic Speed Differential Map 2015

**Difference Between 85th Percentile Speeds* and Posted Speed Limit****

## Legend

**Differential Speed (mph)**

- 10 - 13
- 8 - 10
- 5 - 8
- 2 - 5
- 1 - 2

0 1,000 2,000 4,000 Feet

N W E S


City of Shoreline
Randy Witt, Public Works Director
Kendra Dedinsky, City Traffic Engineer
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(206) 801-2700
www.shorelinewa.gov