LOCAL ROAD SAFETY PLAN

City of Kenmore
Department of Public Works

March 2018

TARGET ZERO
A SAFER KENMORE

KENMORE BY THE LAKE

EXECUTIVE SUMMARY

The City of Kenmore has a strong commitment to the safety of all modes of transportation users in the City. The City has adopted a local Target Zero resolution, Complete Streets ordinance and has had pedestrian and bicycle safety as part of the City Council's number one goal since 2014. This Local Road Safety Plan (LRSP) document represents the results of a data-centered approach to identifying trends and contributing factors in reported collisions on City streets, except for WSDOT-managed SR 522, which will be analyzed in a separate document. Kenmore has addressed collisions in the past with a somewhat reactive stance, responding to trends as they occur. This LRSP takes a proactive stance to addressing risk factors across the City. Addressing collision trends and contributing factors, while considering the input and concerns of the public, will advance the City's Target Zero plan, along with enforcement and education, and help us meet our Council Goal #1.

PROGRAM GOALS

The goals of this Local Road Safety Plan, within a 3-year period (collision data from January 1st, 2017 through December 31, 2019 compared to January 1, 2014 through December 31, 2016) are:

- ✓ a 15% reduction in collisions resulting in a serious injury or fatality
- ✓ A 30% reduction in total bicycle and pedestrian collisions
- ✓ A 15% reduction in collisions citing driver distraction or inattention as a contributing factor
- ✓ A 10% reduction in collisions citing exceeding safe/stated speed
- ✓ An overall reduction in head on collisions

DATA ANALYSIS

The Local Road Safety Plan (LRSP) is a data-centric approach to address risk factors which appear most often in collision history data. During the 5-year study period (January 1, 2012 through December 31, 2016) for this LRSP, the City of Kenmore had 659 recorded collisions. Of those, 2.7 percent, or 18 total collisions resulted in a serious injury or fatality (SIF). Of these 18 SIF collisions, 22.2%, or 4 collisions (2 bicyclists, 2 pedestrians), resulted in a fatality. This does not include any collisions on WSDOT-managed SR 522. SR 522 data will be analyzed in a separate document.

The City of Kenmore used data provided by WSDOT for collisions in the study period, as well as local records from Kenmore Police (SECTOR) reports to develop this LRSP. The data provided by WSDOT was supplemented by a City of Kenmore request for mapping and information on collisions related to specific contributing factors.

COLLISION CONTRIBUTING FACTORS, SPATIAL AND DETAIL ANALYSIS

Among all collision contributing factors, thirteen factors were cited in collisions in Kenmore at either a high rate, overall, or at higher rates than statewide averages. Those factors were sorted into three priority levels, and are as follows:

- ➢ Priority Level One: Bicyclists, pedestrians and driver distraction
- ➢ Priority Level Two: Head-on collisions, fixed object collisions (with utility poles and mailboxes), failure to yield, exceeding safe speeds, 35 mph roadways and pedestrian distraction
- ➢ Priority Level Three: Intersections, street lighting, horizontal curves and motorcycles

The raw data of collision contributing factors can be found in **Appendix A**.

After identifying the priority contributing factors, analysis of the location and details of collisions citing those factors was conducted to identify trends and risk factor focus areas.

Risk Factor Focus Areas

Following the full analysis of collision data for contributing factors, locations and collision details, nine risk factor focus areas were identified. These risk factor focus areas can be used to address existing locations and situations where collisions have been occurring. The risk factor focuses can also be applied across the City to identify locations and situations where future collisions may occur, regardless of previous collision history. Prioritizing of risk areas was based on the priority collision contributing factors addressed by each risk factor focus area. The risk factor focus areas are, in priority order:

- Arterial roads without bicycle lanes
- School walk routes and intersections
- Downtown core pedestrian areas and intersections
- Horizontal curves on arterials and collector roads
- Intersections with peak period congestion
- Arterial and collector road vehicle speeds
- Trail/roadway intersections and mixing zones
- Intersections on residential and residential collector roads
- Residential collector street lighting

System Improvements

As a countermeasure to these risk factors, potential projects were identified within each risk factor focus area. Some of these projects are already in development through capital improvement projects that are in design as of February 2018. These systemic improvements are intended to be low-cost, high-impact projects that can be implemented in the short term and address identified risk factors. Projects will be implemented through a mixture of grant funding (state and federal) and local funds. Many projects will include a public involvement component where plans will be presented to the public for comment and revision prior to the final design being bid out to contractors. Some projects, such as intersection improvements and lighting improvements, are collected under program headings. The majority of the projects are engineering in nature, but there are educational and enforcement components included in the planned improvements. A total of 45 projects and programs are recommended to address collision risk factors. These systemic projects and programs include:

- Implementation of bicycle lanes on arterial roads through restriping and repurposing of on-street parking
- Filling sidewalk gaps (approximately 200 feet and less) and widening shoulder walkways
- Enhancements to existing crosswalks on school routes and in the downtown core
- Enhancement of markings, signage and lighting on arterial horizontal curves
- Signalized intersection modifications to reduce congestion and queuing
- Traffic calming and traffic data acquisition via speed feedback signs
- Increased off-street bicycle parking and trail access
- Intersection programs incorporating signage, traffic circles and roundabouts
- Street lighting upgrades and additions
- Targeted enforcement and education campaigns

Summary

Implementation of the proposed systemic projects and programs will help the City to address the goals of this LRSP of reducing collisions in targeted circumstances. This LRSP will be updated every two years, incorporating updated data, assessing progress towards goals, re-evaluating priority collision factors and risk factors, and updating the list of proposed projects and programs. The LRSP is an important component of the City's Target Zero program, Complete Streets approach and addressing Council Goal #1.

INTRODUCTION

The City of Kenmore has a strong commitment to the safety of transportation users in the City. This commitment includes all modes, including vehicles and active transportation, and all ages and abilities and socioeconomic statuses. The City has adopted a local Target Zero resolution, implements projects under the guidance of a Complete Streets ordinance and has had pedestrian and bicycle safety as part of the City Council's number one goal since 2014. In continuing this commitment to safety, and in accordance with the *Target Zero Washington State Strategic Highway Safety Plan*, this Local Road Safety Plan (LRSP) document represents the results of a data-centered approach to identifying trends and contributing factors in reported collisions. Addressing these trends and contributing factors, to serious and fatal collisions as well as all collisions, with efficient, cost-effective countermeasures will advance the City and State's Target Zero programs and meet our Council Goal #1.

KENMORE'S HISTORY OF ADDRESSING COLLISION CONTRIBUTING FACTORS

Prior to development of this LRSP, the City of Kenmore has addressed contributing factors to collisions through local monitoring, proactive citizen engagement and a close relationship between the Public Works Department, Traffic Engineer and the Kenmore Police.

Kenmore locally collects and records collision data monthly, coordinating with the Police to obtain the circumstances of all collisions. The City has an online citizen action request (CARS) tool which allows citizens to express concerns for the circumstances observed. Citizens submitting requests through CARS receive direct responses from City personnel and are kept informed of the progress of any modifications in response to their concerns. The City completed a Neighborhood Transportation Plan Program (NTPP) in 2017 which proactively sought citizen input on safety concerns on residential streets. Concerns raised through the NTPP were prioritized and the Council authorized funding to implement 90 projects and actions ranging from signing and striping changes to roundabouts and rectangular rapid-flash beacon (RRFB) enhanced crosswalks.

Engagement with citizens through these submitted requests and the monthly monitoring of police collision reports often result in an engineering analysis of intersections and roadways where collisions occur. City staff review striping, signage, vegetation and sight distance and the availability of separate, designated facilities for active transportation modes following serious collisions. These reviews have resulted in modifications to address high risk collision locations. Examples include:

- A left turn restriction at a signalized intersection, addressing a high number of collisions due to left turns across multiple lanes of traffic
- Centerline curbs on two retail blocks in the downtown area restricting left turns into driveways, addressing a high number of vehicle collisions and concern for near-misses with pedestrians on an increasingly popular pedestrian route
- Increased street lighting and additional reflective pavement markings at traffic circles

This LRSP seeks to take a more proactive approach to addressing contributing factors to collisions, as opposed to the existing responsive, but reactive system.

City Council Goal Number One

The Kenmore City Council sets yearly goals to guide the work of the Council and City staff for the coming calendar year. Following two pedestrian deaths in the span of one week in mid-2014, the Council adopted a number one goal focusing on multimodal transportation safety, focused on pedestrians and cyclists. This has remained the Council's number one goal for the last three and a half years as of the writing of this LRSP.

Kenmore City Council Goal #1

To focus and emphasize multimodal transportation safety in the City of Kenmore with a specific focus on pedestrian, bicycle, and other means of travel.

Target Zero

The City of Kenmore's Target Zero priority is focused on pedestrian and bicycle safety. Our local goal is to have zero serious injury or fatal collisions between a vehicle and an active transportation user by the year 2025. The City has made good progress towards this goal and has significantly reduced the number of these types of collisions since 2014.

In 2016, WSDOT's Target Zero identified collisions involving pedestrians as a Priority Level Two factor (15.3% of collisions) and collisions involving bicyclists as a Priority Level Three factor (2.2% of collisions).

The WSDOT Target Zero program identifies three levels of priorities for statewide focus for traffic safety. These priority emphasis levels are based on the percentage of fatal and serious injury collisions that cite certain contributing factors. Those levels are:

- Priority Level One: factors occurring in at least 30% of collisions
- Priority Level Two: factors occurring in at least 10% of collisions
- Priority Level Three: factors occurring in less than 10% of collisions

For this LRSP, the WSDOT priority levels will be used to guide analysis of contributing factors for collisions, but the local priority focus on active transportation modes will be used to develop the prioritized list of projects to address these contributing factors. The small sample size of the data for the City of Kenmore means that the numerical percentage guidelines for each priority level may not be applicable. Some risk factors have fewer categories and the numerical percentage guidelines may not be applicable for those factors.

Program Goals

The goals of this Local Road Safety Plan are aligned with the City's Target Zero goals to have zero pedestrian or bicyclist serious injuries or fatalities by 2025, as well as the Kenmore City Council's number one goal of focusing on transportation safety for pedestrians and bicyclists. These program goals were developed to be S.M.A.R.T. goals (Specific, Measurable, Achievable, Realistic and Timely). The LRSP goals within a 3-year period (collision data from January 1st, 2015 through December 31, 2019 compared to January 1st 2014 through December 31, 2016) are:

- ✓ a 15% reduction in collisions resulting in a serious injury or fatality
- ✓ A 30% reduction in total bicycle and pedestrian collisions
- ✓ A 15% reduction in collisions citing driver distraction or inattention as a contributing factor
- ✓ A 10% reduction in collisions citing exceeding safe/stated speed
- ✓ An overall reduction in head on collisions

DATA ANALYSIS

TRENDS AND CONTRIBUTING FACTORS

The Local Road Safety Plan (LRSP) is a data-centric approach to determining safety priorities and developing prioritized projects to address those safety concerns which appear most often in collision history data. Identifying the trends in collision types and contributing circumstances and factors is the first step to developing a plan to address these aspects of improving safety.

During the 5-year study period for this LRSP, the City of Kenmore had 659 recorded collisions. Of those, 2.7 percent, or 18 total collisions resulted in a serious injury or fatality (SIF). Of these 18 SIF collisions, 22.2%, or 4 collisions, resulted in a fatality. This does not include any collisions on WSDOT-managed SR 522, which is analyzed in a separate document.

The following sections analyze the types, trends and contributing factors to all collisions in Kenmore as well as serious injury and fatal (SIF) collisions specifically. The rates for Kenmore are compared to statewide averages to identify not only locally important data, but that which may be outside of the average. Factors which are considered significant contributors in each category (either individually or when compared to statewide averages) are identified as Priority One, Two or Three. These factors are then analyzed based on the spatial location of each collision and the details of collisions are analyzed to identify the prioritized risk factors for collisions in Kenmore.

COLLISION DATA ACQUISITION

The City of Kenmore's LRSP is a data-centered approach to mitigating contributing factors to collisions. Because of the City's small size, both geographically (6.26 square miles) and in population (approx. 22,500), the data sample size can lead to some skewing of contributing factors to collisions. The data for Kenmore was compared to that for western Washington only and to Washington State as a whole. Data was also compared between contributions to fatal and serious collisions and to collisions overall. With the small sample size (typically less than 3 collisions in any one category and as few as 1 over the data study period), this helped to better frame the analysis of these factors. Kenmore collision data does not include collisions on WSDOT-managed SR 522. Collisions on SR 522 will be analyzed in a separate document.

DATA SOURCES

The City of Kenmore used data provided by WSDOT for collisions in the study period, as well as local records from Kenmore Police (SECTOR) reports to develop this LRSP. The data provided by WSDOT was supplemented by a City of Kenmore request for mapping and information on collisions related to specific contributing factors.

City of Kenmore local Police records were used to analyze the specific details of fatal and serious collision injuries. WSDOT provided reference numbers for these collisions.

WSDOT provided the City of Kenmore with mapping data to perform a spatial analysis of the location of collisions to identify trends and specific conditions which can be addressed in both spot locations and system-wide throughout the City.

DATA STUDY PERIOD

The data study period for this LRSP is a 5-year period, January 1, 2012 through December 31, 2016. Monthly reports are available for 2017, but these have not been verified and compiled by WSDOT to verify the details of contributing factors. 2017 data will be incorporated into future updates of this LRSP.

COLLISION CONTRIBUTING FACTORS

The following sections describe the contributing factors cited in all collisions in the data study period. These factors were documented on police reports for each collision. Many collisions had multiple recorded contributing factors. Each section identifies any priority contributing factors which should be considered in identifying the priority risk factors on Kenmore's roadway system. The full data set for collisions in Kenmore in the study period, as provided by WSDOT, can be found in **Appendix A**.

COLLISION TYPE

Collisions with pedestrians and bicyclists represented the majority of SIF collisions, cited in 27% of collisions each. Compared to the rest of Washington, Kenmore's rate of bicyclist involvement in SIF collisions is elevated. The overall rate of pedestrian and bicycle collisions in Kenmore is aligned with the statewide average. These two collision types would be a high priority for the City of Kenmore with our increased local focus on these two active transportation modes. While these percentages would be a Priority Two WSDOT Target Zero factor, **pedestrian** and **bicycle** collision types will be considered a **Priority One**.

Collision with …	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Bicycle	2.7	2.1	27.8	10.1
Pedestrian	3.0	2.8	27.8	27.6
Rear End	29.6	26.1	--	5.4
Fixed Object	19.3	10.7	11.1	17.5
Head On	0.8	0.5	11.1	3.0
Angle (Left turn)	5.8	8.6	5.6	8.8
Angle (T)	16.8	24.1	5.6	15.2
Overturn	0.9	0.7	5.6	4.3

Head on collisions and fixed object collisions were the type of collision for 11% of SIF collisions in the City. Kenmore's rate of head on collisions in SIF collisions is significantly higher than the statewide average, although the overall rate is in line with state averages. The rate of fixed object collisions in Kenmore is lower for SIF collisions, but almost double the statewide average in total collisions. **Head on** collisions and **fixed object** collisions are considered **Priority Two**.

Angle turns and overturned vehicles are cited in 5% of SIF collisions in Kenmore. Kenmore's rate of angle turn involvement in SIF collisions and collisions overall is lower than the statewide average. While this is a positive indicator for the safety of Kenmore's intersections relative to the statewide average, **intersections** will remain as a **Priority Three**.

While the highest of all collision types in the City was rear end, Kenmore did not have any SIF collisions of a rear end type, which is below the statewide average. It should be noted that this data for Kenmore does not include State Route (SR) 522 which crosses through the City, as the facility is owned and operated by WSDOT because of Kenmore's population. SR 522 data will be analyzed in a separate document. Rear end collisions are difficult to directly mitigate. For this LRSP, countermeasures addressing this collision rate will be included in the priorities related to driver contributing circumstances, detailed in that section of this document.

Priority One	*Bicycle Collisions*
	Pedestrian Collisions
Priority Two	*Head-On Collisions*
	Fixed Object Collisions
Priority Three	*Intersections*

JUNCTION RELATIONSHIP

Half of Kenmore's SIF collisions occurred at intersections, which is consistent with statewide averages. For all collisions, 43% are related to intersections, which is below the statewide average. As noted in the discussion of collision types, intersections are a Priority Three for Kenmore's LRSP.

Locations outside of intersections and driveways in Kenmore account for 45% of all collisions and 44% of SIF collisions. This rate is consistent with statewide averages for SIF collisions, but is above averages for all collisions. While this elevated rate is of concern, non-intersection locations account for nearly all of the roadway network. It is difficult with the available data sets to identify specific trends or contributing factors on the numerous non-intersecting roadway segments. Addressing this elevated rate is considered a component of other priorities for this LRSP and will be not be directly addressed.

Junction Type	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Intersection	43.4	54.5	50.0	51.1
Non-Intersection	45.4	34.5	44.4	41.0
Driveway	11.2	11.0	5.6	7.9

ROADWAY CURVATURE

Nearly 80% of all collisions, including SIF collisions, in Kenmore during the study period occurred on straight roadways, both flat and on a grade. Kenmore's percentage of collisions on grade is somewhat higher than the statewide average, but this is likely due to the hilly terrain of most of Kenmore's roads.

The remaining collisions occurred on horizontal curves in the road. The rate of these collisions in Kenmore, both overall and SIF type, were above the statewide average. While this may be due to the hilly terrain of most of Kenmore's roads, there are countermeasures which can be used to reduce the risks from horizontal curves. **Horizontal curves** are a **Priority Three** for Kenmore's LRSP.

Roadway Curvature Type	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Straight/Level	49.5	66.0	38.9	18.6
Straight/Grade	30.5	17.0	38.9	60.8
Horizontal Curve	16.5	8.0	22.2	14.2

Priority Three	*Horizontal Curves*

LIGHT CONDITION

A strong majority, 69% of all collisions and 78% of SIF collisions, of all reported collisions in Kenmore in the study period occurred during daylight hours. While this high percentage cannot be directly addressed (but can be addressed with other engineering, education and enforcement countermeasures) collisions occurring during the night can be addressed.

Collisions in Kenmore occurred in the dark with street lights present in 19% of all collisions and 22% of SIF collisions. Both rates are below the statewide averages. 5.5% of all Kenmore collisions occurred in the dark with no street lights, which is higher than the statewide average. No SIF collisions occurred in the dark with no street lights during the study period. **Street lighting** is identified as a **Priority Three** for Kenmore's LRSP.

Light Condition	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Daylight	68.7	68.0	77.8	55.0
Dark				
Street Lights On	19.0	23.2	22.2	34.6
No Street Lights	5.5	2.3	--	4.4

Priority Three	*Street Lighting*

FIXED OBJECT STRUCK

The collision data for Kenmore's total collisions shows that there are a number of roadside objects which could be considered significant risk factors, being cited in more than 5% of collisions. The data set for SIF collisions with fixed objects is not large enough to provide meaningful data on factors related to those more severe collisions. For total collisions, the rate at which **utility poles** and **mailboxes** are struck in Kenmore exceeds the statewide average. Mitigating these two roadside objects and reducing the likelihood they are struck is a component of addressing fixed object collisions, which was identified as a **Priority Two**.

A number of other objects which were struck in either were aligned with or were below statewide averages. In order to limit the scope of this LRSP to address higher priority objects, no other category of fixed object was selected as a priority. Future updates to the LRSP may include fences, stumps and other categories of fixed object.

Fixed Object Struck	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Utility Pole	17.3	10.0	--	13.6
Tree/Stump	16.5	13.8	50.0	20.2
Fence	13.4	11.3	--	6.4
Mail Box	11.0	3.0	--	2.3
Guardrail	5.5	3.1	--	2.9
Wood Sign Post	5.5	3.9	--	1.9

Priority Two	*Fixed Object Collisions: Utility Poles and Mailboxes*

VEHICLE TYPES

Passenger cars and light trucks/SUVs are the primary vehicle types involved in collisions in Kenmore, representing 96% of all collisions and 76% of SIF collisions. These rates are generally in line with statewide averages and would be expected in a suburban area with primarily residences.

Despite a small sample size, the rate of SIF collisions involving motorcycles and heavy trucks in Kenmore are above the state averages, with motorcycles exceeding 10%. The single heavy truck collision is due to a single incident and the overall heavy truck collision rate in Kenmore is consistent with state averages. For **motorcycles**, the increased rate represented in SIF collisions is of concern, and is a **Priority Three**.

Vehicle Type	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Passenger Car	55.2	55.9	38.1	47.6
SUV/Light Truck	40.8	39.8	38.1	35.6
Heavy Truck	2.3	2.2	4.8	2.2
Motorcycle	1.1	1.0	19.0	11.7

Priority Three	*Motorcycles*

POSTED SPEED

In the City of Kenmore, over 85% of roadways are signed for 25 mph posted speed limits. Of the remaining roadways, 90% are signed for 35 mph posted speed limits and are considered arterials. The remaining roads are signed for 30 mph. Because of this, the collision data for Kenmore based on the posted speed of the roadway on which the collision occurred is concentrated on these two speed bands. This makes comparison of this data to statewide averages difficult.

Posted Speed	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
25 mph	25.3	25.0	61.1	22.2
30 mph	3.7	28.0	--	27.5
35 mph	69.2	36.6	38.9	37.2

For all collisions, 69% occurred on roads posted at 35 mph. Considering how many fewer roads are signed at 35, this percentage is high. For SIF collisions, the percentage of collisions on 25 mph roads is actually higher, at 61%, but this is a fairly small sample size. Because of the high rate of collisions on 35 mph roads compared to the total length of these roads in Kenmore, focusing on arterial, **35 mph roadways** is identified as a **Priority Two**. This focus will likely be considered along with other measures in selecting countermeasures to address safety concerns.

Priority Two	*35 mph Roadways*

DRIVER CONTRIBUTING CIRCUMSTANCES

For all collisions, inattention or distraction on the part of the driver was cited in 19% of collisions. For SIF collisions, this rate is higher at 28%. The rate of inattention or distraction is significantly higher than the statewide average for SIF collisions, but in line with statewide averages for total collisions. Because of the apparent severity of this contributing circumstance in collisions, addressing **driver distraction** is a **Priority One** for Kenmore.

Failure to yield to pedestrians was cited in 16% of SIF collisions in the study period. This percentage for Kenmore is almost three times the statewide average, but the sample size for Kenmore is small and could be skewing this data. The overall percentage of failure to yield to pedestrians in all collisions is low, at 1% and consistent with statewide averages. Failure to yield to vehicles is the second-leading contributing circumstance in Kenmore at 9%. This is slightly below the statewide average. Because **failure to yield** is a contributor to 10% of overall collisions, and the second-leading contributor to severe collisions, addressing it is a **Priority Two** for Kenmore.

Driver Contributing Circumstances	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
None	39.5	40.0	28.0	31.8
Inattention or Distraction	19.0	18.0	28.0	13.5
Failure to Yield	9.0	10.8	4.0	7.8
To Pedestrian	1.0	0.8	16.0	5.4
Follow too Close	6.1	5.9	--	1.2
Exceed Safe or Posted Speed	5.6	4.5	12.0	11.1
Impairment	2.5	2.5	8.0	8.6

Exceeding the safe and/or posted speed limit was cited as a contributing circumstance in 12% of SIF collisions in Kenmore. This factor has a small sample size, but the percentage is consistent with statewide averages. Exceeding safe and/or posted speed is cited in around 5% of total collisions, which is slightly above the statewide average. Because **exceeding a safe speed** is a significant factor in nearly all collisions, especially the more severe collisions involving active transportation modes, it is considered a **Priority Two** for this LRSP.

It should be noted that 40% of all collisions and 28% of SIF collisions cited no contributing driver circumstances. While addressing these driver behaviors is a priority and should be addressed, the largest percentage of collisions are occurring without any contributing circumstances.

Priority One	*Driver Distraction*
Priority Two	*Failure to Yield*
	Exceeding Safe Speed

PEDESTRIAN CONTRIBUTING CIRCUMSTANCES

Collision data for those involving pedestrians also cites contributing circumstances for the pedestrian. This is a small data set for both Kenmore and statewide averages. In all collisions and in SIF collisions, the rate of pedestrian inattention and distraction in Kenmore is by far the leading contributing factor and above the statewide average. **Pedestrian distraction** is a **Priority Two**.

Failure to yield by pedestrians is a significant factor in SIF collisions, but the data set is small enough to make this a factor that is not a priority. This contributing circumstance should be monitored in future updates of this LRSP.

The facility use by pedestrians as a contributing circumstance shows that the majority of collisions with pedestrians occur in marked crosswalks. This is consistent with historical data, as well as statewide averages, and is one of the reasons Kenmore is judicious with marked crosswalks, especially in residential areas where pedestrians are expected near residences. Improvement of all pedestrian facilities is part of the previously noted Priority One of addressing pedestrian collision types.

Pedestrian Contributing Circumstance	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Inattention or Distraction	21.7	10.8	33.3	11.5
Failing to Yield	8.7	10.5	16.7	15.6
Failure to use Crosswalk	4.3	4.1	--	6.8
Facility Type				
Marked Crosswalk	54.5	47.9	60.0	36.6
Roadway	18.2	26.5	20.0	39.9
Unmarked Crosswalk	18.2	11.6	--	9.0
Shoulder	9.1	2.6	20.0	3.2

Priority Two	*Pedestrian Distraction*

BICYCLE CONTRIBUTING CIRCUMSTANCES

Collision data for those involving bicycles is somewhat inconclusive, with the majority of circumstances being "Other" or "None". Disregard for signals by cyclists is above the statewide average. Disregard for a stop sign is the only circumstance cited in SIF collisions involving bicycles. This circumstance of disregard for signals and stop signs can be addressed by projects for the Priority One of addressing bicycle collision types.

Failure to yield and inattention or distraction by cyclists are cited in Kenmore collisions at a far lower rate than the statewide average.

The facility use by bicycles as a contributing circumstance shows a mix of roadway, shoulder and bike routes consistent with the mix of these facility types on Kenmore roadways. Improvement of all bicycle facilities is part of the previously noted Priority One of addressing bicycle collision types.

Bicycle Contributing Circumstance	Kenmore – All (%)	Washington – All (%)	Kenmore – SIF (%)	Washington – SIF (%)
Other/None	57.1	56.1	80.0	44.8
Disregard Signal	9.5	3.0	--	4.5
Disregard Stop	4.8	2.0	20.0	4.4
Inattention or Distraction	9.5	12.9	--	15.2
Facility Type				
Roadway	40.0	40.6	40.0	53.4
Shoulder	35.0	5.3	20.0	6.6
Bike Route	15.0	15.8	20.0	16.5
Crosswalk	10.0	16.7	20.0	8.5

Other Contributing Factors

Two of the remaining factors cited in the collision data provided by WSDOT are outside the scope of this LRSP.

Roadway Surface

91% of collisions in Kenmore occurred on asphalt roadways. This is expected as the City of Kenmore has very few non-asphalt roadways and does not have any long-term plans to change the primary roadway surface type in the City. Other contributing circumstances, including those identified as Priority One, Two or Three, will be used to address collisions occurring on asphalt roadways.

Weather and Surface Condition

89% of collisions in Kenmore occurred in clear, partly cloudy or overcast conditions. 83% of collisions occurred on dry roadways with nearly all collisions occurring during dry and non-precipitation conditions. The rate at which collisions occur in wet or raining conditions in Kenmore is lower than the statewide average. The City will not specifically address precipitation or surface condition as a contributing factor in this LRSP.

Collision Contributing Factor Priorities

In summary, a thorough analysis of collision data for a 5-year period from 2012 through 2016 has shown that the following prioritized collision contributing factors should be addressed by Kenmore's LRSP:

Priority One	Priority Two	Priority Three
Bicyclists	Head On collisions	Intersections
Pedestrians	Fixed Object collisions: Utility Poles and Mailboxes	Street Lighting
Driver distraction	Failure to Yield	Horizontal Curves
	Exceeding Safe Speed	Motorcycles
	35 mph roadways	
	Pedestrian distraction	

COLLISION SPATIAL AND DETAIL ANALYSIS

A spatial analysis was performed on the data provided to the City of Kenmore by WSDOT. As part of the spatial detail, specifics of each collision were analyzed on a case-by-case basis. This analysis focused on the priority areas identified in the data analysis and identified focus areas and roadway types. Maps showing an overview of collision locations for this spatial analysis are included in **Appendix B**.

PEDESTRIANS

Collisions with pedestrians were clustered primarily in the downtown core area of Kenmore. A number of incidents were located along Juanita Drive and 68th Avenue NE. Pedestrian collisions tended to be in intersections or marked crossings, even those with signalized crosswalks. Pedestrian improvements should focus on those areas where pedestrians are expected in greater density; the downtown core, school walking routes and major transit stops such as SR 522 intersections with 61st, 68th and 73rd Avenues. Projects should include raising visibility of pedestrians in marked and signalized crosswalks.

Focus Areas	*Downtown core*
	School walk routes

BICYCLES

Bike collisions occurred most frequently on roadways with less-than-ideal bicycle infrastructure, such as several collisions on 61st Avenue NE. Improving the available bicycle facilities would move bikes out of vehicle lanes and raise awareness of the presence of bicycles on the roadway. The majority of bike collisions occurred along Juanita Drive. Several bike collisions occurred along the roadway which parallels the highly utilized Burke Gilman Trail. This regional trail serves multiple thousands of cyclists per day in fair or better weather conditions. Improving the parking, crossings and general interaction of this trail with adjacent vehicle facilities would address this trend in the spatial analysis.

Focus Areas	*Arterial roads*
	Trail/Roadway mixing zones

DISTRACTED DRIVER

Distracted and inattentive drivers were cited in collisions which clustered primarily on the arterial roadways. These tended to be in areas near intersections or where intersection queues frequently form during peak hours. Focusing enforcement efforts for distraction on these areas, while logistically challenging, would best address the safety concern. Inattention and distraction collisions during peak hours on weekdays were clustered around frequent queue locations. Addressing queueing times and congestion during peak hours, to the extent possible, may contribute to more attentive driving and address this safety factor.

In addition to the location, the rate of types of distraction and inattention were analyzed.

- Electronic distraction, including use of handheld electronics and in-vehicle systems, were cited in only 7% of distracted driver collisions. This represents only 2.3% of all collisions. Electronic distraction tended to be clustered around intersections which form peak period queues.
- The influence of alcohol was only cited in 2% of distracted driver collisions, representing 0.7% of all collisions where both alcohol and inattention/distraction were cited.
- Driver inattention was cited either alone or along with distraction in 70% of these collisions. Inattention appears to be one of the more significant factors in driver distraction. Unfortunately, this factor is difficult to address with enforcement.

Focus Areas	*Intersections with peak period congestion*

Head On

The location of head on collisions was mostly on arterial roadways in the vicinity of significant horizontal curves. The signage at these curves should be reviewed and other delineation should be enhanced at these curves to ensure drivers are staying in their lanes.

Driver distraction was also cited in the majority of these head on collisions. The enforcement and education measures to address driver distraction will contribute to addressing the head on collision type.

Focus Areas	*Horizontal Curves on Arterial and Collector Roadways*

Fixed Object

Collisions with mailboxes were mostly in areas of the City that have not seen redevelopment into smaller lot size residences with clustered mailboxes. These larger lot, older homes tend to all have individual mailboxes located close to the street to facilitate mail carrier access. Working with the US Postal Service and residents on a program of consolidating mailboxes into clusters would remove some roadside objects.

Collisions with utility poles were somewhat scattered, with one clustering along NE 202nd Street in the northern part of the City. The majority of utility pole collisions cited driver circumstances such as the influence of alcohol, distraction and being asleep. About half of the collisions occurred in the dark, but with street lights on. A city-wide review of visibility signage and object markers at utility poles could address this safety concern.

Focus Areas	*Mailboxes and Utility Poles on Arterial and Collector Roadways*

Exceeding Safe Speed

Collisions citing a driver exceeding a safe speed include collisions at "full" speed and those where a driver enters a signal queue or is driving within a queue at a rate of speed that is beyond what is considered safe to avoid a collision. Therefore, it is important to note that not all collisions citing this factor are related to speeds in excess of posted limits.

This is reinforced by a mapping of the data which shows clustering of these types of collisions around typical peak hour queue and congestion locations for several of this type of collision. The other collisions citing speed are distributed around the City, mostly on arterial roadways. Continuing to develop and implement the City's traffic calming program can help to address these non-queue speed factors in collisions.

Focus Areas	*Arterial Speeds*

Distracted Pedestrians

Collisions citing pedestrian distraction or inattention focused on intersections. Educating pedestrians about the need to take active measures at crossings, in addition to physical improvements to crossings, would directly address these locations. Intersection improvements and signage alerting both drivers and pedestrians of the presence of both modes would be beneficial as well.

Focus Areas	*Downtown core intersections*
	School walk route intersections

INTERSECTIONS

In 42% of collisions, intersections were cited as both the location and related to the collision. Some collisions at intersections were identified as not being related to the intersection. These types of collisions were scattered throughout the City, on a mixture of arterial, collector and "residential collector" type roadways. Developing a City-wide intersection improvement program (stop and yield sign warrants, traffic circle and roundabout evaluation) and implementing low-cost improvements can address this safety factor. These intersection improvements should focus on the off-arterial intersections with a history of collisions as they may be easier and require less funds to address contributing factors in the intersection.

Focus Areas	*Residential collector road intersections*
	Residential road intersections

STREET LIGHTING

Collisions noting (but not necessarily citing as a cause of the collision) a lack of street lighting were located primarily on residential roadways, especially those that are of a type that is between a low-volume residential roadway and a true collector roadway. These "residential collectors" should be reviewed for appropriate levels of focused street lighting.

Focus Areas	*Residential collector road street lighting*

HORIZONTAL CURVES

Collisions in horizontal curves were clustered near some of the smallest radii curves on arterials in the City. A city-wide program reviewing the signage, centerline markings, street lighting and vegetation around significant horizontal curves would contribute to addressing this safety factor. Focusing these efforts on small radii curves on arterials would be the priority based on the spatial distribution of collisions.

Focus Areas	*Horizontal Curves on Arterial and Collector Roadways*

MOTORCYCLES

Motorcycle collisions were nearly all located on arterial roadways. In 71% of these collisions, the motorcyclist was cited by officers for being the "at fault" party. A number of the motorcycle collisions involved rear-end collisions, and all four motorcycle-related collisions cited an "overturned" vehicle were all single-vehicle collisions (involving only the motorcyclist). Based on these trends, education on motorcycle safety and enforcement of motorcycle safety would be helpful in addressing trends in the collision data.

Focus Areas	*Arterial speeds*

RISK FACTOR FOCUS AREAS

Combining the collision contributing factor priorities with the collision spatial and detail analysis focus areas, the following roadway characteristics were identified as contributing to a higher risk factor. Roadways matching these risk factors should be addressed with countermeasures to proactively address collision rates and mitigate future collisions. Risk factor focus areas were prioritized based on a "Contributing score". This score was developed based on the number of priority contributing factors addressed. Points were assigned to each, with 3 points for a Priority 1, 2 points for a Priority 2 and 1 point for a Priority 3 area. Candidate roads meeting each risk factor focus area are identified. The prioritized project list focused on these roads. Other roads may meet the criteria for a risk factor, but were not prioritized for this LRSP. Future updates to this plan may include other roadways.

ARTERIAL ROADS WITHOUT BICYCLE LANES

Priority	Factor
1	Bicyclists
2	Fixed Objects
2	Exceeding Safe Speed
2	35 mph Roadways

Contributing Score: 9 points

This type of roadway, typically one lane in each direction with a 35-mph posted speed limit does not have designated bicycle lanes. There may be wide shoulders that are used by cyclists or cyclists may be sharing the lanes with vehicle traffic or sidewalks (if present) with pedestrians. Bike lanes provide an opportunity to reduce lane widths and introduce "side friction" creating a calming effect on vehicle speeds. Reducing vehicle speeds on arterial roadways is a high priority among the public and contributes to the safety of all modes of travel. Bicycle lanes move vehicles further from the edge of the roadway, increasing the recovery distance to roadside fixed objects such as mailboxes and utility poles.

Candidate Roads

- 61st Avenue NE
- 73rd Avenue NE
- 80th Avenue NE
- 84th Avenue NE

SCHOOL WALK ROUTES AND INTERSECTIONS

Priority	Factor
1	Pedestrians
2	Failure to Yield
2	Pedestrian Distraction
3	Intersections

Contributing Score: 8 points

These school walk routes, often incorporating all roadway classifications, are used by users of all ages and abilities and in high volumes. These walk routes typically extend approximately ½ mile from elementary schools, but can be further in some cases. Middle school and High schools also have walk routes, but are a lower priority as students come to these schools from further distances and use school busses or personal vehicles more often. Increasing high visibility pedestrian facilities that meet local standards along school walk routes will help to alert drivers of the presence of pedestrians and the need to yield the right of way when appropriate. Improvements at crosswalks along these school walk routes can include measures to address pedestrian distraction and intersection collisions.

Candidate Roads

- Arrowhead Drive
- NE 150th Street
- 75th Avenue NE
- NE 192nd Street
- 81st Avenue NE
- 84th Avenue NE
- Simonds Rd

Downtown Core Pedestrian Areas and Intersections (8 points)

Priority	Factor
1	Pedestrians
2	Failure to Yield
2	Pedestrian Distraction
3	Intersections

Contributing Score: 8 points

Downtown core pedestrian areas are those generally in between 73rd Avenue NE and 65th Avenue NE, north of SR 522 and south of NE 185th Street. This represents Kenmore's downtown core and offers retail areas, walk-friendly destinations including a skate park, access to transit and high density residential areas. Increasing the visibility of pedestrian crossings in this area can address failure to yield by drivers and pedestrian distraction. Prioritizing pedestrians in this area can calm vehicle speeds and address several higher volume intersections.

Candidate Roads

- NE 181st Street
- NE 182nd Street

Horizontal Curves on Arterial and Collector Roads (8 points)

Priority	Factor
2	Head On Collisions
2	Fixed Object Collisions
2	35 mph Roadways
3	Horizontal Curves
3	Street Lighting

Contributing Score: 8 points

The majority of Kenmore's arterials have significant horizontal curves, due to the City's hilly topography. These roads are typically a single lane in each direction with no median or physical separation between lanes in opposite directions. These roads have a posted 35-mph speed limit. Street lighting is present on all arterials, but may be inadequate to the current traffic volumes and standards for visibility of all modes of transportation. Arterials are frequently bordered by utility poles and mailboxes are present along some areas that have not redeveloped in the last decade.

Candidate Roads

- Juanita Drive
- 68th Avenue NE
- NE 202nd Street
- 61st Avenue NE
- 73rd Avenue NE
- NE 170th Street
- NE 155th Street

Intersections with Peak Period Congestion (6 points)

Priority	Factor
1	Driver Distraction
2	35 mph Roadways
3	Intersections

Contributing Score: 6 points

Intersections at arterials are, by their nature, high volume traffic locations. Because of these high volumes, at morning and evening peak periods, delays and queues form. These delays and queues can lead to driver distraction and inattention as they wait for signals to change or queues at stop signs to proceed. As the City of Kenmore and the Puget Sound region continue to grow at a significant rate through 2017, traffic volumes and congestion will remain the same or increase. Measures to reduce this congestion could address driver distraction and inattention.

Candidate Roads

- Juanita Drive
- 68th Avenue NE
- 61st Avenue NE
- 73rd Avenue NE
- NE 170th Street

Arterial and Collector Road Vehicle Speeds (5 points)

Priority	Factor
2	Exceeding Safe Speed
2	35 mph Roadways
3	Motorcycles

Contributing Score: 5 points

Arterial and collector roads in Kenmore are typically signed for 30-mph and 35-mph speed limits. Speeds in excess of the posted limit present a number of risks for collisions with all modes of travel. This risk factor is a contributor to the risks associated with a number of other contributing factors, including bicycles and pedestrians, horizontal curves and street lighting. Motorcycle safety can be addressed through maintaining a safe speed, and the spatial analysis of collisions demonstrated that arterials are where the majority of motorcycle collisions (even single-vehicle collisions) have occurred.

Candidate Roads

- 68th Avenue NE
- NE 202nd Street
- 75th Avenue NE
- 73rd Avenue NE
- 80th Avenue NE
- NE 192nd Street

Kenmore's existing traffic calming program focuses on residential streets, but traffic calming measures have been implemented on Juanita Drive, NE 170th Street/Simonds Road, 61st Avenue NE and NE 155th Street in the form of electronic speed feedback signs. Because of the nature of how the exceeding safe speed contribution factor is cited, this risk factor will be addressed away from intersections with significant queues at peak periods.

Trail/Roadway Intersections and Mixing Zones (4 points)

Priority	Factor
1	Bicyclists
3	Intersections

Contributing Score: 4 points

Locations where bicyclists using regional trails (the Burke Gilman Trail and the Lake Washington Loop which includes Juanita Drive) interact with vehicle traffic can lead to conflicts due to higher than expected bicycle volumes. Due to Kenmore's location along these regional trails, many recreational and commuter users of these trails park vehicles in the City and then ride to their destination. This leads to a significant amount of parking activity and potential conflict with vehicles where parking is located along the road (parallel and perpendicular to travel lanes).

Candidate Roads

- NE 175th Street
- 65th Avenue NE

Intersections on Residential and Residential Collector Roads (1 point)

Priority	Factor
3	Intersections

Contributing Score: 1 point

Intersections on residential and residential collectors see a lower volume of lower speed vehicles than those on arterial roadways. But, the collision data show that these intersections are the location of several collisions. The risk factor associated with these intersections can be attributed to familiarity as well as a lack of signage in some areas which were historically rural King County roads. Many roads may meet this risk factor and a system-wide analysis should be undertaken to identify the best candidates for treatment.

Residential Collector Street Lighting (1 point)

Priority	Factor
3	Street Lighting

Contributing Score: 1 point

Street lighting on residential collector streets – those that do not have traffic volumes high enough to be classified as collectors, but that receive traffic from several cul-de-sacs or shorter residential streets – should be reviewed. Lighting on these streets serves more traffic than on other residential streets. Many roads may meet this risk factor and a system-wide analysis should be undertaken to identify the best candidates for treatment.

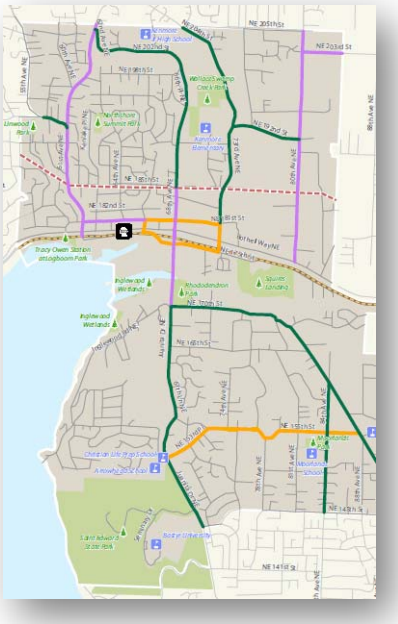
System Improvements

Addressing Risk Factor Focus Areas

Addressing collision risk factors across the entire city requires an organized approach based on a mix of effective, proven countermeasures and new solutions to make the best use of limited resources. The objective of this LRSP is to maximize local and grant funds to get the best "return on investment" in terms of reduction in collisions overall and specifically with the prioritized list of types and contributing circumstances.

A number of candidate projects are identified to address each of the three priority areas. In addition to the data-centered approach of this document, identification of projects is based on the City's Comprehensive Plan, Transportation Element. This document includes a vision for bicycle and pedestrian networks throughout the City and guides development of the transportation network.

The 6-year Capital Improvement Plan (CIP) for the City includes several projects that address bicycle and pedestrian concerns, as well as other risk factors.



METHODOLOGY

The City of Kenmore uses an expanded "five Es" approach to address safety concerns, such as those identified through the collision analysis for this LRSP. The five Es are:

- **Engineering** – addressing safety through the built environment and modifications to the roadway to address trends and contributing factors.
- **Education** – raising awareness among drivers and active transportation users of contributing factors and ways they can help increase safety.
- **Enforcement** – working cooperatively with the Kenmore Police to provide enforcement of traffic safety, address driver behavior and provide positive feedback for safe practices.
- **Encouragement** – part of the City's Target Zero outreach and a goal of the program and work such as this report is encouraging more users to use active transportation, increasing its visibility and its recognition as a part of the day-to-day transportation environment in Kenmore.
- **Evaluation and Planning** – analyses such as this report and the City's Comprehensive Plan which provides a long-term plan for increasing safe facilities for active transportation modes and users of all ages and abilities.

COUNTERMEASURES

A range of countermeasures and strategies can be employed to address the priority safety concerns on Kenmore roadways identified through the data analysis. These countermeasures include:

- Bicycle lanes, including designation of roadway space for cyclists through signage and markings
- Construction of sidewalks at critical locations where pedestrians are currently walking on narrow shoulders or narrow walkways
- Marked and signed crosswalks and curb extensions to reduce crossing distances
- Construction of roundabouts (including mini-roundabouts) which have been demonstrated to reduce the severity of collisions and can be constructed to reduce pedestrian crossing distances
- Roadway signage additions, relocations for visibility, reflectivity changes and size increases
- Striping changes and additions to vehicle lane markings, including the use of reflective raised pavement markers
- Use of speed feedback signs to calm vehicle speeds
- Variable message signs (VMS) which can be programmed to increase awareness of targeted enforcement, presence of pedestrians and cyclists, and motorcycle safety
- Increased roadway lighting and replacement of sodium lights with LED lights
- Targeted high visibility enforcement
- Public informational campaigns and safety accessory giveaways

The Federal Highway Administration (FHWA) has collected research information on countermeasures which directly address collisions. This research has led to a database, or clearing house, of crash modification factors (CMFs). These CMFs are a way to estimate the benefit, in terms of a reduction in collision history, of certain countermeasures. The CMFs focus on engineering countermeasures and are available for a wide range of project types, but are not available for enforcement and education programs. This LRSP uses CMFs to set goals to measure the effectiveness of proposed projects.

CAPITAL PROJECTS IN DEVELOPMENT

The City has several capital projects in development in 2018. These projects are in the design phase and are expected to begin construction in 2020. The projects are funded by a mixture of local funds, grant funds and voter-approved bond measures.

JUANITA DRIVE NE & 68TH AVENUE NE PEDESTRIAN & BICYCLE SAFETY IMPROVEMENTS

These projects, which range from the Kirkland border on the south side of Kenmore to 61st Avenue NE on the north side of Kenmore, will add sidewalks, improve crossings and add bike lanes from NE 143rd Street to NE 170th Street and from NE 182nd Street to 61st Avenue NE. This project will address safety concerns for some of the areas with the most pedestrian and bicycle collisions.

WEST SAMMAMISH BRIDGE REPLACEMENT

Along this same 68th Avenue NE corridor, the West Sammamish River bridge is being replaced (between NE 170th Street and NE 175th Street). As part of this bridge replacement, a multi-use path is being constructed to accommodate pedestrians and bicyclists on the Lake Washington Loop and connecting into the Burke Gilman Trail north of NE 175th Street.

NE 181ST STREET SIDEWALKS

As part of the continued expansion of the sidewalk network in the downtown core, the City has obtained grant funding for sidewalks on the north side of NE 181st Street between 65th and 67th Avenues. This project will bring existing sidewalks up to current standard and extend pedestrian facilities along an important downtown core street, addressing pedestrian safety.

NE 153RD PLACE SIDEWALKS

This Safe Routes to School grant-funded project will add sidewalks along NE 153rd Place, a highly utilized elementary school walking route. The project will convert an existing shoulder to sidewalk.

ROADWAY SAFETY RISK MITIGATION PROJECTS

To address each of the risk factors, 45 projects, studies and programs to analyze and implement countermeasures have been identified. These projects, studies and programs are intended to be low-cost, high-impact solutions. These projects do not include significant roadway realignments or modifications to pavement widths. The locations of projects are shown in the maps included in **Appendix C**.

Projects, programs and studies within each risk factor category are presented in priority order based on an engineering evaluation of the existing site conditions, collision history on specific facilities and ability to implement improvements in the near term. A full prioritized list of projects is included in **Appendix D**. The City will use this priority listing to help select projects for local implementation or inclusion in grant applications. The requirements of grant programs may cause lower priority projects to be selected if they are identified as competitive for state or federal grant funding.

CITY-WIDE BICYCLE LANES ON ARTERIALS

Goal CMF: **0.80**

The CMF clearinghouse average for bike lanes is approximately 0.60. Considering the traffic volumes in Kenmore, compared to the research projects, a goal CMF of 0.80 is proposed through implementation of these projects.

This project would designate bicycle lanes on arterials (35-mph posted speed limit) that currently lack these facilities along their full length. Bicycle facilities would be added following the recommendations of the City of Kenmore Comprehensive Plan Transportation Element. These bike lanes would be created through modifications of vehicle travel lane widths and location of lanes between curbs or edges of pavement, small modifications to existing curb bulbs, restriction of on-street parking and designation of wide shoulders as official bicycle lanes. The projects are comprised of pavement striping (including adjustments), pavement symbols and signage. No pavement widening or significant longitudinal curb modifications are included in these projects. These projects can have additional environmental benefits to the public. Choosing active transportation has significant public health benefits, can improve air quality and water quality through reduced generation of pollutants and reduce noise impacts to neighboring residential areas.

- **73rd Avenue NE Bike Lanes (Project length 0.65 miles)**
  This project would narrow vehicle lanes, remove on-street parking from one side of the street and relocate lanes between the curbs to create bike lanes in the north and south direction. On-street parking would be retained on one side of the street. All work would be within the existing curbs, consisting of marking removal and revised markings.
- **80th Avenue NE Bike Lanes (Project length 1.40 miles)**
  This project would restrict parking on existing wide shoulders and designate those shoulders (with new striping, symbols and signage) as bike lanes. No pavement modifications are proposed.
- **84th Avenue NE Bike Lanes and Walkway (Project length 0.80 miles)**
  This project would remove and replace an existing extruded curb that is in poor condition. As part of the project, lanes would be narrowed and the walkway relocated to create space for bike lanes in each direction with revised markings.
- **61st Avenue NE at NE 193rd Street Right Turn Lane Removal and Wide Shoulder Extension**
  This project would remove an existing right turn lane on southbound 61st Avenue NE which has been a contributing factor to previous serious injury collisions involving cyclists. Modifications to an existing intersection island would allow the wide shoulder on 61st Avenue NE to continue in the southbound direction and connect to a marked, designated southbound bicycle lane.
- **61st Avenue NE Shared Lanes (Project length 0.65 miles)**
  This project would convert existing on-street parking and shoulder space to a designated shared bicycle and pedestrian lane. Sidewalks on this arterial are in very poor condition and the shared lane would increase accessibility of the sidewalks for pedestrians. This project would include some curbing modifications to address existing vegetated bulb-outs.

ENHANCE CITY-WIDE ELEMENTARY SCHOOL WALKING ROUTES

A project to address elementary school walking routes city-wide would include projects to close small sidewalk gaps (under 250 feet), improve shoulder walkways and enhance crosswalks. Some of the project locations have narrow shoulders that do not provide sufficient space for pedestrians. Other locations have shoulder, but it is not a protected walkway. Some protected walkways are narrow and do not accommodate the typical mix of pedestrians and strollers along elementary school walking routes. Enhancing crosswalks with markings, median refuge islands, flashing lights and pedestrian flags will increase their visibility. These projects can have additional environmental benefits to the public. Choosing active transportation has significant public health benefits, can improve air quality and water quality through reduced generation of pollutants and reduce noise impacts to neighboring residential areas. Students who use active transportation to get to school can reduce congestion at parking lots and parent pick up waiting areas, which also addresses driver distraction and inattention due to queuing and improves air quality.

Goal sidewalk CMF: **0.90**
Goal crosswalk CMF: **0.80**

The CMF clearinghouse average for sidewalk and walkway projects is approximately 0.857. The CMF average for crosswalks is 0.71. Considering the traffic volumes in Kenmore, compared to the research projects, the goal CMFs are proposed to measure the results of implementation of these projects.

- **75th Avenue NE Sidewalk** – this project would add approximately 250 feet of sidewalk to close a sidewalk gap where a narrow shoulder exists.
- **NE 192nd Street Sidewalk** – this project would add 220 feet of sidewalk to convert a shoulder to sidewalk and close a sidewalk gap.
- **Enhancements at 75th Ave NE/NE 192nd St Crosswalk** – an existing painted crosswalk would be enhanced with lighted visibility, crosswalk flags and additional signage.
- **Enhancements at 84th Ave NE/NE 145th St Crosswalk** – an existing painted crosswalk would be enhanced with flashing lights and crosswalk flags. This project would need to be coordinated with the City of Kirkland as the crosswalk is outside of the City of Kenmore (in Kirkland), but the location for the enhancements would be within the City of Kenmore.
- **New Crosswalk at Simonds Road and NE 151st Street** – a crosswalk would be added across an arterial at the entrance to a major residential development. The crosswalk would include flashing lights, a median refuge island, crosswalk flags and signage.
- **Arrowhead Drive Walkway Widening** – an existing curb-protected shoulder walkway (700 LF) would be widened by approximately 3 feet to accommodate higher pedestrian volumes and strollers. This widening would require short walls for most of the project length.
- **Shoulder Walkway Enhancements on NE 150th Street/NE 148th Street** – this project would increase the available paved shoulder (200 LF of 6' wide shoulder) along a primary school walk route, connecting to a sidewalk. The shoulder would be protected with an extruded curb. A roadside ditch exists in this project area and may require low-impact development (LID) compatible improvements.

DOWNTOWN CORE PEDESTRIAN SAFETY

In the downtown core of Kenmore, pedestrian safety is a high priority and a significant risk factor. Several in-progress capital improvement projects will improve the available sidewalks and bike lanes in this area, but other projects can supplement these capital improvements and further enhance safety. A pedestrian crossing of SR 522 is a long-term desire of the City and would contribute to pedestrian safety in the downtown core. The northern end of a crossing would exit into the downtown core. The location and configuration of this exit would determine other potential improvements that could be made for downtown core pedestrian safety.

Goal roundabout CMF: **0.50**
Goal sidewalk CMF: **0.90**

The CMF clearinghouse average for sidewalk and walkway projects is approximately 0.857. The CMF average for roundabouts is 0.34. Considering the traffic volumes in Kenmore, compared to the research projects, the goal CMFs are proposed to measure the results of implementation of these projects.

- **SR 522 Crossing and Downtown Improvements Study**
  An alternatives study for a pedestrian undercrossing of SR 522, with possible low-speed vehicle movements (Woonerf-style roadway) would reduce the exposure of pedestrians to vehicle traffic in and around the downtown core. An alternatives study for this crossing location would include the development of 30%-level design plans to assess construction costs of a crossing and program the project for future years' capital improvement programs. Other downtown improvements could be part of a crossing project. These improvements could include, but are not limited to:
  - **Downtown core sidewalk gaps** including reconstruction of existing sidewalks that do not meet the current City standard for sidewalk width, planter strips, etc.
  - **Downtown intersection roundabouts** using a compact or mini-roundabout style, keeping the projects mostly within the existing curb lines, but adding concrete splitter islands and center islands. These treatments would remove the need for stop signs and calm traffic speeds while maintaining or improving volumes. Splitter islands can reduce pedestrian crossing distances with median refuges and reduce the conflict points for pedestrians and vehicles. Specific designs and intersections would be determined as part of the alternatives study.

HORIZONTAL CURVE ENHANCEMENTS

Horizontal curves have been identified as a risk factor, both for on-road and off-road conditions that may lead to collisions. This project would enhance existing centerline striping with reflective raised pavement markers and profiled plastic markings. Existing warning and advisory speed signage would be enhanced with higher reflectivity, additional advanced warning signs, torch-down curve warnings and markings and other treatments to raise awareness of upcoming road conditions. Overhead street lighting near curves would be upgraded to LEDs as part of each project for increase nighttime visibility. Object warning signage and reflective markers would be added to roadside hazards within these targeted curves, including utility poles and mailboxes. The City would work with the US Postal Service and residents near these curves to consolidate mailboxes where possible, reducing the risk of collisions with mailboxes in the future.

Goal CMF: **0.75**

The CMF clearinghouse average for improvements to address horizontal curves, including marking and signage changes is 0.62. Considering the traffic volumes in Kenmore, compared to the research projects, the goal CMFs is proposed to measure the results of implementation of these projects.

Projects at the following arterial curve locations are proposed. Those with sharper curves or additional roadside fixtures (including utility poles, trees, mailboxes, etc.) are indicated as having a higher complexity. Projects with an asterisk (*) fall within the limits of the Juanita Drive NE & 68th Avenue NE improvements project. Enhancements will be incorporated in the design of that capital project.

- **Arterial curves, higher complexity**
  - Juanita Drive at NE 155th Street*
  - NE 155th Street at 76th Place NE, 78th Avenue NE and 79th Avenue NE
  - 73rd Avenue NE at NE 185th Street
  - NE 170th Street at 79th Place NE
  - 61st Avenue NE at NE 181st Street
- **Arterial curves, lower complexity**
  - NE 202nd Street at 63rd Avenue NE*
  - NE 202nd Street at 62nd Avenue NE*
  - NE 170th Street at 75th Avenue NE
  - 68th Avenue NE at NE 201st Street*
  - 73rd Avenue NE at NE 204th Street

INTERSECTIONS WITH PEAK PERIOD CONGESTION

Goal CMF: **0.90**

The CMF clearinghouse average for improvements to install right turn lanes is 0.90. No CMFs are available for addressing congestion. Considering the operational, not physical changes of these modifications, the goal CMF is proposed to measure the results of implementation of these projects.

Driver distraction and inattention, and the accompanying risks, can result from long waits at queues for signals and stop signs near intersections with significant peak period congestion. In many cases, congestion mitigation is a regional issue and beyond the scope of this document. Many of the engineering solutions to congestion involve regional level signal coordination, regional highway congestion mitigation and traffic demand management. The City of Kenmore is actively engaged with neighboring cities, WSDOT and Sound Transit to address these issues. Locally, two signal modifications could reduce some queue congestion. These modifications are in response to significant citizen feedback and are measures that can be reversed if the desired effect on congestion is not realized. Addressing the driver distraction and inattention issues near these intersections is also addressed through enforcement and education. These projects have an added benefit to the public through an improvement to air quality. A reduction in congestion reduces idling of vehicles and the associated air quality impacts. Noise impacts are also reduced when congestion is reduced.

- **NE 170th Street (westbound) at 68th Avenue NE – No Turn On Red**
  At this intersection, NE 170th Street currently has a no turn on red restriction from 4:00 to 7:00pm on weekdays. At this time, the right turn overlap phase (right turn arrow) is also turned off. This operation was put into place in response to an historical congestion concern for northbound 68th Avenue NE and Inglewood Road. The traffic volumes at the intersection have shifted since that time and there is now a significant queue on NE 170th Street while other directions at the intersection frequently clear each cycle. This project would use a video detection based system to only turn on the right turn restriction if northbound queues on 68th Avenue NE are past a certain point. This will balance the congestion between all intersection legs, while maintaining some space for northbound 68th Avenue NE traffic during periods of congestion and queuing.
- **68th Avenue NE (northbound) at State Route 522 – Right Turn Lane**
  At the intersection with SR 522, 68th Avenue NE currently has two left turn lanes, a straight lane and a straight/right turn lane. This project would convert the right lane to right turn only. This would allow for a right turn overlap (right arrow) at the signal. The project would increase the available queue space and signal time for right turns onto SR 522 eastbound and better balance lane usage for northbound traffic on 68th Avenue NE.
- **Automated Traffic Signal Performance Measures (ATSPM) Upgrades**
  The City of Kenmore does not currently own the signals on State Route 522, as we are under 25,000 population, but we do own seven other signals throughout the City. These signals currently are not networked and are not obtaining data to analyze system performance. This project would seek to obtain upgraded detection, controller, communication and in-house server technology to allow the City to better coordinate our signals and decrease congestion and queuing. This would be a two-phase project, first to identify the types of improvements and estimate the cost, followed by acquisition and installation.
- **In-House Modeling of Congested Intersections**
  The City of Kenmore does not currently have in-house modeling capabilities to track impacts to intersections and model roadway improvement projects. Obtaining software and training to perform this service in-house would decrease the City's cost to the public for this analysis and improve our response times to congestion concerns.

Arterial and Collector Traffic Calming

To address arterial and collector traffic calming, the City of Kenmore's policy is to not introduce physical traffic calming on these higher volume roadways. One of the most effective and visible traffic calming measures for arterials are speed feedback signs. These signs can be mounted at the roadside with direct wired power or solar panel power. The City already operates a number of these signs. This project would add to the number of signs on arterial roadways (near previous collision locations) and replace existing signs with a newer technology sign which also captures speed data and transmits it to the City. This allows tracking of the effectiveness of the signs, identify locations where speed may be a continuing problem and allow for coordination with the police for targeted high visibility enforcement to supplement the feedback sign's traffic calming effect. In addition to speed feedback signs, trailer mounted mobile electronic variable message signs (VMS) can be used to raise awareness of motorcycle safety, speed enforcement zones, school zone speeds and increases in pedestrian traffic at back to school, daylight savings time switches and the beginning of summer.

Goal CMF: **0.95**

The CMF clearinghouse average for speed feedback signs is an average of 0.95. This goal CMF is proposed to measure the results of implementation of these projects.

- **Residential Collector Calming** – install four solar-powered or direct-wired speed feedback signs on collector or residential collector routes.
- **80th Avenue NE Calming** – install four solar-powered or direct-wired speed feedback signs.
- **73rd Avenue NE Calming** – install two solar-powered or direct-wired speed feedback signs.
- **Juanita Drive Calming** – install two solar-powered or direct-wired speed feedback signs.
- **Trailer Mounted VMS Signs** – acquire three trailer mounted VMS signs for use around the City.
- **Upgrade Speed Feedbacks** – this project would replace six existing speed feedback signs with data-transmitting signs.

Trail/Roadway Intersections and Mixing Zones

Addressing the risk factors associated with the mixing zones between the regionally significant Burke Gilman Trail will require coordination between Kenmore and King County Parks who is the owner and operator of the trail. The right of way for the trail would likely be involved in any proposed project. The City has worked with King County Parks on other trail improvements in the past, including underpasses at 68th Avenue NE and 73rd Avenue NE. The existing 65th Avenue NE intersection does not require vehicles to stop. A reconfigured intersection which requires vehicles to stop and allows cyclists to proceed is proposed.

Goal CMF: **0.80**

The CMF clearinghouse does not address this specific type of project. But, the project goal of separating bike and vehicle traffic is similar to bike lanes. The CMF goal for that treatment is used for these projects.

- **65th Avenue NE Intersection Modifications** – Intersection modifications at 65th Avenue NE and the Burke Gilman trail, including adding stop signs (with flashing LED perimeters) for vehicle traffic and removing stop signs for bicycles in favor of yield signs for cyclists.
- **Alternatives Study for NE 175th Street Safety Improvements** – an alternatives study, including coordination with King County Parks, would help to identify feasible projects to address the risk factors associated with the areas where heavy bicycle traffic and vehicle traffic are mixing. Possible projects may include:
  - Modifications to existing on-street parking to increase the separation between bicycle traffic and vehicle traffic, including options for restriping, new paved surface, etc.
  - Modifications to access points to the trail and available parking on NE 175th Street
  - Restriction of on-street parking on NE 175th Street for trail access

Residential Collector Intersection Program

This program would involve a systematic review of residential and residential collector intersections across the City for improvements. The program would three types of intersection improvements; signing currently unsigned intersections, installation of traffic circles and installation of mini-roundabouts. Candidate intersections would be evaluated for the most appropriate treatment. Signed intersections can assist with areas where sight distance or yielding are a concern. Traffic circles and roundabouts are options where traffic calming, in addition to yielding at intersections, is a risk factor.

Goal signage CMF: **0.90**
Goal circular intersection CMF: **0.50**

The CMF clearinghouse average for adding signage to minor road approaches is approximately 0.78. The CMF average for circular intersection types (circles or roundabouts) is 0.34. Considering the traffic volumes in Kenmore, compared to the research projects, the goal CMFs are proposed to measure the results of implementation of these projects.

- **Mini Roundabout Program**
  This program would add mini roundabouts to five existing intersections which are good candidates for this type of intersection control. Mountable concrete circles with painted splitter islands, signage and other associated markings would be added to the intersection. The program may be repeated in future years to address other intersections that meet risk factor criteria.
- **Traffic Circle Program**
  This program would add traffic circles to five existing intersections which are good candidates for this type of intersection control. Curbed circles with vegetation, signage and markings would be added to the intersection. The program may be repeated in future years to address other intersections that meet risk factor criteria.
- **Signed Intersection Control Program**
  This program would add signage to existing unsigned intersections. Signs could be stop or yield and advanced warning signage will be provided where appropriate. Five intersections will be upgraded through this program.

Street Lighting Program

A street lighting program would involve a systematic review of street lighting on residential collector roadways. Roads that lack sidewalks, have frequent intersections, horizontal or vertical curves or are heavily vegetated would be higher priority candidates for additional lighting. The program would include a mix of upgrading existing sodium street lighting to LED, the addition of new LED fixtures on existing utility poles and new utility poles with new LED fixtures.

Goal CMF: **0.80**

The CMF clearinghouse average for improvements to street lighting is 0.73. Considering the traffic volumes in Kenmore, compared to the research projects, the goal CMFs is proposed to measure the results of implementation of these projects.

- **Upgrade Existing Sodium Fixtures**
  Existing sodium fixtures on residential collector and arterial roadways would be upgraded to LED lighting.
- **Add LED Fixtures (Existing Poles)**
  LED fixtures would be added to existing utility poles in areas of low lighting on residential collector roadways and arterials.
- **Add LED Fixtures (Existing Poles)**
  LED fixtures would be added along with a new utility pole and associated electrical service in areas of low lighting on residential collector and arterial roadways.

TARGETED ENFORCEMENT AND EDUCATION

The City will continue our Target Zero outreach program for pedestrian safety including providing reflective pedestrian vests, blinking lights and reflectors and other visibility accessories. The City can develop a campaign targeting driver and pedestrian distraction which would include targeted enforcement, especially at arterial intersections. This campaign may include small temporary signage at intersections or the use of VMS signs to address issues of distraction and inattention. The City can develop a campaign to target motorcycle safety which could include targeted enforcement.

Goal CMF: **0.90**

The CMF clearinghouse does not address the effectiveness of education and targeted enforcement. Based on the CMFs for other projects and program, the goal CMF was selected to measure the results of these programs.

- **Target Zero Pedestrian Safety Program**
  Continuation of this existing program would include giveaways of visibility enhancing accessories to Kenmore residents at City events, pop-up parties and at City Hall. The program would also include newsletters, flyers and efforts to promote pedestrian safety to all citizens, drivers and pedestrians.
- **Driver and Pedestrian Distraction Enforcement Program**
  This program would include the development and production of promotional materials and temporary signage to notify citizens of the City's increased focus on distraction. Funding would be provided for police overtime to focus on targeted high visibility enforcement, especially at intersections that see significant queuing during peak periods.
- **Motorcycle Safety Program**
  This program would include development and production of promotional materials to notify motorcycle riders of the City's increased focus on safe driving practices. Funding would be provided for police overtime to focus on targeted high visibility enforcement for motorcycle safety.

PROJECT FUNDING

The full list of projects identified in this LRSP are beyond the short-term funding resources of the City and are intended to be an aspirational guide to address collision risk factors in future years. These projects can be constructed as funding (locally and through grants, both federal and state) allows. The identified projects, programs and studies are estimated to cost between $5,000 and $750,000, with most construction projects estimated between $10,000 and $100,000. The variability in cost is dependent on the project, program or study scope, funding source and the ability to consolidate and combine projects. Projects will be combined, when possible, to reduce staff costs, consultant fees for design and construction management, mobilization costs, and gain the benefits of economy of scale for bid items.

PUBLIC INVOLVEMENT

This Local Road Safety Plan will be publicly presented to the Kenmore City Council in February of 2018. Citizens will have an opportunity to comment at that time, and the City will post the LRSP and accept comments on the plan before it is finalized.

All risk mitigation countermeasure projects undertaken will have a public outreach plan developed in accordance with the Public Works Department Public Involvement Matrix. Smaller risk mitigation countermeasure projects would have localized public involvement. Projects such as enhancement of street lighting, upgrading of horizontal curve striping and signing and use of traffic calming speed feedback signs may involve notification of adjacent property owners who may see new signage near their property, but would not involve a larger public involvement process.

Larger projects affecting a wider area of the traveling public will include broader resident and stakeholder notification and public participation. Various methods of involving the public such as door hangers, mailers, signage, open houses and online meetings may be utilized to gather public feedback which may be used to make adjustments to projects, as long as the desired safety goals of the project are achieved. Pilot and test projects will be used where practical to gage the impact of projects and make adjustments prior to permanent installation. The City is developing an interactive online map that shows all the capital and traffic projects in the City, including status (planned/proposed, under construction, completed), expected completion date, cost, and funding sources. Projects from this LRSP will be included in that map. Based on public feedback and other information, projects may be modified, delayed, or canceled, if safety goals are achieved by other measures.

EVALUATION OF COUNTERMEASURES

The evaluation of the countermeasures implemented through this LRSP will require future data updates on collision contributing factors, locations and details and analysis of public input on mitigation projects. For each project or program, a goal crash modification factor (CMF), representing the expected reduction in collisions from implementing certain countermeasures, is identified. Individual countermeasures will be considered successful if the goal CMF is achieved in future year's collision data. The CMFs are based on a total number of collisions and are not applicable to a percentage of collisions citing a specific risk factor, relative to other contributing factors. These data updates should occur at least every other year in order to provide useful information to address the effectiveness of countermeasures and suggest modifications to better address risk factors.

In addition to these data measures, City staff provide the Kenmore City Council a yearly Target Zero update which includes a review of collision history and highlights serious injury or fatal collisions involving pedestrians or cyclists, as well as a summary of public feedback. The details on collision risk factors identified in this LRSP and the countermeasures implemented to address those risk factors, and the public feedback on those countermeasures, will be included in those yearly updates to the City Council.

UPDATES TO LRSP

The LRSP is intended to be a "living document". This document should be updated on a biennial basis to incorporate new data, completed projects, new and innovative countermeasures and develop measures of effectiveness of the plan. These updates can happen on a more frequent basis as needed. Kenmore's Complete Streets policy requires a yearly update to the Kenmore City Council of progress on addressing Complete Streets issues. The results of that update could be incorporated into future revisions of this LRSP. Future LRSP updates should address progress towards meeting the stated safety goals for reducing certain types of collisions.

WSDOT typically expects to confirm the details of collisions and certify updated data by the second quarter of each year. Therefore, the data for 2017 would be available by the second quarter of 2018, etc. This new data should be incorporated into this LRSP and the 5-year study period updated. Future updates to this document could include a comparison to the previous 5-year period and note any significant changes in the data.

Other updates in policy and procedures, such as updates to WSDOT or Kenmore's Target Zero plans, Kenmore's Complete Streets plan and City Council goals should be incorporated into this LRSP.

It is expected that this LRSP will guide the implementation of projects to address safety concerns. At each future update, the list of projects should be updated to remove those that have been completed. Any projects which address priorities that are changed and/or removed because of a new 5-year data period should be removed. The cost estimates for projects should be updated to reflect increases in construction costs. Other capital projects completed in the City or other City improvements addressing citizen concerns or smaller scope concerns may also address safety concerns and allow removal of a proposed project from this LRSP.

SUMMARY

This Local Road Safety Plan was developed to provide the City of Kenmore with a guide on the most effective projects and countermeasures to address the specific risk factors for collisions in the City. A data-centric approach was used to identify the most cited contributing circumstances to collisions, especially those resulting in a serious injury or fatality.

Kenmore's priorities continue to be pedestrian and bicycle safety. City-wide improvements to address active transportation modes and ensuring active transportation is available to those of all ages and abilities is a significant contributor to addressing this risk factor. Addressing other risk factors, such as addressing horizontal curves, lighting and driver distraction will help to achieve the goals of this plan to reduce certain types of collisions by 10-30%.

This plan should be updated biennially to check the progress towards the LRSP goals, the effectiveness of countermeasures, and to update the data and identify any new risk factors or any that are a lesser priority.

APPENDIX A

City of Kenmore Collision Data
All type, factor and contributing circumstance data

Provided by Washington State Department of Transportation

December 2017

Crash Data Summary for Period January 1, 2012 - December 31, 2016 for City of Kenmore

Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
Overall Crash Numbers												
Total # of crashes	18		3,875		4,746		659		226,656		283,887	
# of Fatal crashes	4	*22.2%*	507	*13.1%*	647	*13.6%*	4	*0.6%*	507	*0.2%*	647	*0.2%*
# of Serious Injury crashes	14	*77.8%*	3,368	*86.9%*	4,099	*86.4%*	14	*2.1%*	3,368	*1.5%*	4,099	*1.4%*
Total # of fatalities	4		538		682		4		538		682	
Total # of serious injuries	14		3,764		4,584		14		3,764		4,584	
# of Drinking/Drug-Related crashes	2	*11.1%*	547	*14.1%*	694	*14.6%*	30	*4.6%*	10,000	*4.4%*	13,080	*4.6%*
By Primary Collision Type												
Hit Pedalcyclist	5	*27.8%*	399	*10.3%*	477	*10.1%*	18	*2.7%*	4,963	*2.2%*	5,931	*2.1%*
Hit Pedestrian	5	*27.8%*	1,088	*28.1%*	1,310	*27.6%*	20	*3.0%*	6,528	*2.9%*	7,939	*2.8%*
Head On	2	*11.1%*	124	*3.2%*	144	*3.0%*	5	*0.8%*	1,066	*0.5%*	1,290	*0.5%*
Hit Fixed Object	2	*11.1%*	661	*17.1%*	830	*17.5%*	127	*19.3%*	24,023	*10.6%*	30,366	*10.7%*
Angle (Left Turn)	1	*5.6%*	351	*9.1%*	417	*8.8%*	38	*5.8%*	19,617	*8.7%*	24,498	*8.6%*
Angle (T)	1	*5.6%*	543	*14.0%*	721	*15.2%*	111	*16.8%*	51,848	*22.9%*	68,322	*24.1%*
Overturn	1	*5.6%*	158	*4.1%*	204	*4.3%*	6	*0.9%*	1,454	*0.6%*	1,908	*0.7%*
Hit Parked Vehicle	0	*0.0%*	76	*2.0%*	93	*2.0%*	69	*10.5%*	21,689	*9.6%*	27,186	*9.6%*
Rearend	0	*0.0%*	212	*5.5%*	257	*5.4%*	195	*29.6%*	60,371	*26.6%*	74,029	*26.1%*
Sideswipe (Opposite Direction)	0	*0.0%*	39	*1.0%*	43	*0.9%*	6	*0.9%*	1,324	*0.6%*	1,569	*0.6%*
Sideswipe (Same Direction)	0	*0.0%*	100	*2.6%*	109	*2.3%*	39	*5.9%*	24,215	*10.7%*	29,062	*10.2%*
Animal/Wildlife	0	*0.0%*	2	*0.1%*	3	*0.1%*	1	*0.2%*	350	*0.2%*	497	*0.2%*
Other/Not stated	1	*5.6%*	115	*3.0%*	130	*2.7%*	24	*3.6%*	9,111	*4.0%*	11,178	*3.9%*
By Junction Relationship (can be double counted depending on crash circumstances)												
Intersection-Related	9	*50.0%*	1,971	*50.9%*	2,426	*51.1%*	286	*43.4%*	121,507	*53.6%*	154,646	*54.5%*
Non-Intersection	8	*44.4%*	1,597	*41.2%*	1,947	*41.0%*	299	*45.4%*	80,039	*35.3%*	97,948	*34.5%*
Driveway-Related	1	*5.6%*	307	*7.9%*	373	*7.9%*	74	*11.2%*	25,110	*11.1%*	31,293	*11.0%*

Some data for contributing circumstances which do not apply to Kenmore has been hidden. As a result, some statewide totals may not equal 100%

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	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
By Driver Contributing Circumstances												
Inattention / Distraction	7	*28.0%*	925	*13.7%*	1,116	*13.5%*	240	*19.0%*	86,206	*18.7%*	103,910	*18.0%*
Failing to Yield to Pedestrian	4	*16.0%*	369	*5.5%*	444	*5.4%*	13	*1.0%*	3,724	*0.8%*	4,466	*0.8%*
Exceeding Safe / Stated Speed	3	*12.0%*	740	*11.0%*	923	*11.1%*	71	*5.6%*	21,479	*4.7%*	25,828	*4.5%*
Under Influence of Alcohol / Drugs	2	*8.0%*	561	*8.3%*	714	*8.6%*	31	*2.5%*	10,881	*2.4%*	14,185	*2.5%*
Failing to Yield	1	*4.0%*	512	*7.6%*	649	*7.8%*	113	*9.0%*	48,848	*10.6%*	62,407	*10.8%*
On Wrong Side of Road	1	*4.0%*	24	*0.4%*	32	*0.4%*	2	*0.2%*	383	*0.1%*	533	*0.1%*
Apparently Asleep	0	*0.0%*	38	*0.6%*	45	*0.5%*	12	*1.0%*	1,714	*0.4%*	2,152	*0.4%*
Apparently Fatigued	0	*0.0%*	4	*0.1%*	6	*0.1%*	5	*0.4%*	729	*0.2%*	917	*0.2%*
Apparently Ill	0	*0.0%*	57	*0.8%*	68	*0.8%*	4	*0.3%*	1,046	*0.2%*	1,301	*0.2%*
Disregard Flagger / Officer	0	*0.0%*	1	*0.0%*	2	*0.0%*	0	*0.0%*	56	*0.0%*	68	*0.0%*
Disregard Signal	0	*0.0%*	170	*2.5%*	210	*2.5%*	11	*0.9%*	8,473	*1.8%*	11,275	*2.0%*
Disregard Stop Sign	0	*0.0%*	83	*1.2%*	116	*1.4%*	8	*0.6%*	3,778	*0.8%*	5,450	*0.9%*
Disregard Yield Sign	0	*0.0%*	9	*0.1%*	10	*0.1%*	0	*0.0%*	447	*0.1%*	520	*0.1%*
Failing to Signal	0	*0.0%*	1	*0.0%*	1	*0.0%*	1	*0.1%*	233	*0.1%*	297	*0.1%*
Following Too Close	0	*0.0%*	79	*1.2%*	98	*1.2%*	77	*6.1%*	24,548	*5.3%*	33,879	*5.9%*
Headlight Violation	0	*0.0%*	10	*0.1%*	13	*0.2%*	0	*0.0%*	179	*0.0%*	213	*0.0%*
Improper Backing	0	*0.0%*	7	*0.1%*	10	*0.1%*	15	*1.2%*	4,688	*1.0%*	6,356	*1.1%*
Improper Parking Location	0	*0.0%*	2	*0.0%*	2	*0.0%*	1	*0.1%*	308	*0.1%*	405	*0.1%*
Improper Passing	0	*0.0%*	63	*0.9%*	69	*0.8%*	7	*0.6%*	2,280	*0.5%*	2,641	*0.5%*
Improper Signal	0	*0.0%*	2	*0.0%*	2	*0.0%*	1	*0.1%*	170	*0.0%*	214	*0.0%*
Improper Turn	0	*0.0%*	104	*1.5%*	116	*1.4%*	12	*1.0%*	10,130	*2.2%*	12,524	*2.2%*
Improper U-Turn	0	*0.0%*	21	*0.3%*	21	*0.3%*	8	*0.6%*	1,929	*0.4%*	2,166	*0.4%*
Operating Defective Equipment	0	*0.0%*	65	*1.0%*	78	*0.9%*	20	*1.6%*	3,834	*0.8%*	4,860	*0.8%*
Over Centerline	0	*0.0%*	180	*2.7%*	221	*2.7%*	9	*0.7%*	3,470	*0.8%*	4,442	*0.8%*
Other	0	*0.0%*	555	*8.2%*	680	*8.2%*	102	*8.1%*	37,287	*8.1%*	44,818	*7.8%*
None	7	*28.0%*	2,148	*31.9%*	2,634	*31.8%*	498	*39.5%*	183,070	*39.8%*	230,555	*40.0%*

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	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
By Roadway Curvature (can be double counted when there is both a horizontal and a vertical curve)												
Straight & Grade	7	*38.9%*	779	*20.0%*	887	*18.6%*	201	*30.5%*	41,699	*18.3%*	48,319	*17.0%*
Straight & Level	7	*38.9%*	2,304	*59.1%*	2,901	*60.8%*	327	*49.5%*	145,410	*63.9%*	187,840	*66.0%*
Horizontal Curve	4	*22.2%*	569	*14.6%*	676	*14.2%*	109	*16.5%*	19,102	*8.4%*	22,743	*8.0%*
Vertical Curve	0	*0.0%*	97	*2.5%*	119	*2.5%*	11	*1.7%*	4,490	*2.0%*	5,209	*1.8%*
Unknown/Not stated	0	*0.0%*	150	*3.8%*	191	*4.0%*	12	*1.8%*	16,715	*7.3%*	20,663	*7.3%*
By Posted Speed Per Driver												
20 MPH	0	*0.0%*	37	*0.8%*	47	*0.8%*	1	*0.1%*	3,040	*0.9%*	4,310	*1.0%*
25 MPH	11	*61.1%*	1,058	*21.7%*	1,324	*22.2%*	251	*25.3%*	85,393	*24.5%*	109,506	*25.0%*
30 MPH	0	*0.0%*	1,251	*25.7%*	1,643	*27.5%*	37	*3.7%*	90,569	*26.0%*	122,535	*28.0%*
35 MPH	7	*38.9%*	1,907	*39.1%*	2,221	*37.2%*	686	*69.2%*	133,104	*38.2%*	160,188	*36.6%*
40 MPH	0	*0.0%*	391	*8.0%*	435	*7.3%*	16	*1.6%*	21,819	*6.3%*	24,517	*5.6%*
By Light Condition												
Daylight	14	*77.8%*	2,128	*54.9%*	2,612	*55.0%*	453	*68.7%*	152,578	*67.3%*	193,054	*68.0%*
Dark - Street Lights On	4	*22.2%*	1,374	*35.5%*	1,641	*34.6%*	125	*19.0%*	53,886	*23.8%*	65,867	*23.2%*
Dark - No Street Lights	0	*0.0%*	141	*3.6%*	211	*4.4%*	36	*5.5%*	4,885	*2.2%*	6,584	*2.3%*
Dark - Street Lights Off	0	*0.0%*	42	*1.1%*	50	*1.1%*	6	*0.9%*	1,186	*0.5%*	1,552	*0.5%*
Dawn	0	*0.0%*	39	*1.0%*	42	*0.9%*	16	*2.4%*	2,870	*1.3%*	3,490	*1.2%*
Dusk	0	*0.0%*	122	*3.1%*	156	*3.3%*	11	*1.7%*	6,212	*2.7%*	7,686	*2.7%*
Other	0	*0.0%*	5	*0.1%*	5	*0.1%*	1	*0.2%*	141	*0.1%*	174	*0.1%*
Unknown/Not stated	0	*0.0%*	24	*0.6%*	29	*0.6%*	11	*1.7%*	4,898	*2.2%*	5,480	*1.9%*

Some data for contributing circumstances which do not apply to Kenmore has been hidden. As a result, some statewide totals may not equal 100%

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	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
By Fixed Object (First Object Struck)												
Fallen Tree / Stump (Stationary)	1	*50.0%*	142	*21.5%*	168	*20.2%*	21	*16.5%*	3,571	*14.9%*	4,182	*13.8%*
Guide Post	1	*50.0%*	1	*0.2%*	1	*0.1%*	1	*0.8%*	36	*0.1%*	49	*0.2%*
Bridge Rail	0	*0.0%*	14	*2.1%*	17	*2.0%*	1	*0.8%*	440	*1.8%*	494	*1.6%*
Building	0	*0.0%*	13	*2.0%*	19	*2.3%*	2	*1.6%*	772	*3.2%*	1,042	*3.4%*
Concrete Barrier	0	*0.0%*	21	*3.2%*	24	*2.9%*	1	*0.8%*	610	*2.5%*	730	*2.4%*
Culvert or Other Item in Ditch	0	*0.0%*	6	*0.9%*	6	*0.7%*	0	*0.0%*	100	*0.4%*	114	*0.4%*
Curb / Raised Traffic Island	0	*0.0%*	84	*12.7%*	104	*12.5%*	2	*1.6%*	2,173	*9.0%*	2,677	*8.8%*
Earth Bank or Ledge	0	*0.0%*	15	*2.3%*	22	*2.7%*	3	*2.4%*	475	*2.0%*	581	*1.9%*
Fallen Rock / Boulder (Stationary)	0	*0.0%*	6	*0.9%*	7	*0.8%*	3	*2.4%*	314	*1.3%*	430	*1.4%*
Falling Tree	0	*0.0%*	1	*0.2%*	1	*0.1%*	2	*1.6%*	51	*0.2%*	54	*0.2%*
Fence	0	*0.0%*	38	*5.7%*	53	*6.4%*	17	*13.4%*	2,396	*10.0%*	3,443	*11.3%*
Fire Hydrant	0	*0.0%*	5	*0.8%*	10	*1.2%*	4	*3.1%*	553	*2.3%*	729	*2.4%*
Guardrail	0	*0.0%*	20	*3.0%*	24	*2.9%*	7	*5.5%*	806	*3.4%*	927	*3.1%*
Mail Box	0	*0.0%*	14	*2.1%*	19	*2.3%*	14	*11.0%*	793	*3.3%*	923	*3.0%*
Metal Sign Post	0	*0.0%*	12	*1.8%*	18	*2.2%*	2	*1.6%*	1,106	*4.6%*	1,468	*4.8%*
Ran Into River / Lake / Swamp / Etc.	0	*0.0%*	0	*0.0%*	1	*0.1%*	1	*0.8%*	44	*0.2%*	61	*0.2%*
Ran Over Embankment (No guardrail present)	0	*0.0%*	19	*2.9%*	23	*2.8%*	2	*1.6%*	426	*1.8%*	503	*1.7%*
Retaining Wall	0	*0.0%*	35	*5.3%*	42	*5.1%*	2	*1.6%*	903	*3.8%*	1,128	*3.7%*
Roadway Ditch	0	*0.0%*	18	*2.7%*	20	*2.4%*	5	*3.9%*	1,069	*4.4%*	1,173	*3.9%*
Snow Bank	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*	2	*0.0%*	27	*0.1%*
Street Light Pole or Base	0	*0.0%*	36	*5.4%*	41	*4.9%*	2	*1.6%*	1,681	*7.0%*	2,119	*7.0%*
Traffic Signal Pole	0	*0.0%*	21	*3.2%*	22	*2.7%*	1	*0.8%*	445	*1.9%*	603	*2.0%*
Utility Box	0	*0.0%*	7	*1.1%*	10	*1.2%*	0	*0.0%*	253	*1.1%*	347	*1.1%*
Utility Pole	0	*0.0%*	88	*13.3%*	113	*13.6%*	22	*17.3%*	2,298	*9.6%*	3,044	*10.0%*
Wood Sign Post	0	*0.0%*	14	*2.1%*	16	*1.9%*	7	*5.5%*	957	*4.0%*	1,192	*3.9%*
Other Objects or Debris	0	*0.0%*	25	*3.8%*	35	*4.2%*	5	*3.9%*	1,275	*5.3%*	1,637	*5.4%*
Not Stated	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*	40	*0.2%*	48	*0.2%*

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	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
By Roadway Surface Type												
Asphalt concrete	19	*90.5%*	4544	*81.9%*	5715	*84.1%*	897	*80.2%*	343575	*82.7%*	440862	*85.0%*
Portland Cement Concrete	2	*9.5%*	915	*16.5%*	965	*14.2%*	198	*17.7%*	63909	*15.4%*	68429	*13.2%*
Brick/Wood Block	0	*0.0%*	6	*0.1%*	7	*0.1%*	3	*0.3%*	465	*0.1%*	565	*0.1%*
Dirt	0	*0.0%*	3	*0.1%*	9	*0.1%*	6	*0.5%*	237	*0.1%*	420	*0.1%*
Gravel	0	*0.0%*	10	*0.2%*	20	*0.3%*	4	*0.4%*	697	*0.2%*	1089	*0.2%*
Other	0	*0.0%*	20	*0.4%*	26	*0.4%*	2	*0.2%*	662	*0.2%*	962	*0.2%*
Unknown/Not stated	0	*0.0%*	48	*0.9%*	51	*0.8%*	9	*0.8%*	5972	*1.4%*	6581	*1.3%*
By Weather												
Clear/Partly Cloudy	13	*72.2%*	2,508	*64.7%*	3,236	*68.2%*	479	*72.7%*	138,640	*61.2%*	184,316	*64.9%*
Overcast	3	*16.7%*	632	*16.3%*	710	*15.0%*	63	*9.6%*	33,461	*14.8%*	38,496	*13.6%*
Raining	2	*11.1%*	666	*17.2%*	711	*15.0%*	88	*13.4%*	46,189	*20.4%*	49,817	*17.5%*
Blowing Sand/Dirt/Snow	0	*0.0%*	3	*0.1%*	4	*0.1%*	1	*0.2%*	85	*0.0%*	205	*0.1%*
Fog/Smog/Smoke	0	*0.0%*	32	*0.8%*	36	*0.8%*	6	*0.9%*	1,720	*0.8%*	2,201	*0.8%*
Sleet/Hail/Freezing Rain	0	*0.0%*	2	*0.1%*	5	*0.1%*	1	*0.2%*	153	*0.1%*	327	*0.1%*
Snowing	0	*0.0%*	6	*0.2%*	15	*0.3%*	5	*0.8%*	989	*0.4%*	2,562	*0.9%*
Other	0	*0.0%*	5	*0.1%*	6	*0.1%*	2	*0.3%*	352	*0.2%*	439	*0.2%*
Unknown/Not stated	0	*0.0%*	20	*0.5%*	21	*0.4%*	14	*2.1%*	4,989	*2.2%*	5,414	*1.9%*
By Roadway Surface Condition												
Dry	15	*83.3%*	2,774	*71.6%*	3,516	*74.1%*	473	*71.8%*	149,285	*65.9%*	195,096	*68.7%*
Wet	3	*16.7%*	1,032	*26.6%*	1,130	*23.8%*	157	*23.8%*	68,791	*30.4%*	75,328	*26.5%*
Ice	0	*0.0%*	25	*0.6%*	36	*0.8%*	10	*1.5%*	1,855	*0.8%*	4,066	*1.4%*
Oil	0	*0.0%*	2	*0.1%*	2	*0.0%*	0	*0.0%*	40	*0.0%*	46	*0.0%*
Sand/Mud/Dirt	0	*0.0%*	1	*0.0%*	4	*0.1%*	1	*0.2%*	92	*0.0%*	177	*0.1%*
Standing Water	0	*0.0%*	6	*0.2%*	8	*0.2%*	0	*0.0%*	308	*0.1%*	337	*0.1%*
Snow / Slush	0	*0.0%*	10	*0.3%*	19	*0.4%*	6	*0.9%*	1,082	*0.5%*	3,187	*1.1%*
Other	0	*0.0%*	8	*0.2%*	13	*0.3%*	0	*0.0%*	174	*0.1%*	269	*0.1%*
Unknown/Not stated	0	*0.0%*	17	*0.4%*	18	*0.4%*	12	*1.8%*	5,029	*2.2%*	5,381	*1.9%*

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	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
By Vehicle Type												
Light Truck / SUV	8	*38.1%*	1,954	*34.8%*	2,446	*35.6%*	471	*40.8%*	163,051	*38.6%*	210,846	*39.8%*
Passenger Car	8	*38.1%*	2,723	*48.4%*	3,272	*47.6%*	638	*55.2%*	240,925	*57.0%*	296,419	*55.9%*
Motorcycle	4	*19.0%*	635	*11.3%*	804	*11.7%*	13	*1.1%*	4,023	*1.0%*	5,103	*1.0%*
Heavy Truck	1	*4.8%*	128	*2.3%*	148	*2.2%*	27	*2.3%*	9,749	*2.3%*	11,830	*2.2%*
School Bus	0	*0.0%*	13	*0.2%*	14	*0.2%*	3	*0.3%*	821	*0.2%*	1,106	*0.2%*
Other/Not Stated	0	*0.0%*	111	*2.0%*	129	*1.9%*	3	*0.3%*	1,765	*0.4%*	2,074	*0.4%*
By Facility Use (Pedestrians)												
Marked Crosswalk	3	*60.0%*	475	*38.5%*	546	*17.6%*	12	*54.5%*	3,555	*49.5%*	4,193	*47.9%*
Roadway	1	*20.0%*	480	*38.9%*	594	*55.4%*	4	*18.2%*	1,842	*25.6%*	2,317	*26.5%*
Shoulder	1	*20.0%*	39	*3.2%*	47	*3.5%*	2	*9.1%*	200	*2.8%*	232	*2.6%*
Designated Bike Route	0	*0.0%*	4	*0.3%*	4	*0.1%*	0	*0.0%*	13	*0.2%*	17	*0.2%*
Sidewalk	0	*0.0%*	67	*5.4%*	80	*4.9%*	0	*0.0%*	509	*7.1%*	601	*6.9%*
Unmarked Crosswalk	0	*0.0%*	101	*8.2%*	134	*12.0%*	4	*18.2%*	769	*10.7%*	1,014	*11.6%*
Walkway	0	*0.0%*	4	*0.3%*	4	*0.3%*	0	*0.0%*	51	*0.7%*	54	*0.6%*
Other	0	*0.0%*	64	*5.2%*	81	*6.1%*	0	*0.0%*	249	*3.5%*	330	*3.8%*
By Pedestrian Contributing Circumstances (Pedestrians include those on foot, skateboard, rollerblades, etc. but do not include those on a bicycle, tricycle, unicycle, etc.)												
Inattention / Distraction	2	*33.3%*	144	*10.8%*	184	*11.5%*	5	*21.7%*	769	*10.5%*	969	*10.8%*
Failing to Yield	1	*16.7%*	196	*14.7%*	250	*15.6%*	2	*8.7%*	718	*9.8%*	945	*10.5%*
Disregard Signal	0	*0.0%*	43	*3.2%*	43	*2.7%*	0	*0.0%*	156	*2.1%*	181	*2.0%*
Disregard Stop Sign	0	*0.0%*	7	*0.5%*	8	*0.5%*	0	*0.0%*	30	*0.4%*	34	*0.4%*
Failing to Yield to Ped / Cyclist	0	*0.0%*	8	*0.6%*	10	*0.6%*	0	*0.0%*	22	*0.3%*	32	*0.4%*
Failure to Use Crosswalk	0	*0.0%*	100	*7.5%*	109	*6.8%*	1	*4.3%*	323	*4.4%*	366	*4.1%*
On Wrong Side of Road	0	*0.0%*	5	*0.4%*	6	*0.4%*	1	*4.3%*	24	*0.3%*	30	*0.3%*
Under Influence of Alcohol / Drugs	0	*0.0%*	77	*5.8%*	97	*6.0%*	0	*0.0%*	261	*3.6%*	336	*3.7%*
Other	0	*0.0%*	210	*15.7%*	241	*15.0%*	1	*4.3%*	879	*12.0%*	1,046	*11.6%*
None	3	*50.0%*	535	*40.0%*	644	*40.1%*	13	*56.5%*	4,090	*55.7%*	4,968	*55.3%*

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	Fatal and Serious Injury Crashes						All Crashes					
	Kenmore Streets		All Western WA City Streets		All Washington City Streets		Kenmore Streets		All Western WA City Streets		All Washington City Streets	
By Facility Use (Pedalcyclists)												
Roadway	2	*40.0%*	211	*52.1%*	259	*53.4%*	8	*40.0%*	2,028	*40.3%*	2,446	*40.6%*
Designated Bike Route	1	*20.0%*	75	*18.5%*	80	*16.5%*	3	*15.0%*	907	*18.0%*	952	*15.8%*
Marked Crosswalk	1	*20.0%*	34	*8.4%*	41	*8.5%*	2	*10.0%*	812	*16.1%*	1,008	*16.7%*
Shoulder	1	*20.0%*	28	*6.9%*	32	*6.6%*	7	*35.0%*	273	*5.4%*	317	*5.3%*
Sidewalk	0	*0.0%*	24	*5.9%*	35	*7.2%*	0	*0.0%*	536	*10.6%*	690	*11.5%*
Unmarked Crosswalk	0	*0.0%*	22	*5.4%*	25	*5.2%*	0	*0.0%*	360	*7.2%*	453	*7.5%*
Walkway	0	*0.0%*	1	*0.2%*	1	*0.2%*	0	*0.0%*	24	*0.5%*	29	*0.5%*
Other	0	*0.0%*	10	*2.5%*	12	*2.5%*	0	*0.0%*	93	*1.8%*	124	*2.1%*
By Pedalcyclist Contributing Circumstances (Pedalcyclists include bicycle, tricycle, unicycle, etc.)												
Disregard Stop Sign	1	*20.0%*	21	*4.6%*	24	*4.4%*	1	*4.8%*	101	*1.9%*	130	*2.0%*
Disregard Flagger / Officer	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*	2	*0.0%*	4	*0.1%*
Disregard Signal	0	*0.0%*	24	*5.2%*	25	*4.5%*	2	*9.5%*	152	*2.8%*	195	*3.0%*
Disregard Yield Sign / Flashing Yellow Beacon	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*	3	*0.1%*	3	*0.0%*
Exceeding Safe / Stated Speed	0	*0.0%*	19	*4.1%*	23	*4.2%*	0	*0.0%*	159	*2.9%*	179	*2.8%*
Failing to Yield to Ped / Cyclist	0	*0.0%*	1	*0.2%*	2	*0.4%*	0	*0.0%*	17	*0.3%*	20	*0.3%*
Failure to Use Crosswalk	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*	0	*0.0%*
Following Too Close	0	*0.0%*	1	*0.2%*	1	*0.2%*	1	*4.8%*	31	*0.6%*	34	*0.5%*
Headlight Violation	0	*0.0%*	6	*1.3%*	13	*2.4%*	1	*4.8%*	78	*1.4%*	103	*1.6%*
Improper Passing	0	*0.0%*	3	*0.7%*	3	*0.5%*	2	*9.5%*	40	*0.7%*	46	*0.7%*
Inattention / Distraction	0	*0.0%*	69	*15.0%*	84	*15.2%*	2	*9.5%*	678	*12.6%*	834	*12.9%*
On Wrong Side of Road	0	*0.0%*	20	*4.3%*	23	*4.2%*	0	*0.0%*	209	*3.9%*	276	*4.3%*
Operating Defective Equipment	0	*0.0%*	9	*2.0%*	10	*1.8%*	0	*0.0%*	73	*1.4%*	98	*1.5%*
Under Influence of Alcohol / Drugs	0	*0.0%*	11	*2.4%*	12	*2.2%*	0	*0.0%*	66	*1.2%*	82	*1.3%*
Other	2	*40.0%*	53	*11.5%*	65	*11.8%*	5	*23.8%*	668	*12.4%*	788	*12.1%*
None	2	*40.0%*	160	*34.8%*	182	*33.0%*	7	*33.3%*	2,477	*45.9%*	2,851	*43.9%*

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APPENDIX B

City of Kenmore Collision Maps
Priority collision types and contributing circumstances
January 1, 2012 – December 31, 2016

Provided by Washington State Department of Transportation

December 2017

Pedestrian Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Ped collisions

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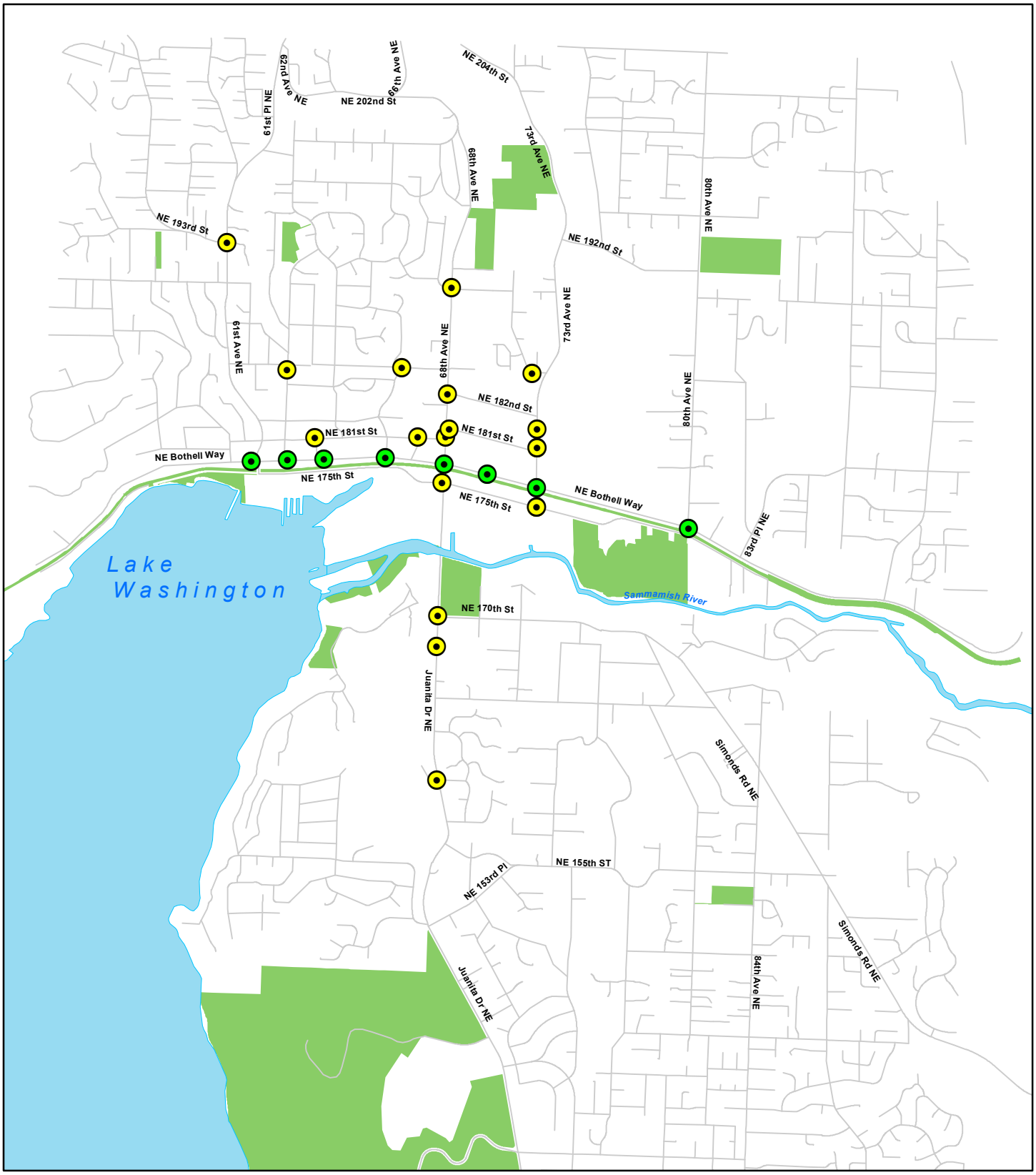
KENMORE BY THE LAKE



Pedestrian Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Ped collisions
- Ped collisions (SR 522)

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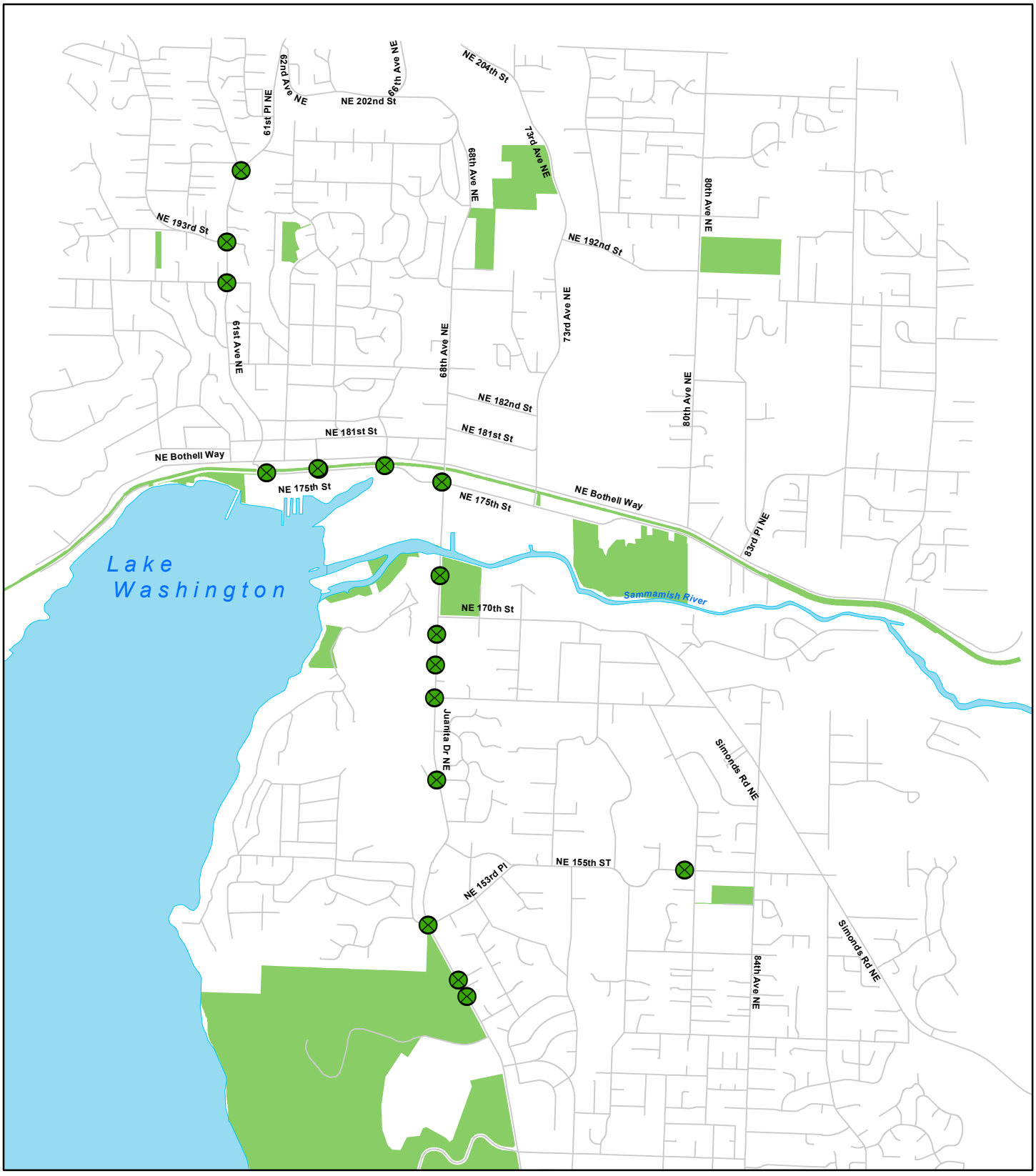
KENMORE BY THE LAKE



Bicycle Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Bike collisions

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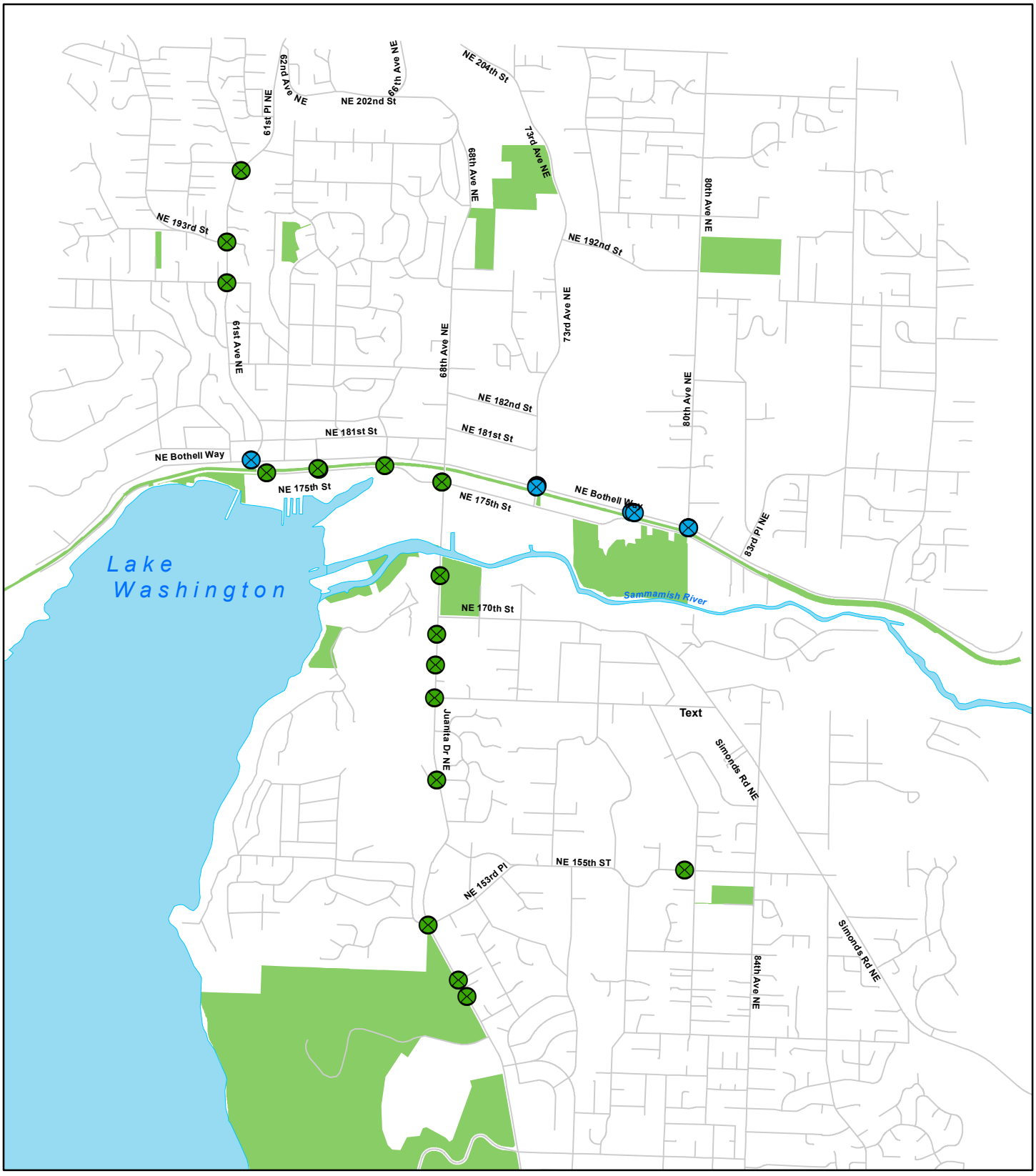
KENMORE
BY THE LAKE



Bicycle Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Bike Collisions
- Bike Collisions (SR 522)

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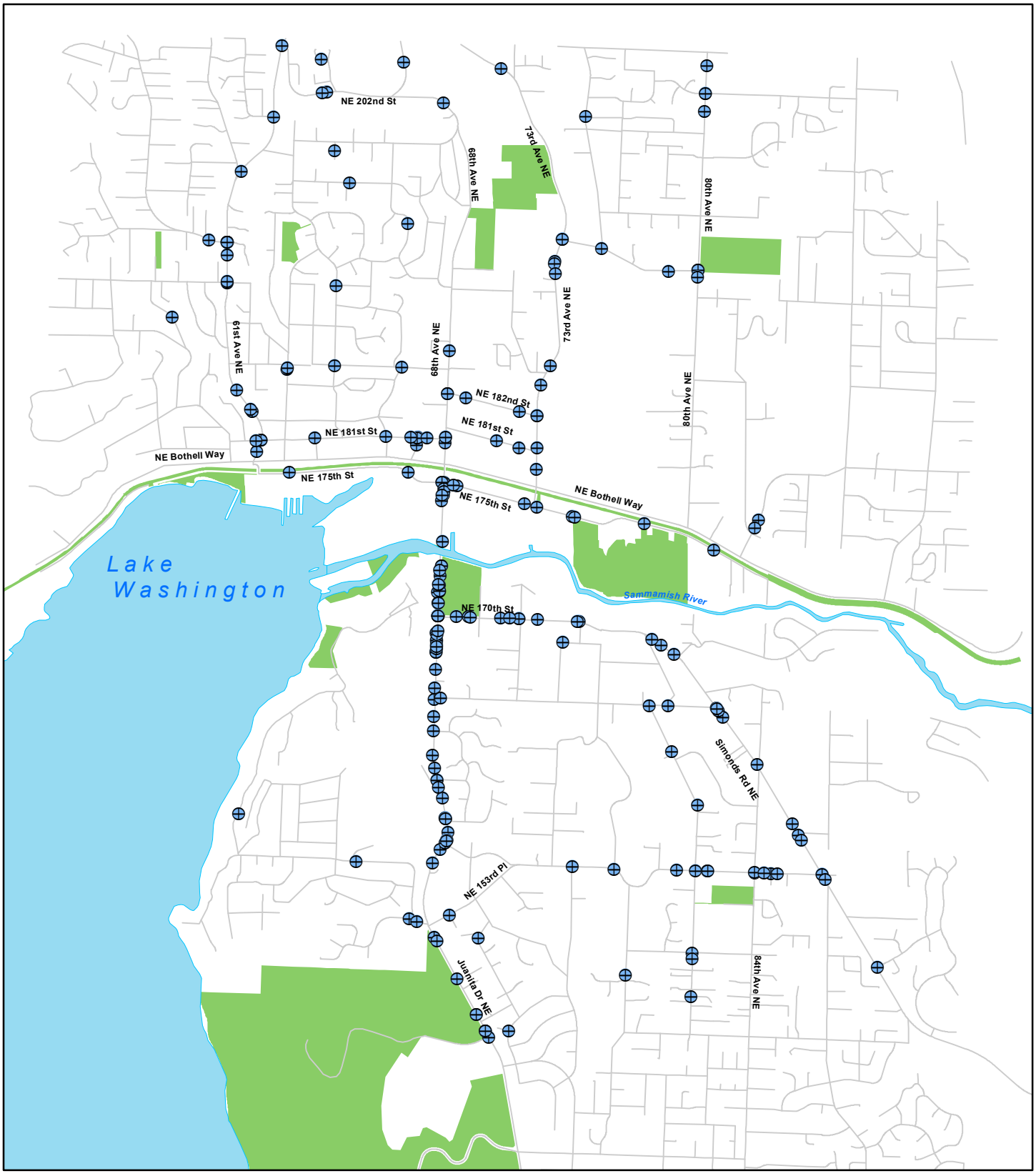
KENMORE BY THE LAKE



Driver Distraction Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

⊕ All distraction and inattention collisions

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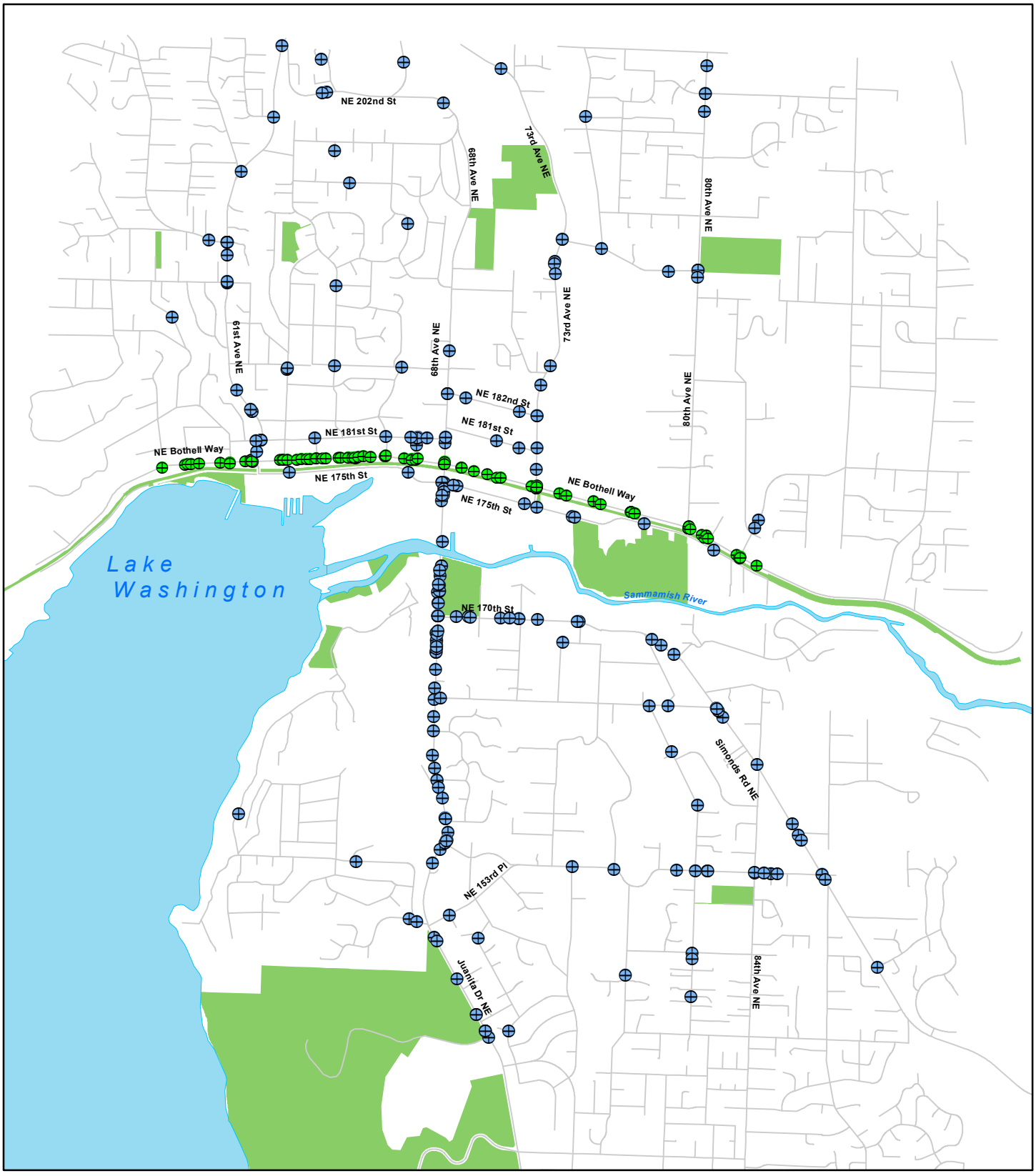
KENMORE BY THE LAKE



Driver Distraction Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.125 0.25 0.5 0.75 1 Miles

N

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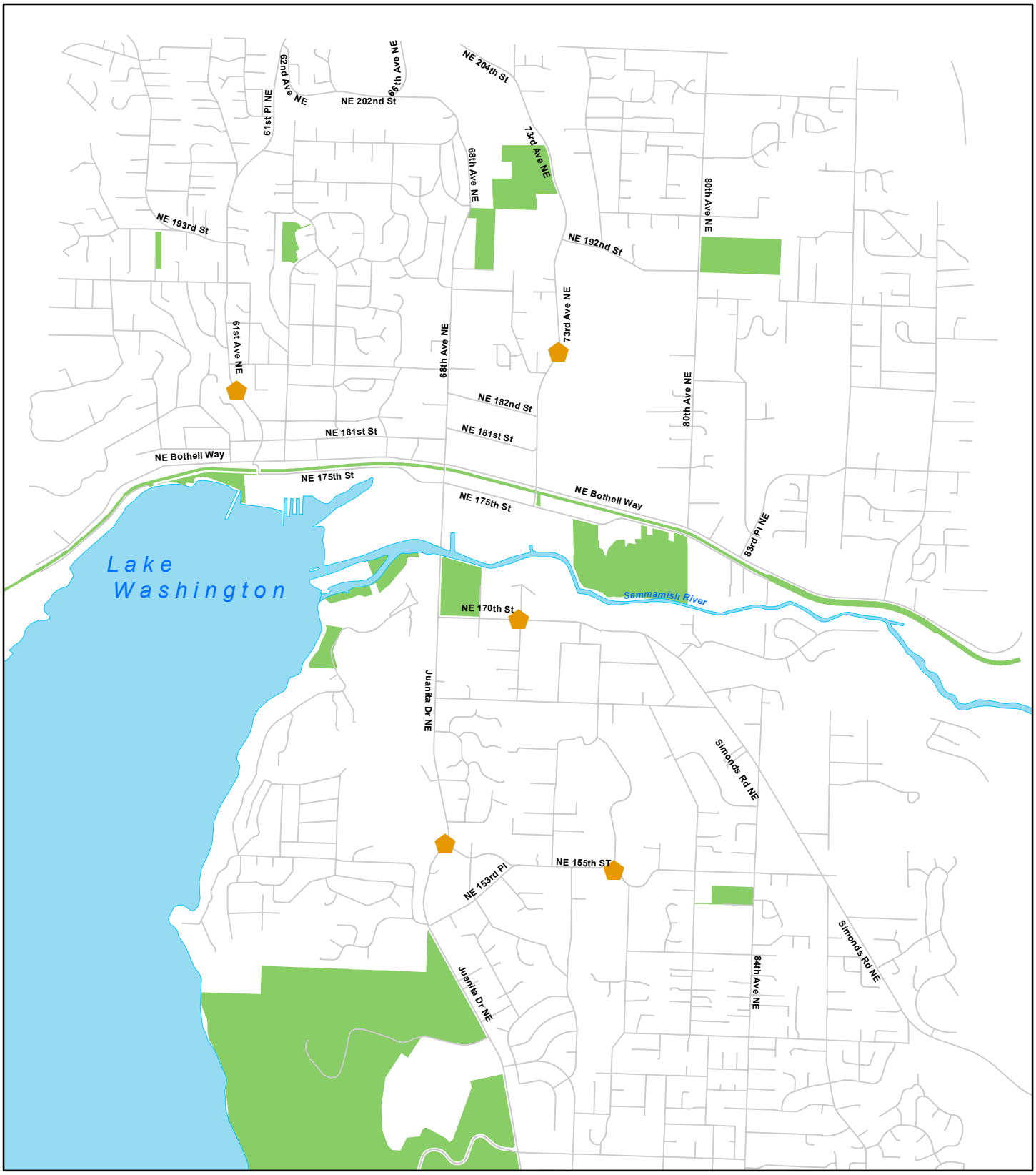
KENMORE BY THE LAKE

Legend

- All distraction and inattention collisions
- All distractions and inattention collisions (SR 522)



Head-on Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Head On collisions

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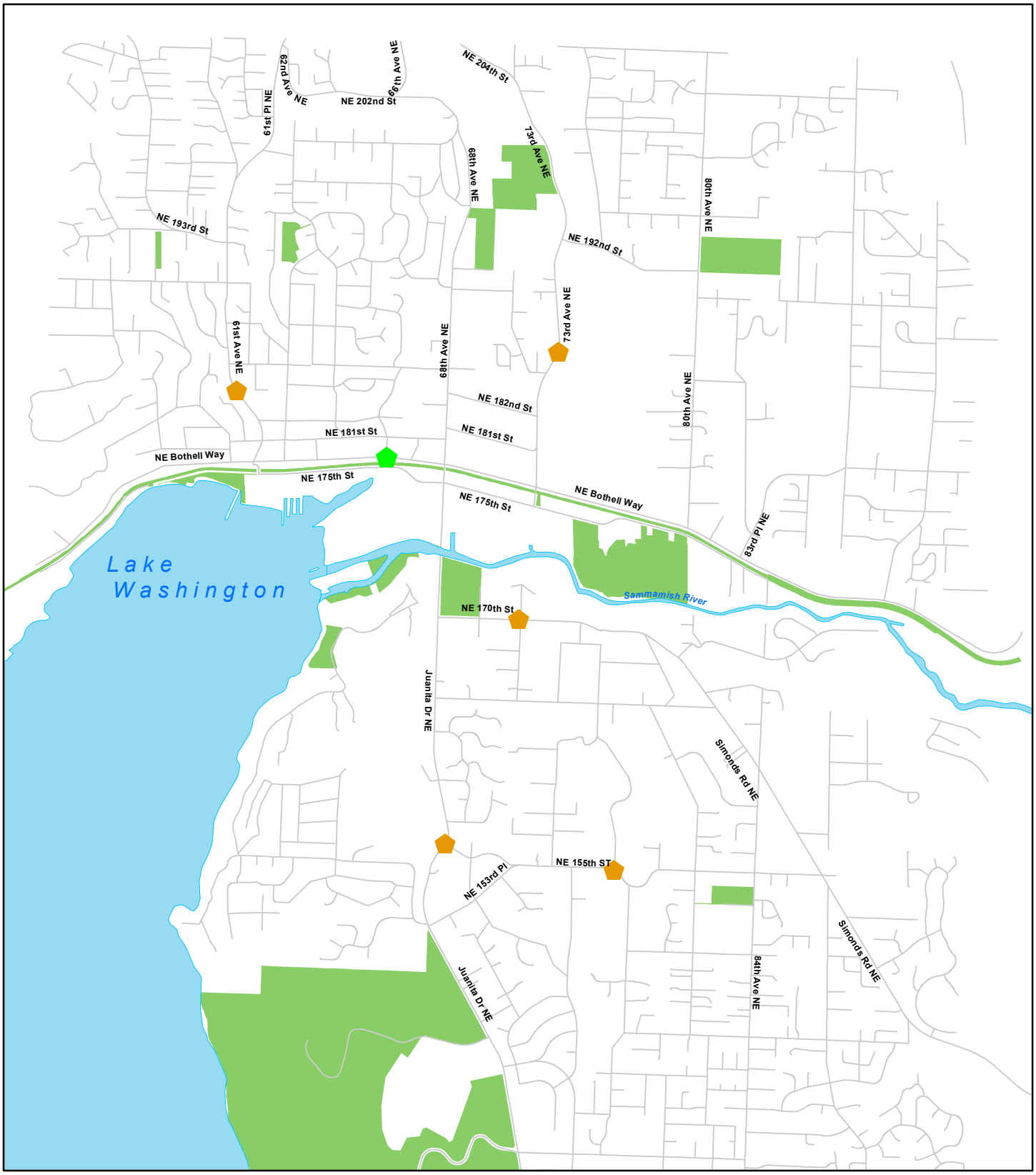
KENMORE
BY THE LAKE



Head-on Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Head On collisions
- Head On collisions (SR 522)

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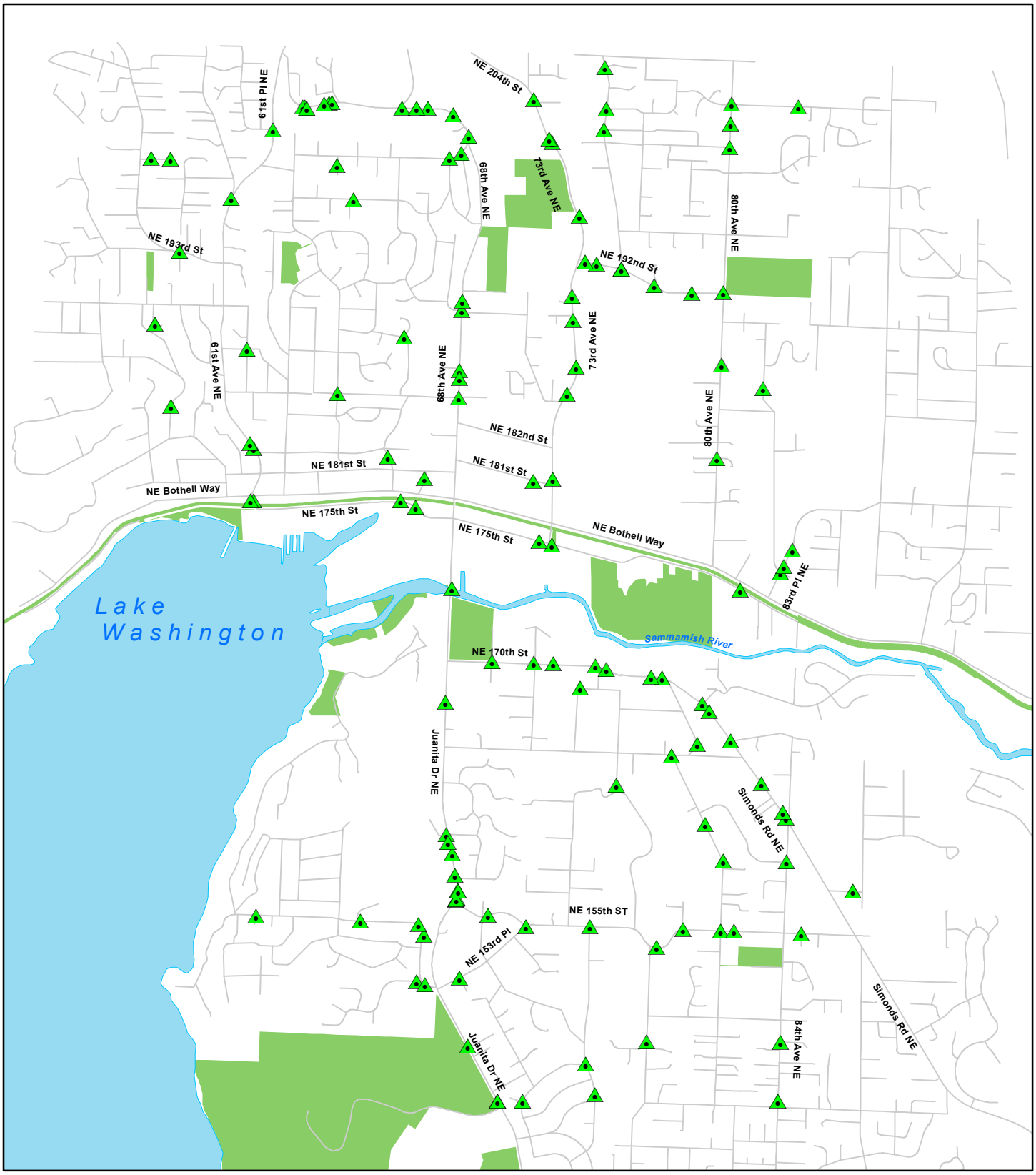
KENMORE BY THE LAKE



Fixed Object Collisions City of Kenmore, WA

0 0.1 0.2 0.4 0.6 0.8 Miles

N

Legend

- Fixed Object collisions

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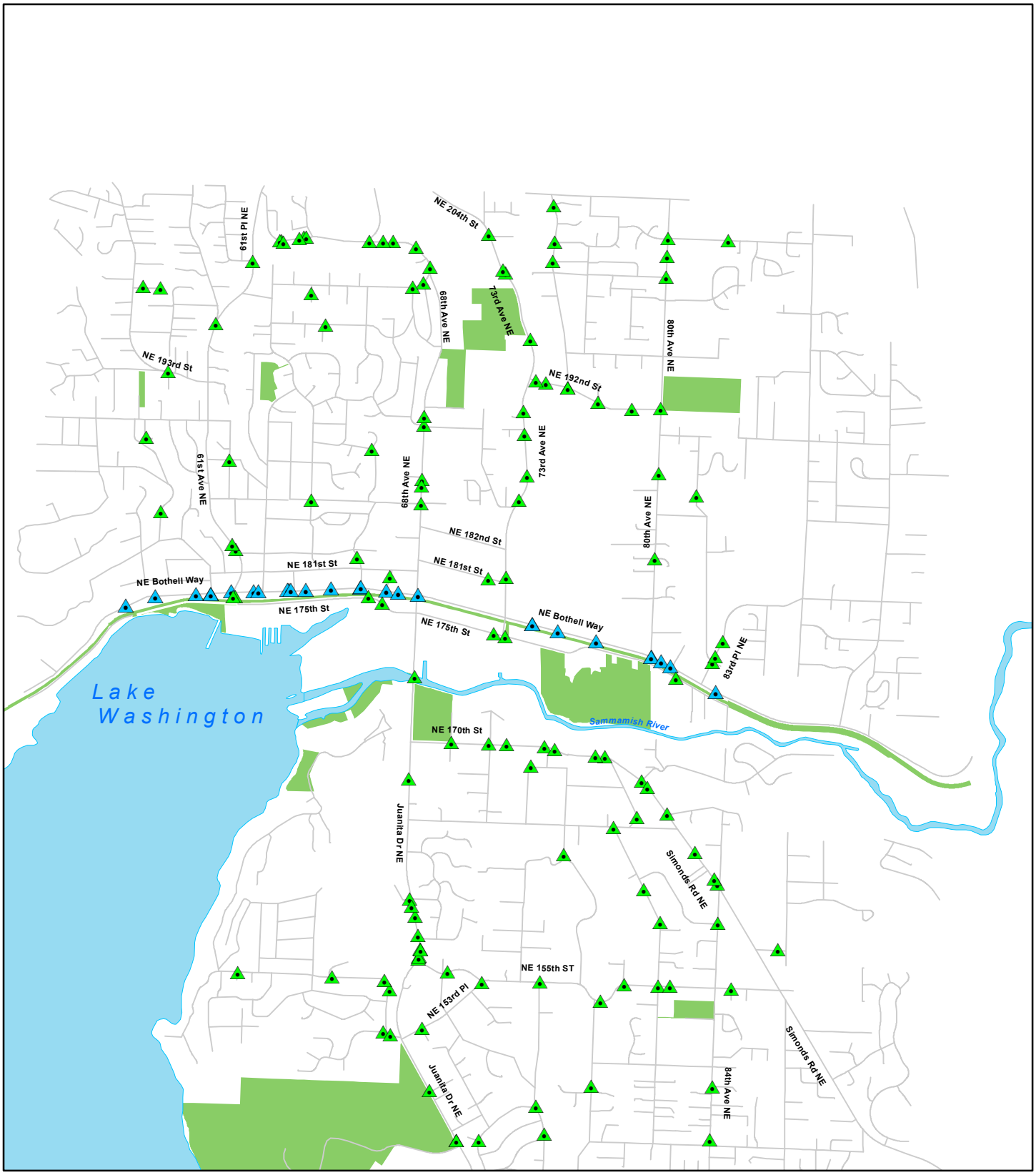

Fixed Object Collisions
City of Kenmore, WA
(Including SR 522 Data)

Legend

- Fixed Object collisions
- Fixed Object collisions (SR 522)

0 0.125 0.25 0.5 0.75 1 Miles

N

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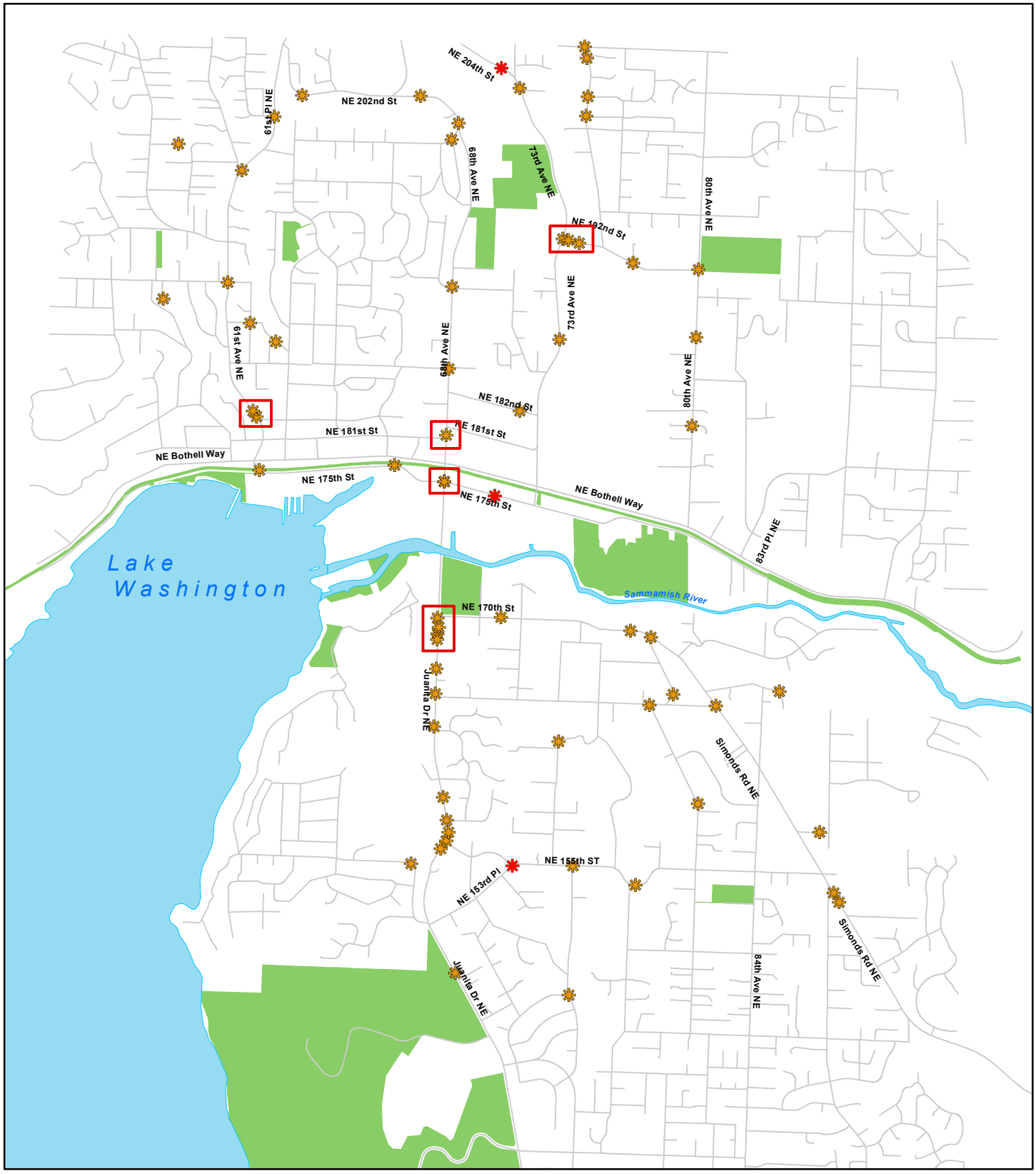
KENMORE BY THE LAKE



Safe Speed All Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Speed cited serious collisions
- Speed cited collisions

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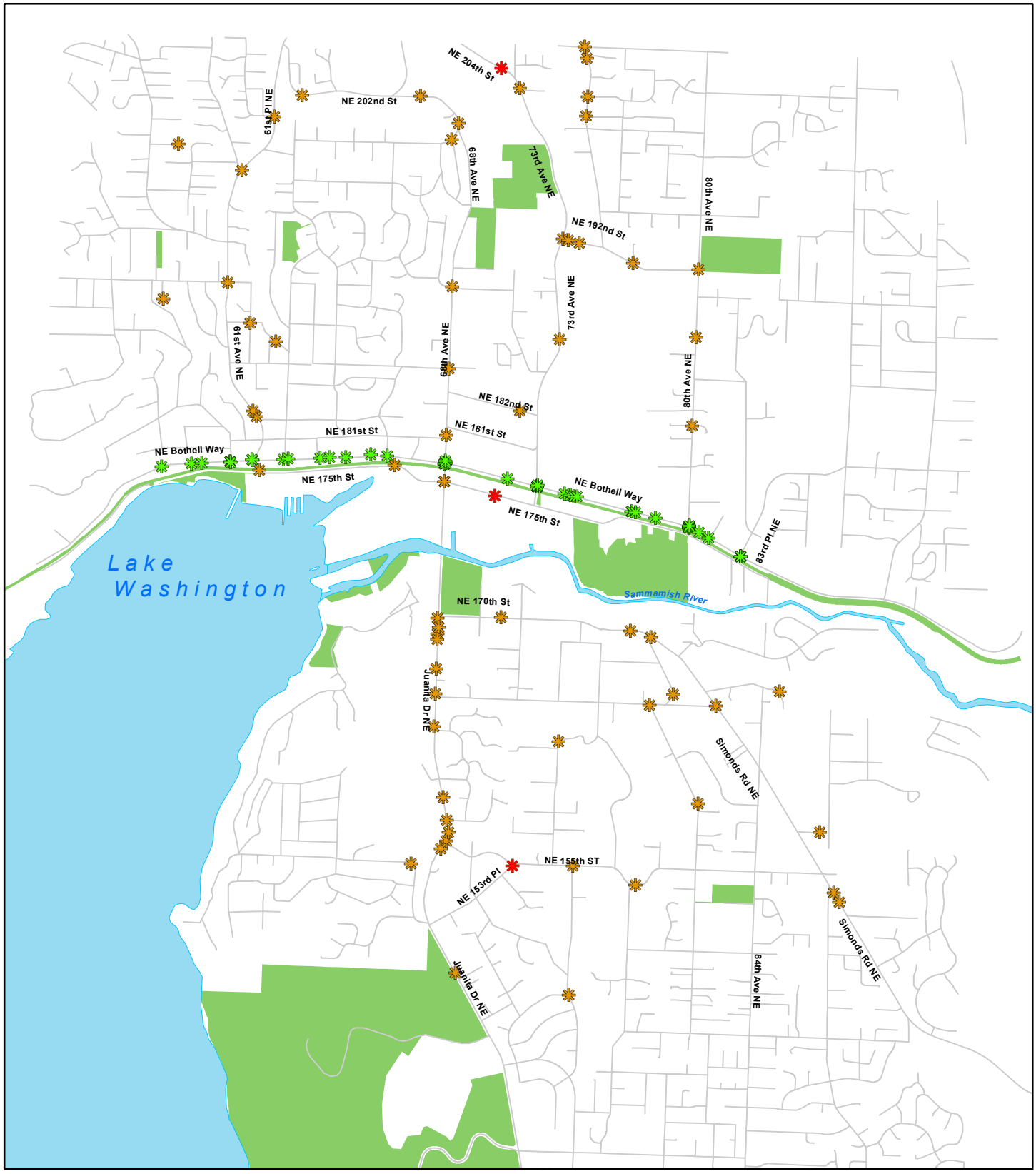
KENMORE
BY THE LAKE



Safe Speed All Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Speed cited serious collisions
- Speed cited collisions
- Speed cited collisions (SR 522)

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KENMORE BY THE LAKE

Distracted Pedestrian Collisions
City of Kenmore, WA

0 0.125 0.25 0.5 0.75 1 Miles

N

Legend

★ Ped Inattention collisions

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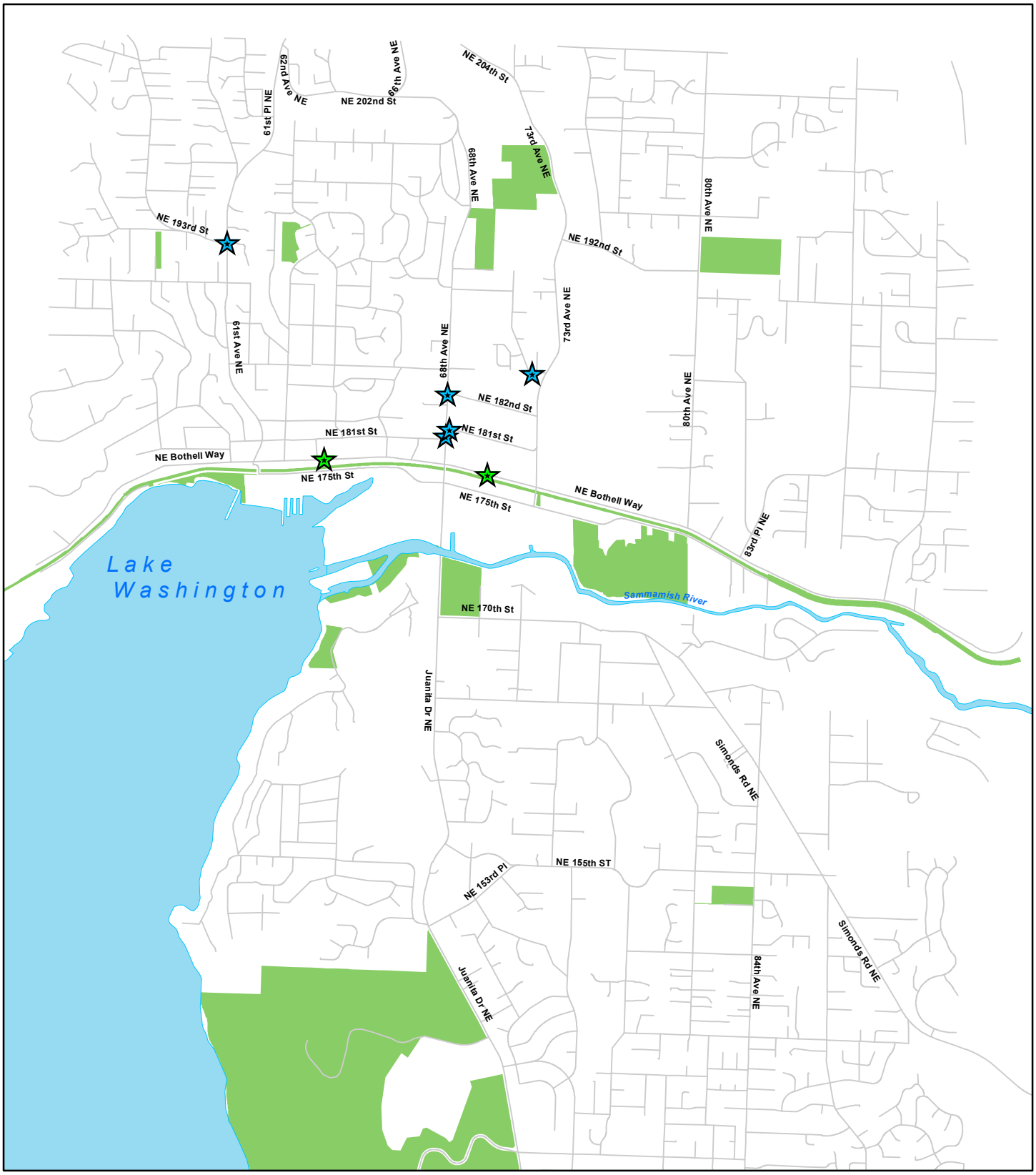
KENMORE BY THE LAKE



Distracted Pedestrian Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.125 0.25 0.5 0.75 1 Miles

N

Legend

- Ped Inattention collisions
- Ped Inattention collisions (SR 522)

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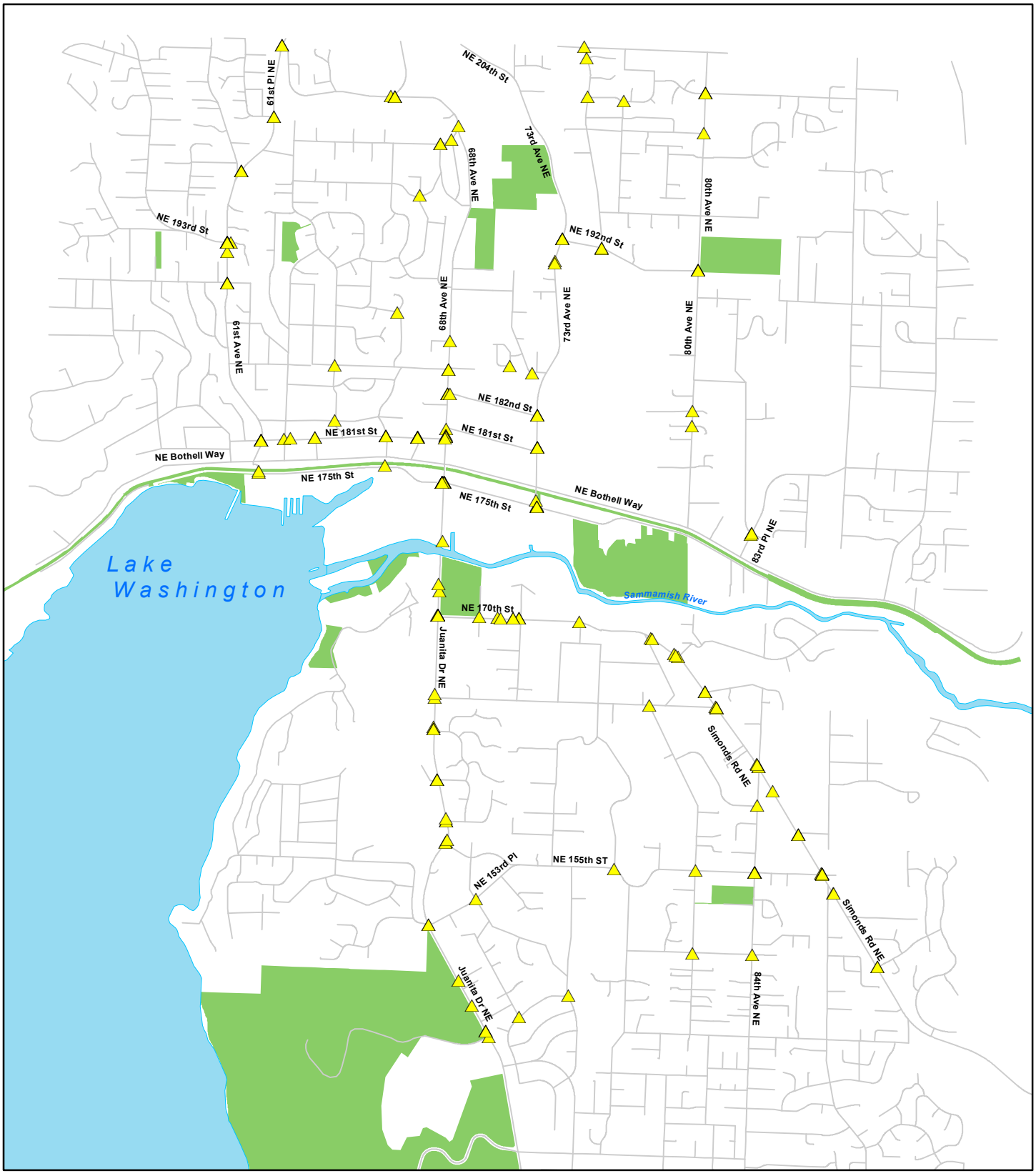
KENMORE BY THE LAKE



Intersection Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

△ Intersection related collisions

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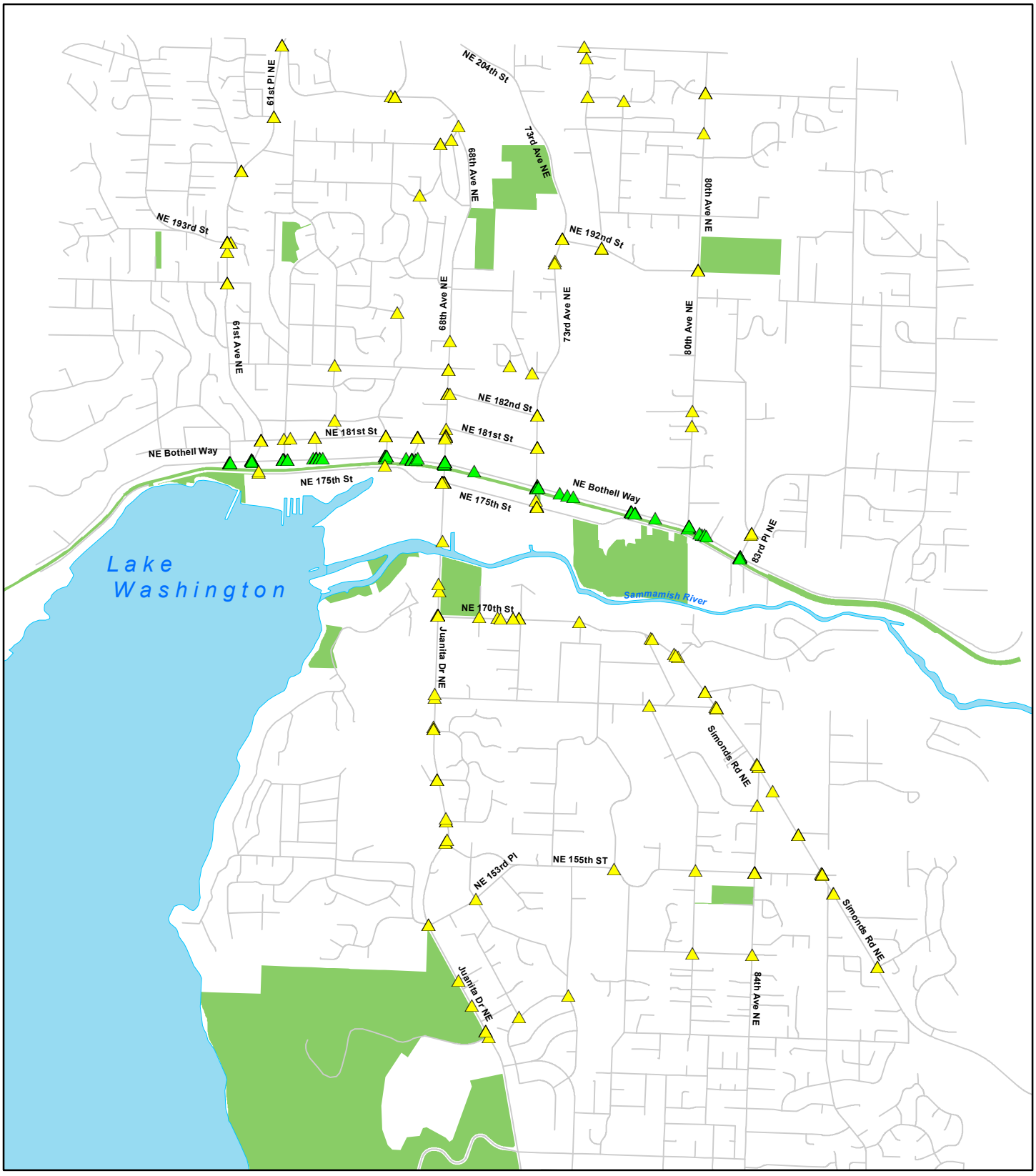
KENMORE BY THE LAKE



Intersection Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Intersection related collisions
- Intersection related collisions (SR 522)

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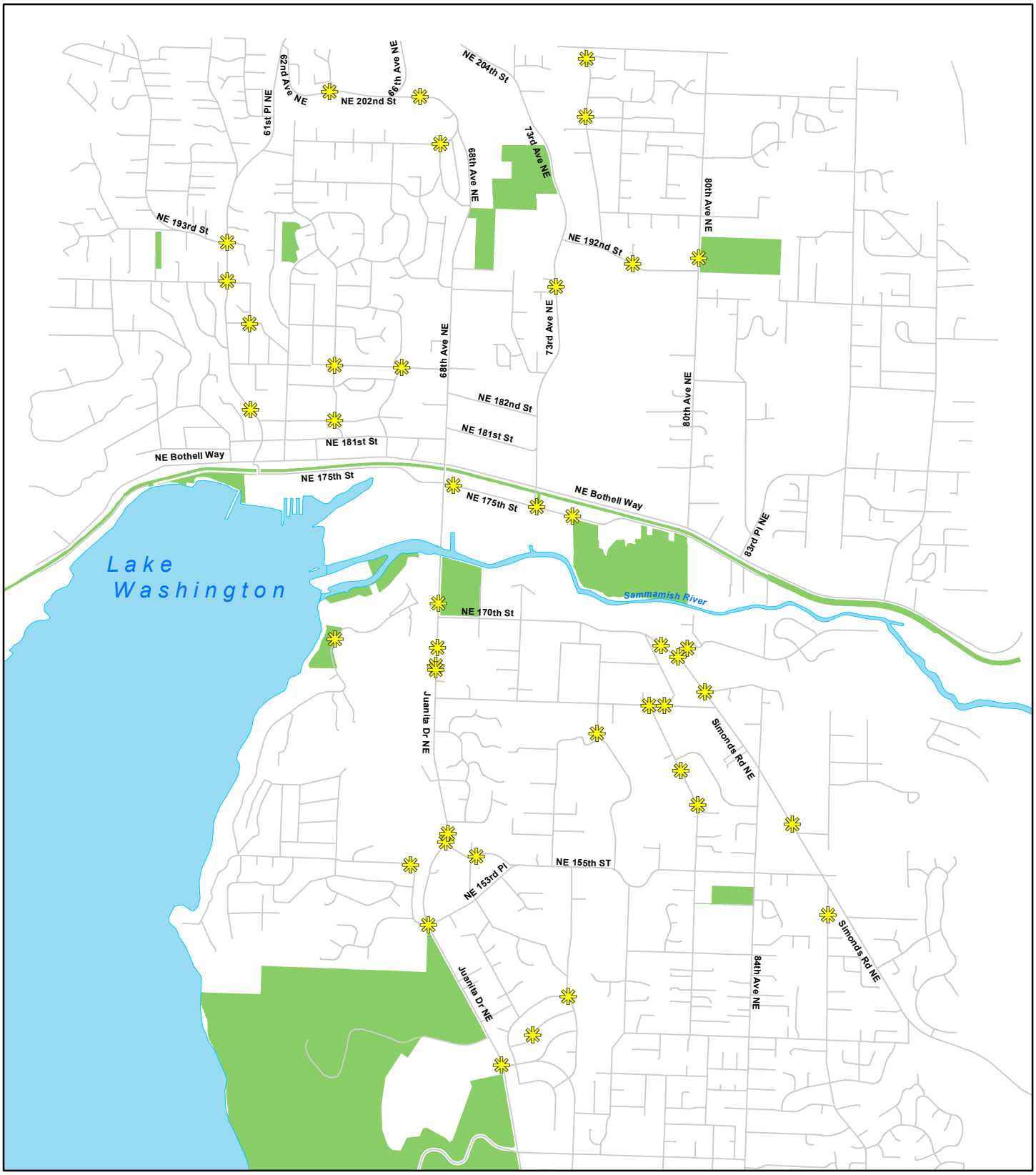
KENMORE BY THE LAKE



Street-Lighting Collisions City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Dark - No lights collisions

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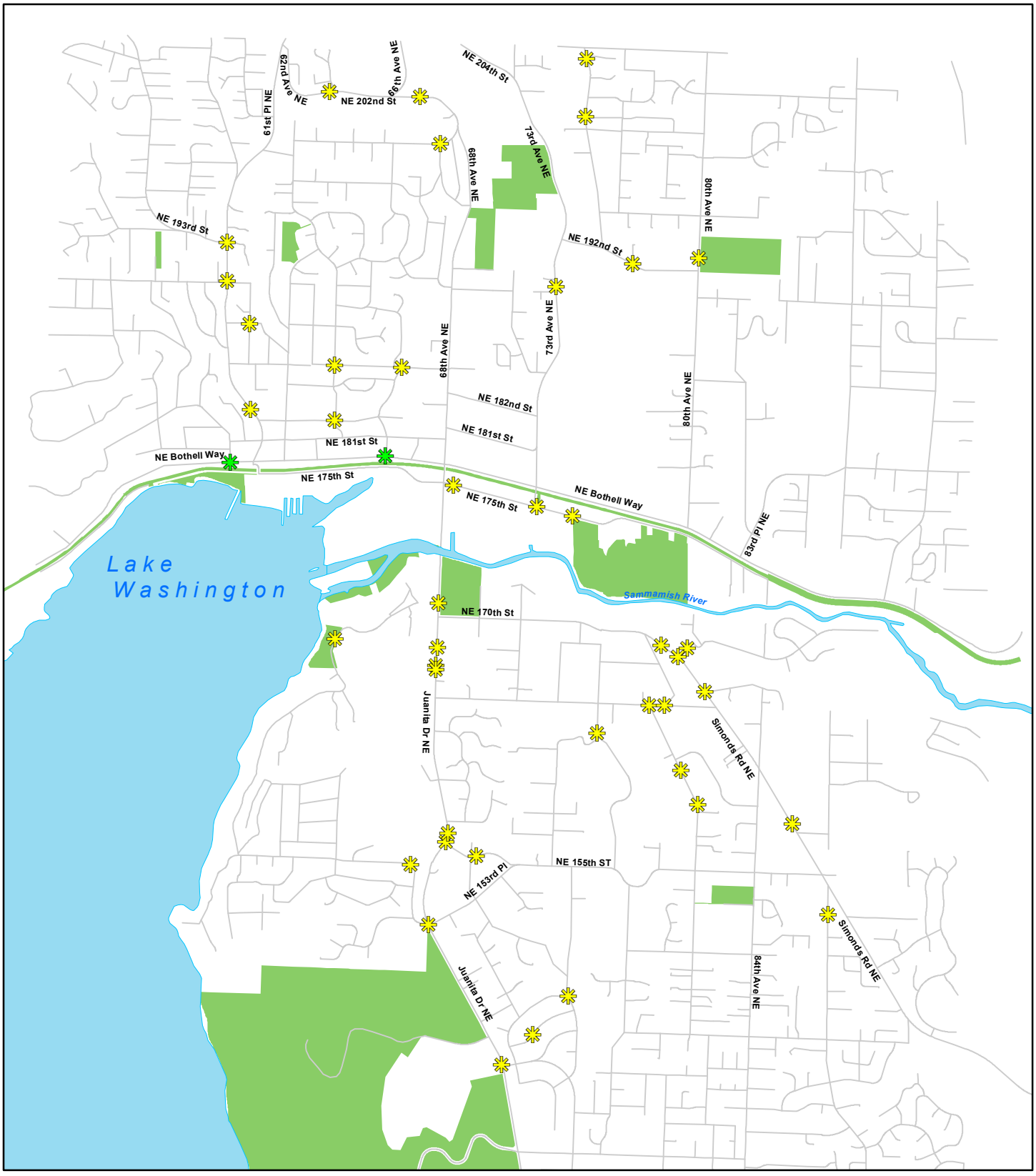
KENMORE BY THE LAKE



Street-Lighting Collisions City of Kenmore, WA

(Including SR 522 Data)

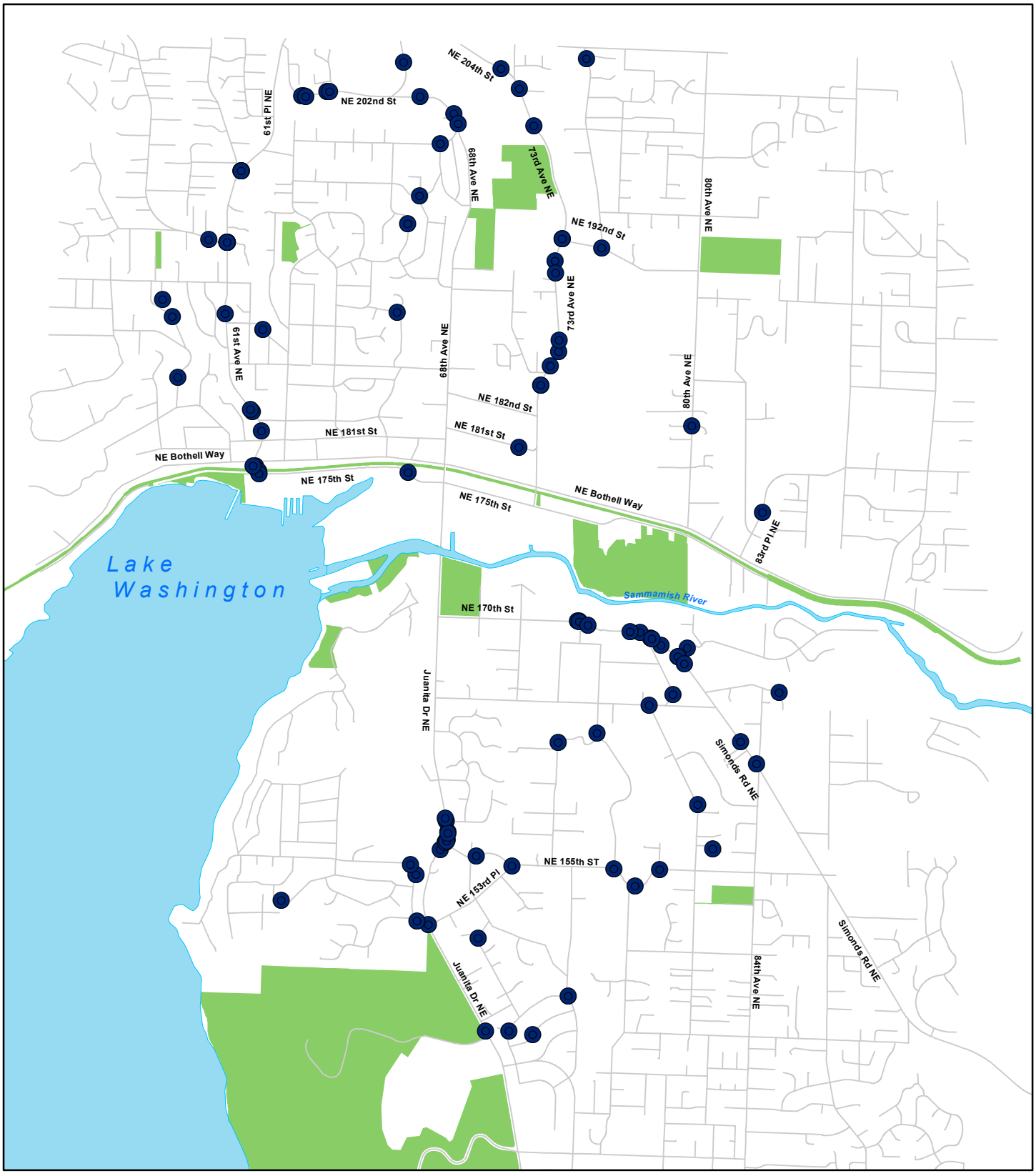
0 0.125 0.25 0.5 0.75 1 Miles

N

Legend

- Dark - No lights collisions
- Dark - No lights collisions (SR 522)

KENMORE BY THE LAKE



Horizontal Curve Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Horizontal curve collisions

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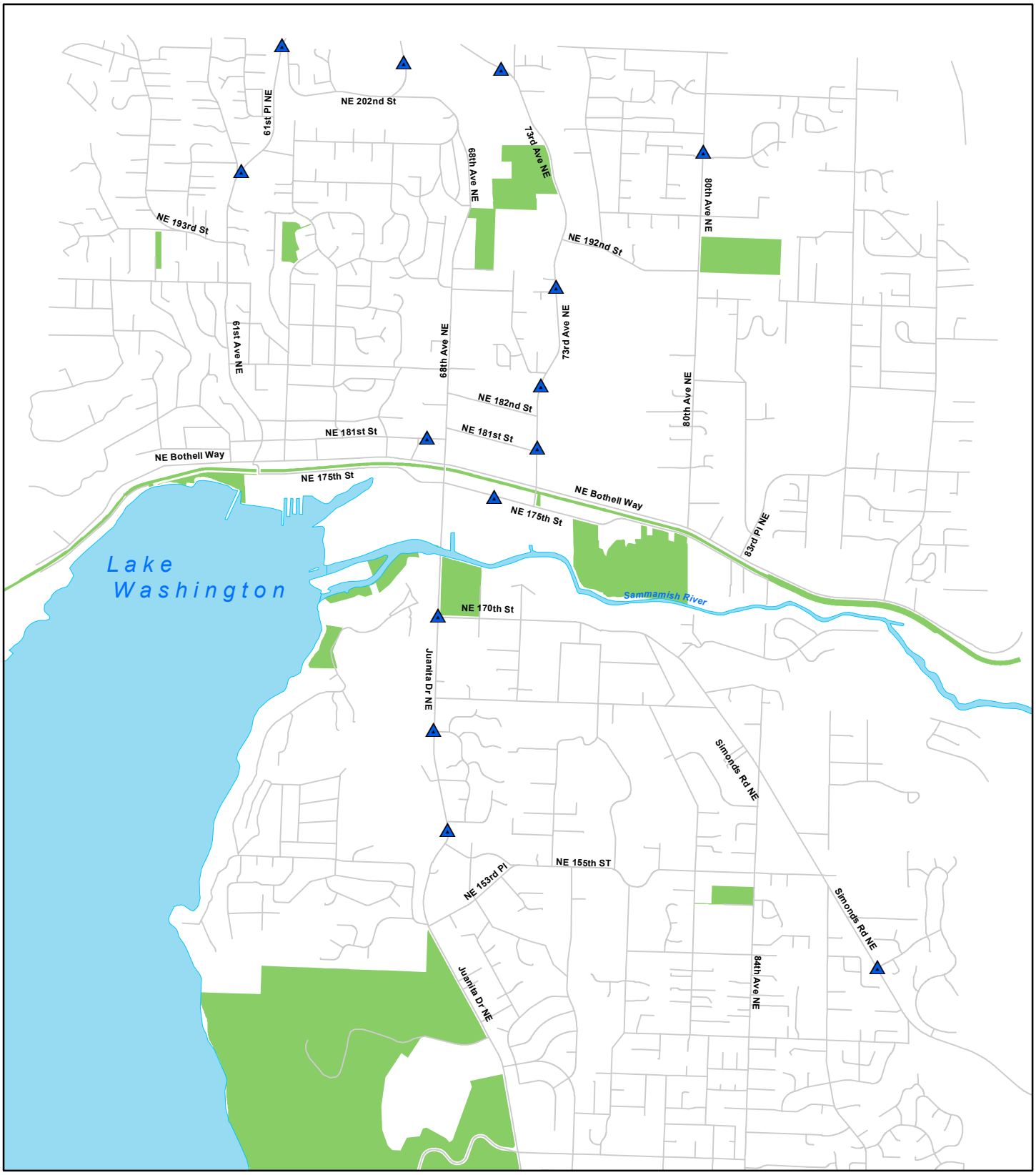
KENMORE BY THE LAKE



Motorcycle Collisions
City of Kenmore, WA

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

▲ Motorcycle collisions

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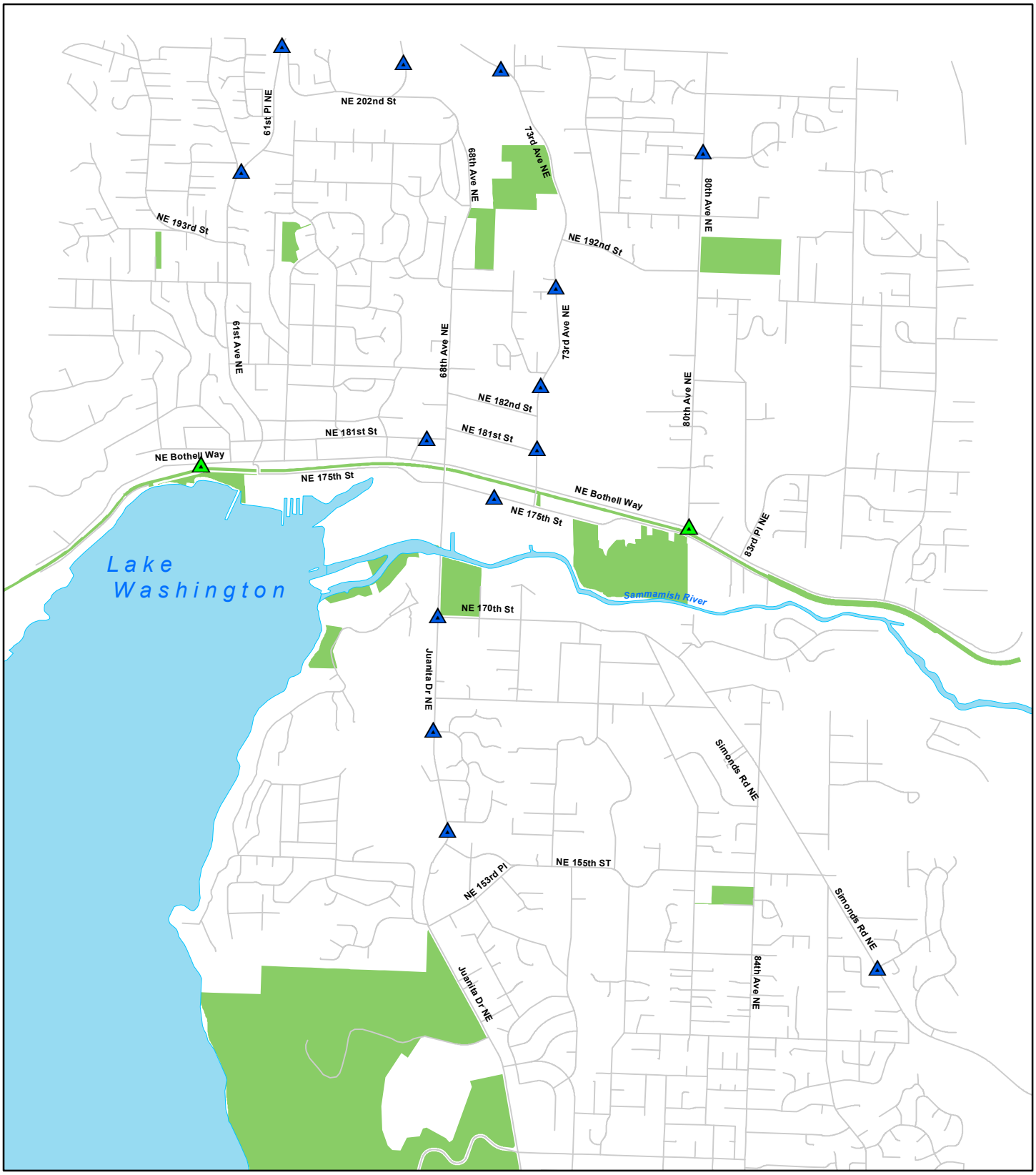
KENMORE BY THE LAKE



Motorcycle Collisions
City of Kenmore, WA
(Including SR 522 Data)

0 0.1250.25 0.5 0.75 1 Miles

N

Legend

- Motorcycle collisions
- Motorcycle collisions (SR 522)

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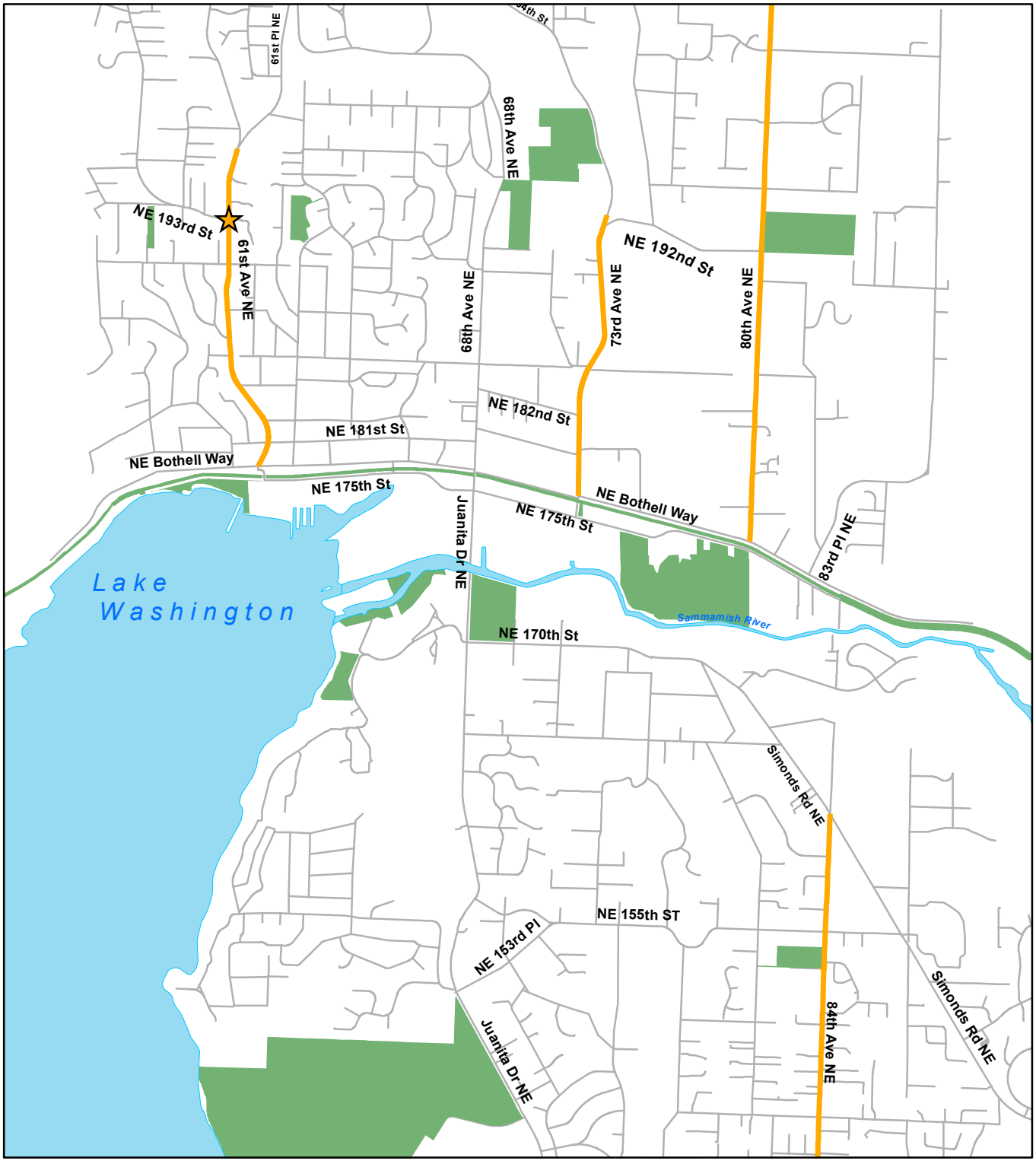
KENMORE BY THE LAKE

APPENDIX C

City of Kenmore Risk Mitigation Project Maps
Proposed projects to address identified risk factors

Developed by the City of Kenmore Public Works

January 2018



Legend

Arterials Without Bicycle Lanes

61st Ave NE Right Turn and Shoulder

0 0.125 0.25 0.5 0.75 Miles

N

City-Wide Bicycle Lanes On Arterials Kenmore, WA

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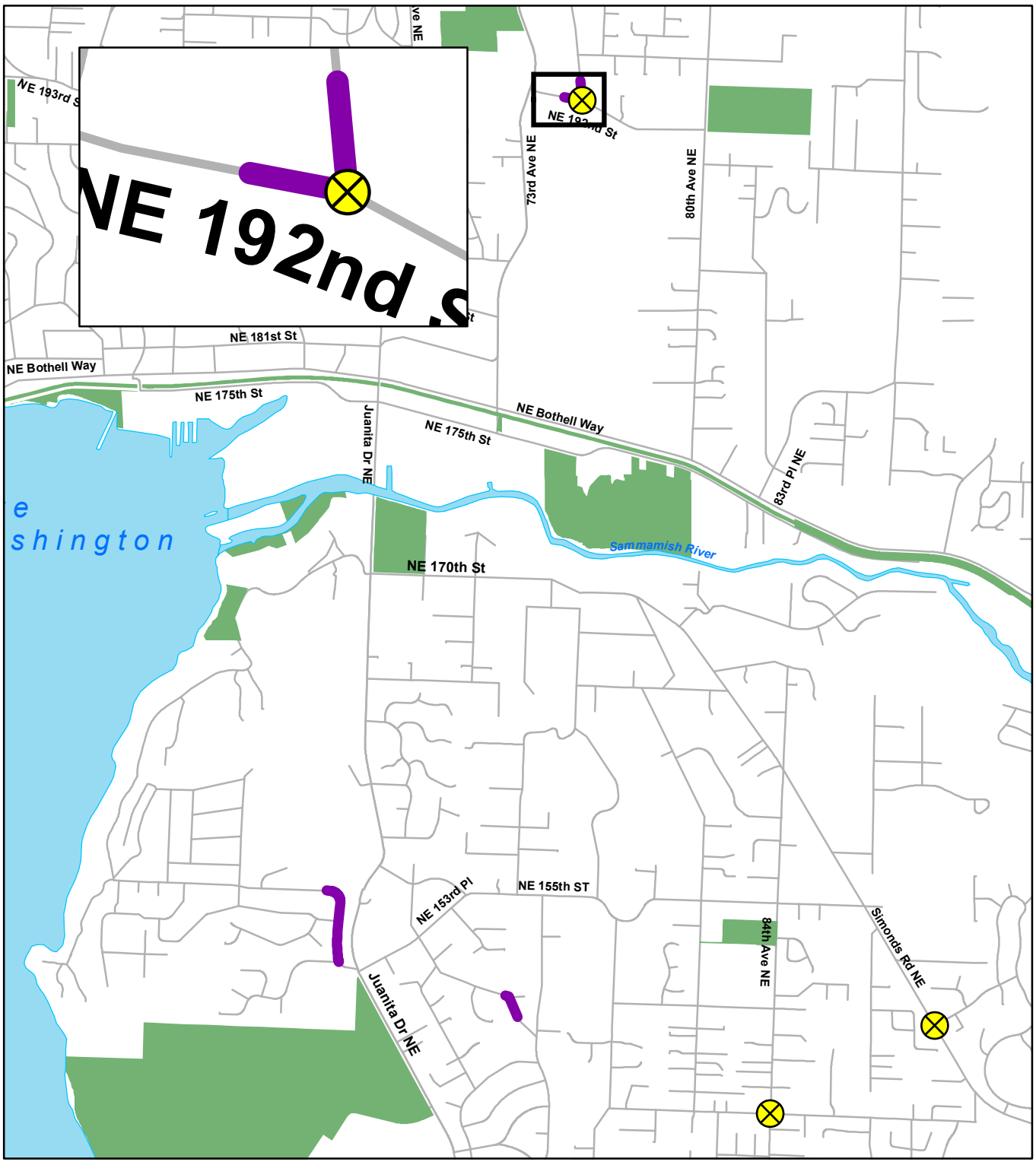
KENMORE BY THE LAKE



Legend

- Intersection Enhancement Projects
- Walkway Enhancement Projects

Enhance City-Wide Elementary School Walking Routes Kenmore, Wa

0 0.125 0.25 0.5 0.75 Miles

N

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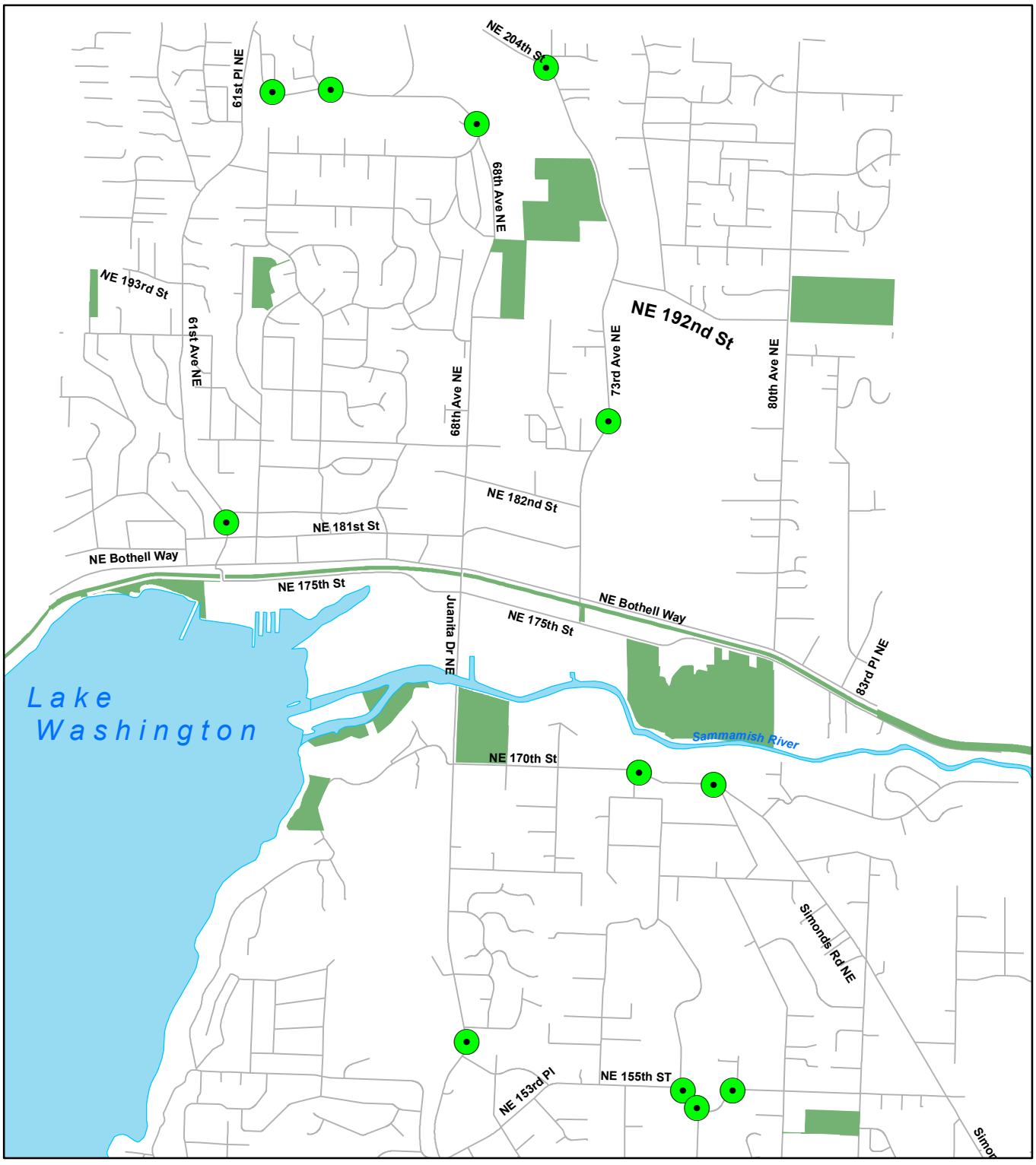
KENMORE BY THE LAKE



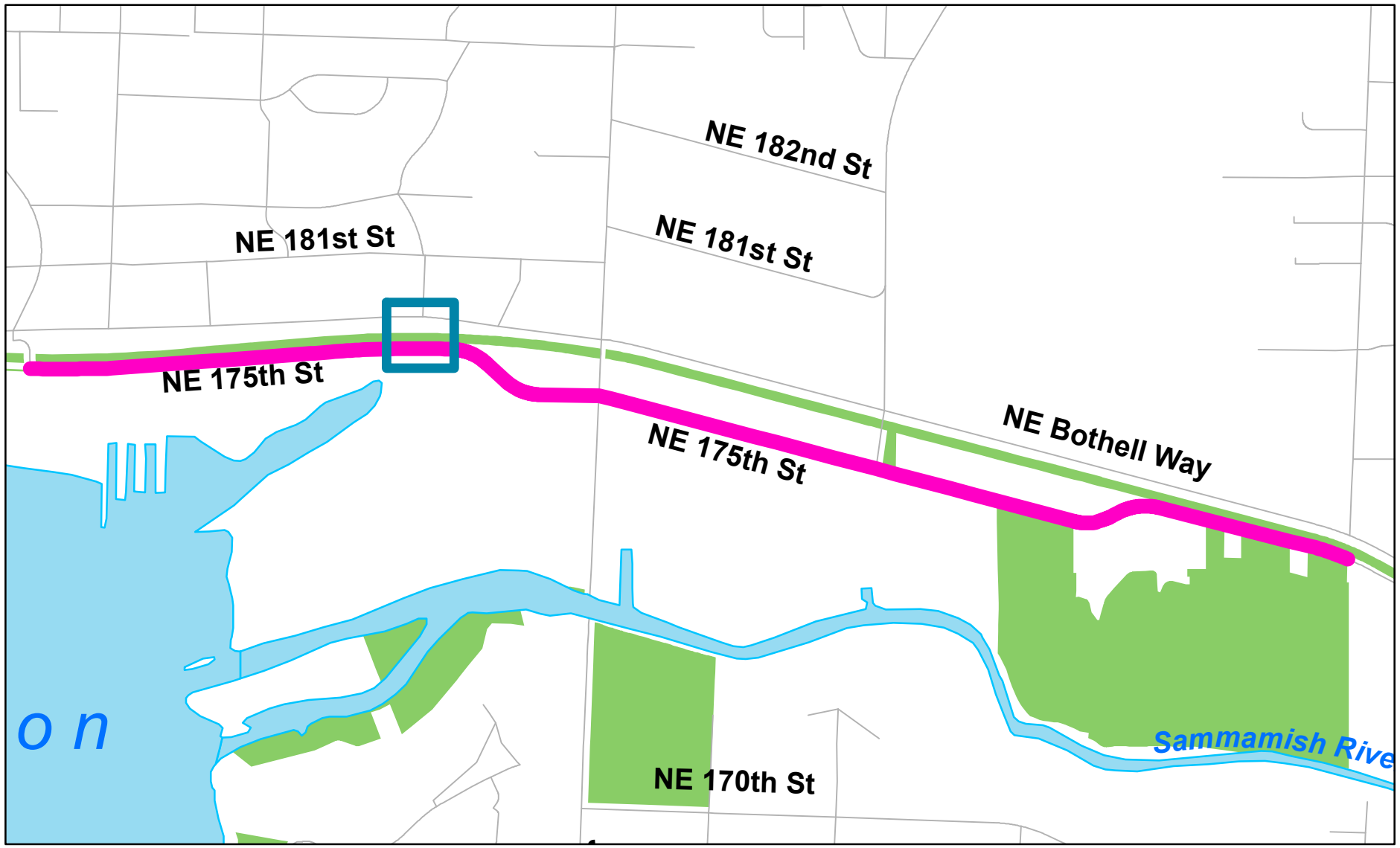
Legend

- Horizontal Curves

0 0.125 0.25 0.5 0.75 Miles

N

Horizontal Curve Enhancements Kenmore, WA



Legend

- 68th Ave NE Intersection Improvement
- Trail & Roadway Mixing Zone Improvements

0 0.04 0.08 0.16 0.24 0.32 Miles

N

Trail/Roadway Intersections and Mixing Zones Kenmore, WA

KENMORE BY THE LAKE

APPENDIX D

City of Kenmore Risk Mitigation Project Prioritization

Developed by the City of Kenmore Public Works

January 2018

Prioritized Roadway Safety Risk Mitigation Projects

Each proposed project in the LRSP was assigned a score based on

1. The risk factor focus area contributing score
2. The priority of a project within a risk factor focus area
3. An adjustment based on estimated cost, favoring lower cost projects

Project ID	Project Description	Factored Score
D02	Horizontal curve: NE 155th Street at 76th Place NE, 78th Avenue NE and 79th Avenue NE	2.09
A01	73rd Avenue NE Bike Lanes	2.00
D03	Horizontal curve: 73rd Avenue NE at NE 185th Street	1.99
E01	NE 170th Street (westbound) at 68th Avenue NE No Turn On Red Modifications	1.97
D04	Horizontal curve: NE 170th Street at 79th Place NE	1.89
F01	Residential Collector Calming	1.86
A02	80th Avenue NE Bike Lanes	1.80
D05	Horizontal curve: 61st Avenue NE at NE 181st Street	1.79
G01	65th Avenue NE Intersection Modifications	1.74
B01	75th Avenue NE Sidewalk	1.69
F02	80th Avenue NE Calming	1.69
B03	Enhancements at 75th Ave NE/NE 192nd St Crosswalk	1.60
B02	NE 192nd Street Sidewalk	1.55
F03	73rd Avenue NE Calming	1.52
C01	SR 522 Undercrossing and Downtown Improvements Study	1.49
D08	Horizontal curve: NE 170th Street at 75th Avenue NE	1.49
E02	68th Avenue NE (northbound) at State Route 522 Right Turn Lane	1.47
B04	Enhancements at 84th Ave NE/NE 145th St Crosswalk	1.46
J01	Upgrade Existing Sodium Fixtures	1.41
A03	84th Avenue NE Bike Lanes and Walkway	1.40
A04	61st Avenue NE at NE 193rd Street Right Turn Lane Removal and Wide Shoulder Extension	1.40
F04	Juanita Drive Calming	1.36
B05	New Crosswalk at Simonds Road and NE 151st Street	1.32
K01	Target Zero Pedestrian Safety Program	1.30
D10	Horizontal curve: 73rd Avenue NE at NE 204th Street	1.29
E03	Automated Traffic Signal Performance Measures (ATSPM) Upgrades (Phase 1)	1.27
F05	Trailer Mounted VMS Signs	1.19
J02	Add LED Fixtures (Existing Poles)	1.08
E05	In-House Modeling of Congested Intersections	1.06
B07	Shoulder Walkway Enhancements on NE 150th Street/NE 148th Street	1.03
F06	Upgrade Speed Feedbacks	1.02
B06	Arrowhead Drive Walkway Widening	0.97

Project ID	Project Description	Factored Score
G02	Alternatives Study for NE 175th Street Safety Improvements	0.94
H01	Mini Roundabout Program	0.91
A05	61st Avenue NE Shared Lanes	0.80
H02	Traffic Circle Program	0.78
H03	Signed Intersection Control Program	0.74
J03	Add LED Fixtures (Existing Poles)	0.74
E04	Automated Traffic Signal Performance Measures (ATSPM) Upgrades (Phase 2)	0.67
K02	Driver and Pedestrian Distraction Enforcement Program	0.67
K03	Motorcycle Safety Program	0.63