



JUANITA DRIVE Corridor Study

DRAFT



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SUMMARY

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ABOUT THE STUDY

The City of Kirkland has developed a plan for future improvements to the Juanita Drive Corridor between Juanita Village and the northern City limits in Finn Hill. A key route around the northern end of Lake Washington between Kirkland and Kenmore, Juanita Drive serves over 10,000 vehicles per day and traverses steep topography with many twists, turns, and hills. The existing roadway geometry, multiple driveway access points, and limited sight distance complicate overall safety conditions along the corridor.

The Juanita Drive Corridor Study evaluates existing conditions, relies on input from stakeholders and users, and analyzes potential safety improvements for drivers, bicyclists and pedestrians. The study identifies key improvements that may be included for future construction in the Capital Improvement Program.



GUIDING PRINCIPLES

The vision for the future of the Juanita Drive Corridor will adhere to the following guiding principles:

- > Address safety needs for all travel modes.
- > Maintain the corridor's unique identity, diversity of roadway character, and natural landscape.
- > Respect neighborhood values and engage the community in a shared vision for future improvements.
- > Protect the extraordinary natural environment and encourage low impact design approaches.
- > Provide a financially feasible, strategic, and realistic set of community priorities for the corridor.

These were developed after consulting with stakeholders.

COMMUNITY OUTREACH

The City identified key target audiences to engage:

- > Businesses and residents along the project corridor and within the City of Kirkland
- > Users of the project corridor; local and regional
- > Management and users of parks and public spaces
- > Local agencies, such as Lake Washington School District and King County Metro Transit
- > Community groups and organizations
- > City of Kirkland staff, including public safety officials
- > Elected officials



SUMMARY

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THE PROPOSED PLAN

Working with a Citizen Advisory Committee, the Kirkland Transportation Commission, and by conducting extensive public outreach, the City used the guiding principles to identify and prioritize the corridor recommendations. The Transportation Commission reviewed the draft recommendations and approved them for consideration by the City Council.

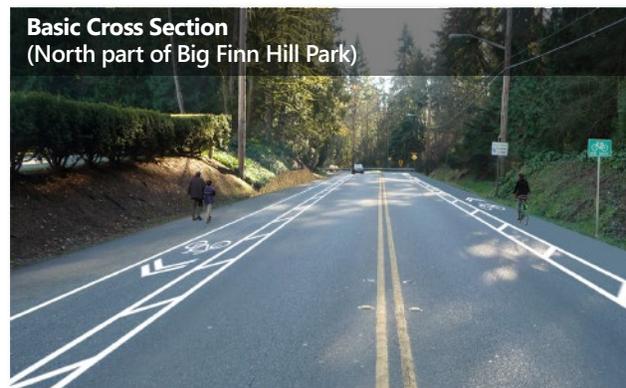
The Juanita Drive Corridor Plan contains a variety of projects that meet the study's guiding principles and that can be phased in over the next several years. While the needs vary throughout the corridor, the plan contains several corridor-wide features, including the following:

- > A basic roadway cross-section that contains a travel lane in each direction, buffered bicycle lanes, and a walkway on at least one side of the roadway. In some sections, an off-road multipurpose path is an option.
- > Pedestrian crosswalks with flashing beacons.
- > Street lighting upgrades.
- > Drainage improvements.
- > Intersection treatments, such as turn pockets and better sight distance.
- > Traffic calming treatments to reduce speeds.
- > Removal of on-street parking.

The plan does not envision the addition of travel lanes to accommodate more traffic, but the intersection treatments will improve overall traffic flow and safety.

The plan consists of 32 projects grouped into logical packages along Juanita Drive. The total cost of the plan ranges from \$19 to \$26 million, depending on the design options. About half of the cost (\$10 million) is to provide the basic cross-section through the corridor. Building the wider multipurpose trails through the parks would add around \$3.3 million in project costs. Intersection treatments, including turn pockets, crossing

treatments and lighting would cost an additional \$5 to \$6 million, while various other nonmotorized, Intelligent Transportation Systems (ITS), safety and lighting treatments would add around \$3 to \$4 million in cost. Recognizing that because of their cost they will take several years to fund and implement, the plan sets priorities and identifies 'quick win' projects with a total cost of \$1.0 to \$1.5 million and which could potentially start in the near future as funding becomes available.



Projects	Basic Cost	Additional Costs for Option
Basic Cross-section	\$10.4M	\$3.3M (Multipurpose Trails)
Intersections	\$5.3M	\$1.2M (Roundabouts)
Uphill Bicycle Lane throughout Corridor	\$0.6M	
Other Pedestrian/Bike Safety Treatments	\$1.5M	
Intelligent Transportation Systems (ITS)	\$1.1M	\$1.2M (undergrounding utilities)
Other Safety Projects	\$0.2M	
Total Projects	\$19.1 Million	\$5.7 Million

Note: Projects not in priority order

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MATCHING THE RECOMMENDATIONS TO THE COMMUNITY VISION

What we Heard from the Community	What the Proposed Master Plan Recommends
Improving safety in the corridor is important; especially for bicycles and pedestrians	Separated walkway and bicycle lanes with buffer strips; intersection channelization; active pedestrian crossings
There are too many vehicle collisions	Intersection turn lanes to reduce rear end collisions; center line rumble strips to reduce head-on collisions
Traveling the corridor during rush hour is difficult, but minimal interest in widening the corridor for more automobile lanes	No new auto lanes, but some intersection turn lanes and traffic signal improvements
There aren't enough connections between neighborhoods and parks, including safe routes to local schools	Several new 'flashing' pedestrian crossings and links to neighborhoods, schools and parks
Provide as much separation as possible for pedestrians and bikes	Bike lanes with buffer strips and walkway on one side of road; option for multipurpose trail in Woodland and Big Finn Hill parks.
Mixed reactions to roundabouts; some people wanted them, some did not.	Options for a roundabout at NE 122nd St/Holmes Point Dr and at NE 138th Pl.
Don't impact the parks along the corridor	Two options in parks- basic cross section or wider section with multipurpose trail. Sensitivity to roadway width and right-of-way
Get something done soon!	Several 'quick win' projects that could be implemented soon as funding is available

Stay Involved!

Visit www.kirklandwa.gov (search "Juanita Drive") to:

- > Find up-to-date news on the study
- > Provide feedback on the City's interactive map
- > Sign up for emails from the project's list serve



For additional information, please reach out to:

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STUDY PURPOSE AND METHODOLOGY

PROJECT OVERVIEW

Juanita Drive is located in the City of Kirkland's Juanita and Finn Hill neighborhoods, as shown in **Figure 1**. The Juanita Drive corridor serves as a minor arterial connecting residential neighborhoods, as well as a key north/south route between the cities of Kirkland and Kenmore. Juanita Drive serves over 10,000 vehicles per day and traverses steep topography with many twists and turns. The existing roadway geometry, multiple driveway access points, use of the shoulder for residential services (e.g. mail, deliveries, trash containers), and limited sight distance complicate overall safety conditions along the corridor.

The Juanita Drive Corridor Study evaluates existing conditions, relies on input from stakeholders and users, and analyzes potential safety improvements for drivers, bicyclists and pedestrians. The study identifies key improvements that may be included for future consideration in the Capital Improvement Program.

GUIDING PRINCIPLES

After consulting with stakeholders, a corridor vision was developed that is based on the following guiding principles:

- Address safety needs for all travel modes
- Maintain the corridor's unique identity, diversity of roadway character, and natural landscape
- Respect neighborhood values and engage the community in a shared vision for future improvements
- Protect the extraordinary natural environment and encourage low impact design approaches
- Provide a financially feasible, strategic and realistic set of community priorities for the corridor

Working with a Citizen Advisory Committee and conducting extensive public outreach, the City used these principles to identify and prioritize the corridor recommendations outlined in this report.

FIGURE 1: STUDY AREA LOCATION



COMMUNITY OUTREACH

The City identified key target audiences to engage:

- Businesses and residents along the project corridor and within the City of Kirkland
- Users of the project corridor; local and regional
- Management and users of parks and public spaces
- Local agencies, such as Lake Washington School District and King County Metro Transit
- Community groups and organizations
- City of Kirkland staff, including public safety officials
- Elected officials

COMMUNITY OUTREACH

Community involvement was key in developing and implementing a successful corridor plan for Juanita Drive. To prepare a common vision for future improvements to the corridor, the City gathered input from the community at public workshops, briefings with neighborhood groups, and informational booths at local events. A community-based advisory committee was also formed to serve as a forum for additional dialogue and information sharing among community members and city staff. The project team developed an overall communication and public involvement strategy, conducted stakeholder interviews, created informational materials and website content, and facilitated a project advisory group.



Insights from the community outreach program are highlighted throughout the report. A detailed description of the outreach activities is provided in **Appendix A**.

CORRIDOR PROFILE

This section characterizes existing and future conditions on Juanita Drive in the City of Kirkland. The following sections describe the corridor in terms of historical context, character, land, use, physical conditions, and transportation operations.

HISTORICAL CONTEXT

Juanita Drive was the first major north-south roadway built connecting Kenmore and Kirkland. The southern portion of the corridor was originally developed in the 1920s when the Juanita Beach Resort was established. Lake Washington Boulevard, also known as state highway 2-A, was built through Juanita. Residents decided to become a part of the city of Kirkland in July 1967.

Most of Juanita Drive remained in unincorporated King County, which built the current roadway alignment. Juanita Drive was designed with more rural design standards, such as banked curves that accommodate higher speeds.

The City of Kenmore inherited the north end of the corridor in 1998 after incorporation. The southern section was annexed to Kirkland in 2011.

JUANITA DRIVE FUNCTIONAL CLASSIFICATION

Juanita Drive is the main north-south movement corridor for the Inglewood and Finn Hill neighborhoods in northwest Kirkland. The City of Kirkland classifies most of Juanita Drive as a minor arterial and a portion in the vicinity of Juanita Village as a principal arterial. Definitions of classifications are as follows:

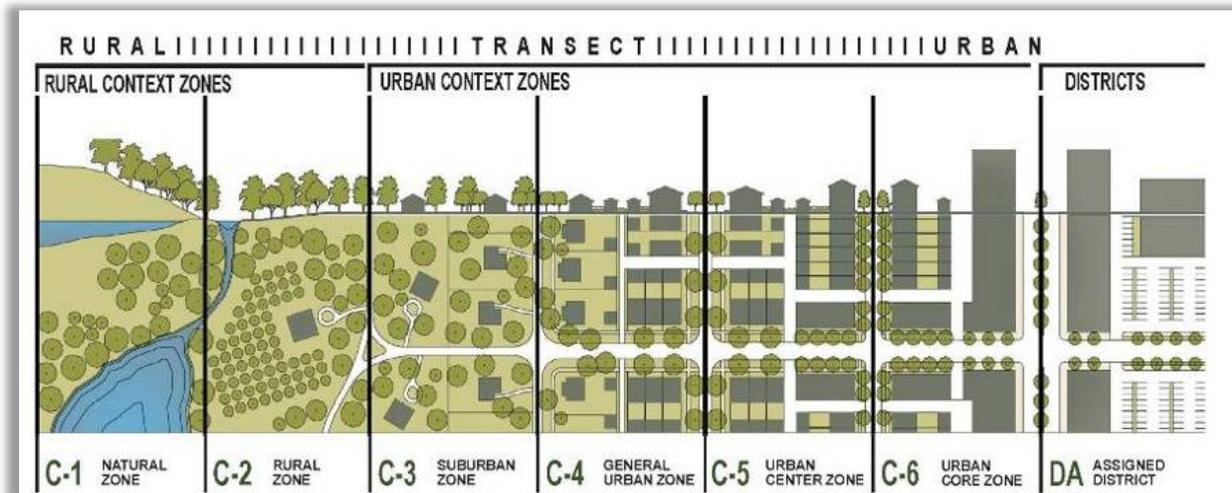
- **Principal Arterials** – connect Kirkland with other regional locations such as Bellevue and Redmond.
- **Minor Arterials** – provide connections between principal arterials and serve as key circulation routes within Kirkland.

To the east of 93rd Avenue NE in the vicinity of Juanita Village, Juanita Drive is classified as a principal arterial and connects to two other principal arterials – the north/south running 98th Avenue NE and the east/west running NE 116th Street. To the west and north of 93rd Avenue NE, Juanita Drive is a minor arterial and provides access to multiple collector streets, including Holmes Point Drive, NE 123rd Street, NE 132nd Street, and NE 141st Street.

CHARACTER

The three-mile section of Juanita Drive changes character several times, from a town center environment near Juanita Beach Park, to neighborhood zones with frequent property access, to a more rural atmosphere passing through Woodland and Big Finn Hill parks. The changing character means that a single roadway design may not be appropriate along the entire corridor. This approach is exemplified in **Figure 2**, which illustrates how a single roadway can transition from rural to urban with different roadway design requirements¹. Juanita Drive best exemplifies the C-2 through C-4 zones.

FIGURE 2: CHANGING ROADWAY CHARACTER



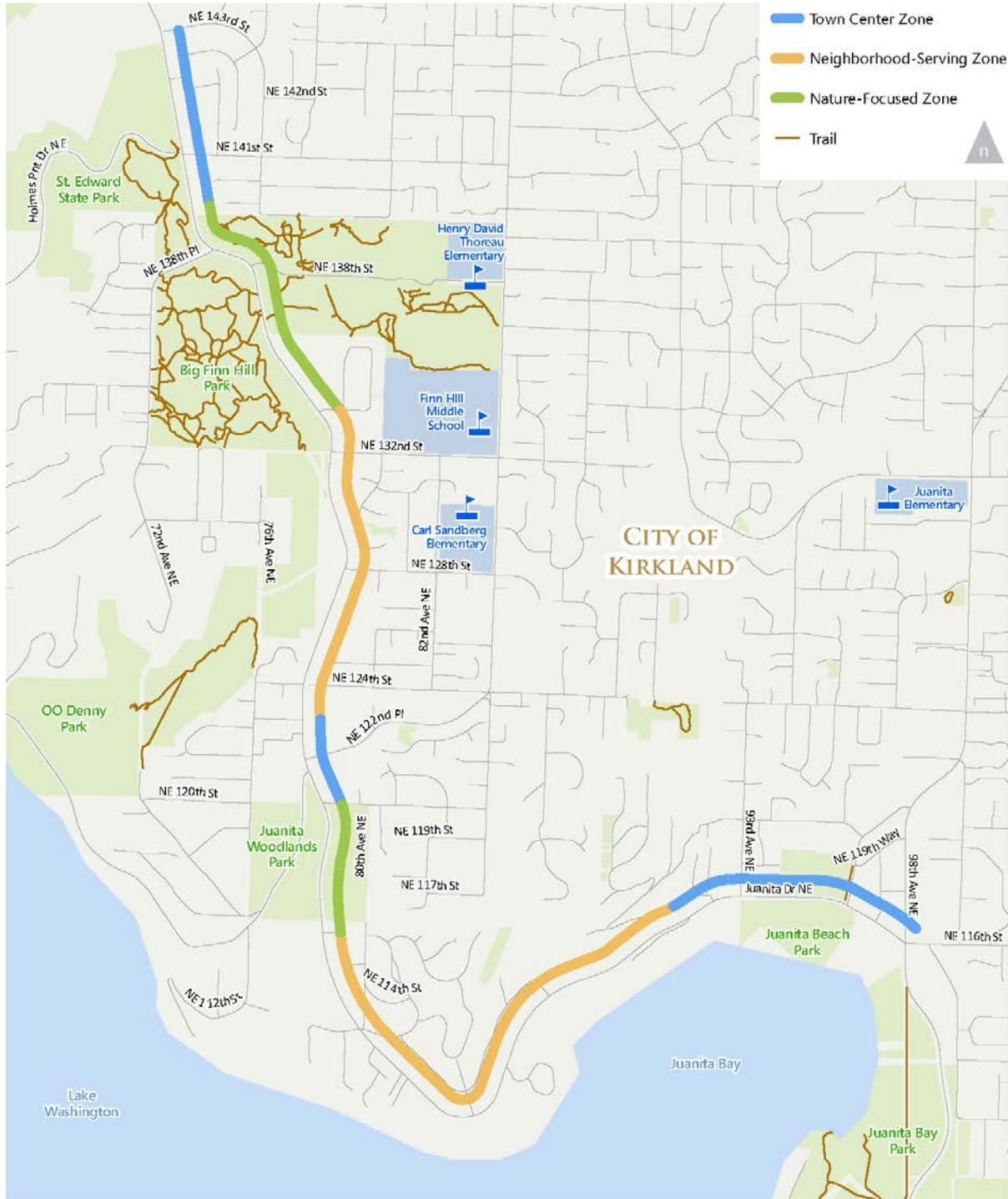
Juanita Drive can be thought of as having three primary 'zones', as shown in **Figure 3**. The project recommendations were tailored to best meet the needs of the surrounding land uses and roadway function as shown in these zones.

¹ Institute of Transportation Engineers. *Designing Walkable Urban Thoroughfares—A Context Sensitive Approach*. Washington, DC, ITE, 2010.

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FIGURE 3: CORRIDOR CONTEXT



Town Center Zone

Town center zone segments serve all modes and trip types, but are focused on signaling the entry into a higher-density commercial or residential zone. Town center zone segments accommodate business access and transit stops, emphasizing multimodal interaction and gateway elements.

Features:

- Character: town center main street
- Serves residents, employees, and visitors arriving by all modes
- High visibility pedestrian crossing treatments

Example Location:

- Juanita Drive adjacent to Juanita Beach



Neighborhood-Serving Zones

Neighborhood-serving zone segments serve all trip types but focus on balancing access needs from side streets and driveways with safety for bike, pedestrian and auto trips. Neighborhood-serving zone segments may feature high-visibility mid-block pedestrian crossings and safe walking and biking options.

Features:

- Character: frequent neighborhood access

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- Serves through bike, pedestrian, auto, as well as side-street access
- Pedestrian crossing treatments may include mid-block crossings, high visibility or raised crosswalks, and curb extensions

Example Location:

- Juanita Drive between NE 124th Street and NE 132nd Street



Nature-Focus Zones

Nature-focus zone segments serve all trip types and modes, but because of their location traveling through parks and open space, primarily focus on serving through bicycle and vehicular travel. These segments accommodate a mix of travel modes while maintaining a rural character.

Features:

- Character: rural roadway traversing scenic and wooded areas
- Serves all trip types, but focuses on through bicycle and vehicular travel
- Pedestrians and bicyclists can use wide shoulders or trail



Example Location:

- Juanita Drive adjacent to Big Finn Hill Park





LAND USE

Land use in the vicinity of Juanita Drive consists largely of single family home and recreation/conservation land. At major intersections, there are pockets of multifamily residential and commercial developments, with the highest densities located in the Juanita Village area at the southern end of the corridor. Bastyr University, located outside of Kirkland at the northwest corner of the study area adjacent to St. Edwards State Park, has an enrollment of approximately 1,000 students. To the west of Juanita Drive are two elementary schools and one middle school.

Table 1 summarizes existing land use and the amount of growth expected to occur by 2030 in the vicinity of Juanita Drive (south of NE 141st Street and west of 100th Avenue NE) and citywide in Kirkland.

TABLE 1: EXISTING AND FUTURE LAND USE

Area	Existing		2030		Total Growth		Percentage Growth	
	HH	EMP	HH	EMP	HH	EMP	HH	EMP
Corridor Study Area	8,000	1,120	8,700	1,500	700	380	9%	34%
Kirkland Citywide	39,780	41,170	45,790	51,870	6,010	10,700	15%	26%

Notes: HH = Households; EMP = Employment
Sources: City of Kirkland

By 2030, the number of households in the vicinity of Juanita Drive is expected to increase from 8,000 to 8,700, representing a total increase of 9%. The household growth will be spread throughout the greater Finn Hill area. Employment is expected to increase by a total of 34%, from 1,120 in 2013 to 1,500 in 2030. Most of this employment growth will be concentrated along 100th Avenue NE rather than Juanita Drive. This growth is consistent with city policy.

PHYSICAL CONDITIONS

The guiding principles emphasize addressing safety needs for all travel modes, while maintaining the corridor's identity and natural environment. This section describes the physical conditions that frame many of the corridor's needs. Many of the safety concerns along Juanita Drive relate to the physical conditions along the corridor. The following section describes:

- Roadway cross-section
- Topography
- Sight Distance
- Drainage
- Illumination

Details regarding the corridor inventory are provided in **Appendix C**.





ROADWAY CROSS-SECTION

Juanita Drive is characterized as a two-lane roadway for most of its length. **Figure 4** shows typical sections for the existing roadway. At one extreme, the Juanita Village area has a full urban roadway section with bicycle lanes, turn lanes, curb and gutter, planter strip, and sidewalks. However, most of the corridor has one travel lane in each direction and a variable-width shoulder on each side of the roadway. The total pavement width in these sections varies from 34 to 38 feet, with some short distances having wider width for parking. There are a few areas where a three-lane section provides turn lanes and shoulders or sidewalks on one or both sides.

The existing shoulders provide multiple functions: vehicle breakdown areas, places for trash containers, mail deliveries, walkways, and bicycling areas. The shoulders vary in width and do not provide a consistent or safe environment for walking or biking, although they are used for both.

Most of the corridor has a right-of-way width of 60 feet. However, the right-of-way is not readily usable for transportations due to steep slopes, vegetation, and other impediments, including numerous steep driveways.

WHAT WE HEARD FROM THE COMMUNITY

- Improving safety in the corridor is very important; especially for bicycles and pedestrians
- Concerned about safety for all modes of traffic, including pedestrians and bicyclists
- Limited sight distances throughout the corridor are a concern
- Desire for quick implementation of improvements, if possible
- Any improvements should be context sensitive of the blend between rural areas, neighborhoods and business centers
- Lack of neighborhood and park connectivity, including safe routes to local schools
- Traveling the corridor during rush hour is difficult, but there is minimal interest in widening the corridor for more automobile lanes. Some intersection fixes are fine
- Concerns about vehicle collisions
- Excitement about the City looking into improving the corridor

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FIGURE 4: ROADWAY CROSS-SECTIONS





TOPOGRAPHY AND ROADWAY GEOMETRICS

The Juanita Drive Corridor is characterized by areas of steep topography and curving road segments with poor sight distance. **Figures 5 (a, b, c)** show the corridor in three segments (south, central, and north), along with information on slopes and sight distance.

Slopes

Portions of the corridor have slopes exceeding 33% adjacent to the roadway. In the southern segment, **(Figure 5a)**, the steep slopes coincide with closely spaced driveways that have steep grades approaching Juanita Drive. The steep slopes also create several drainage issues (see next section). The central segment **(Figure 5b)** is generally flatter to the south of NE 128th Street. Continuing north **(Figure 5c)**, there are several steep sections along Big Finn Hill Park.

Sight Distance

Motorists need adequate sight distance or visibility for turning to and from Juanita Drive. The combination of steep driveway and side street approaches to Juanita Drive, along with tight roadway curves, creates several areas with challenging or severely limited sight distance. **Figure 5** shows those areas with sight distance issues for side streets/driveways (i.e. drivers wanting to turn onto Juanita Drive) and for Juanita Drive itself (i.e. drivers wanting to turn left from Juanita Drive into a side street or driveway). These locations of limited sight distance are highly correlated with the locations of collisions, as described in a later section.

DRAINAGE

Due to the topography along Juanita Drive, drainage is a problem that affects both property owners and users of Juanita Drive. As shown in **Figure 6**, there are several locations where groundwater or runoff crosses Juanita Drive, resulting in slippery conditions during rain events. Groundwater seepage on the roadway is a continual problem, particularly along the southern portion of the corridor because of the steep side-slopes.

In the areas between NE 124th and NE 132nd Streets, there is considerable runoff crossing Juanita Drive from east to west, because of limited storm drainage collection systems to direct the flow away from driveways that slope downward from Juanita Drive. The lack of storm drainage systems is evident throughout the corridor.

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FIGURE 5A: SLOPE AND SIGHT DISTANCE – SOUTH

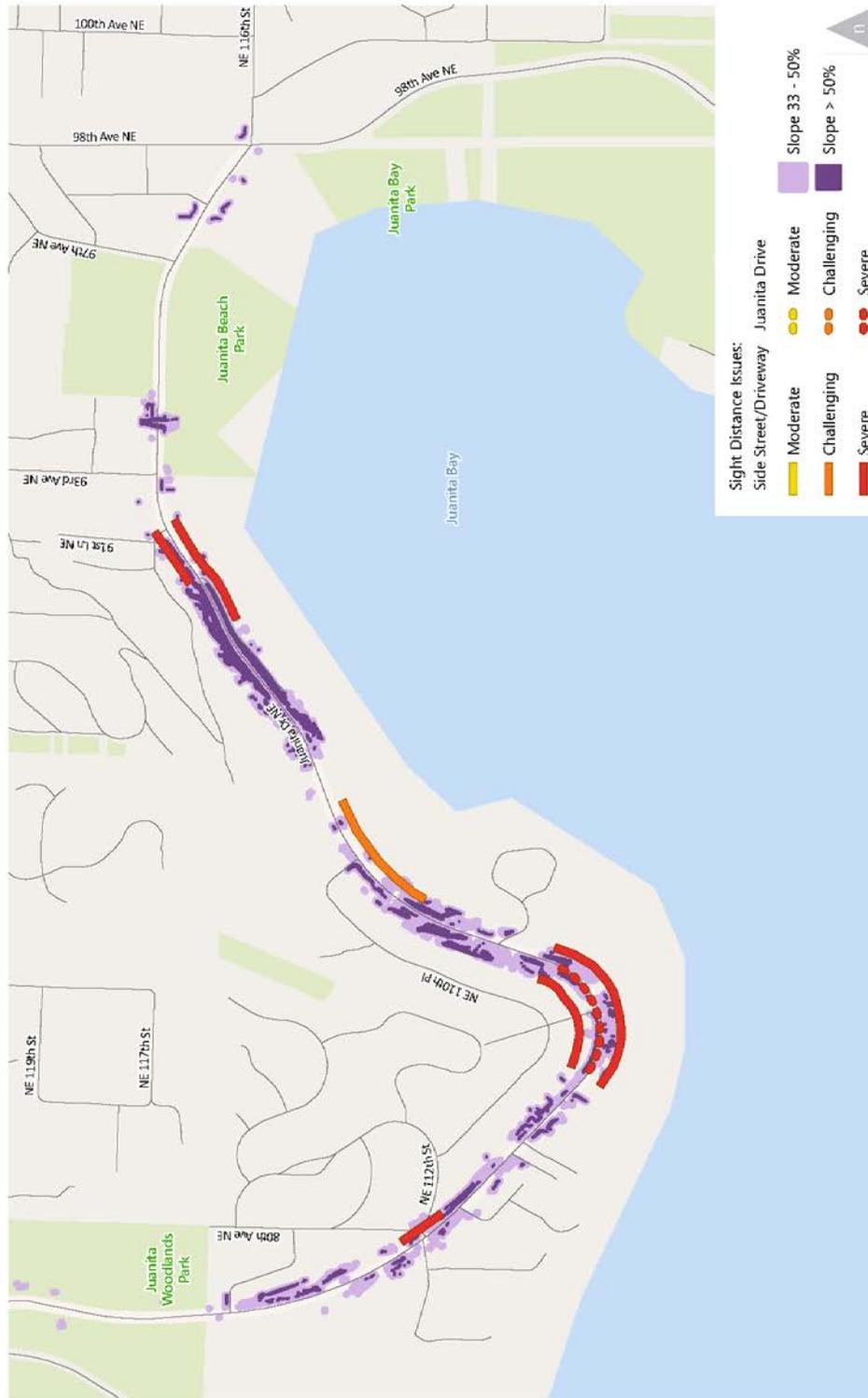
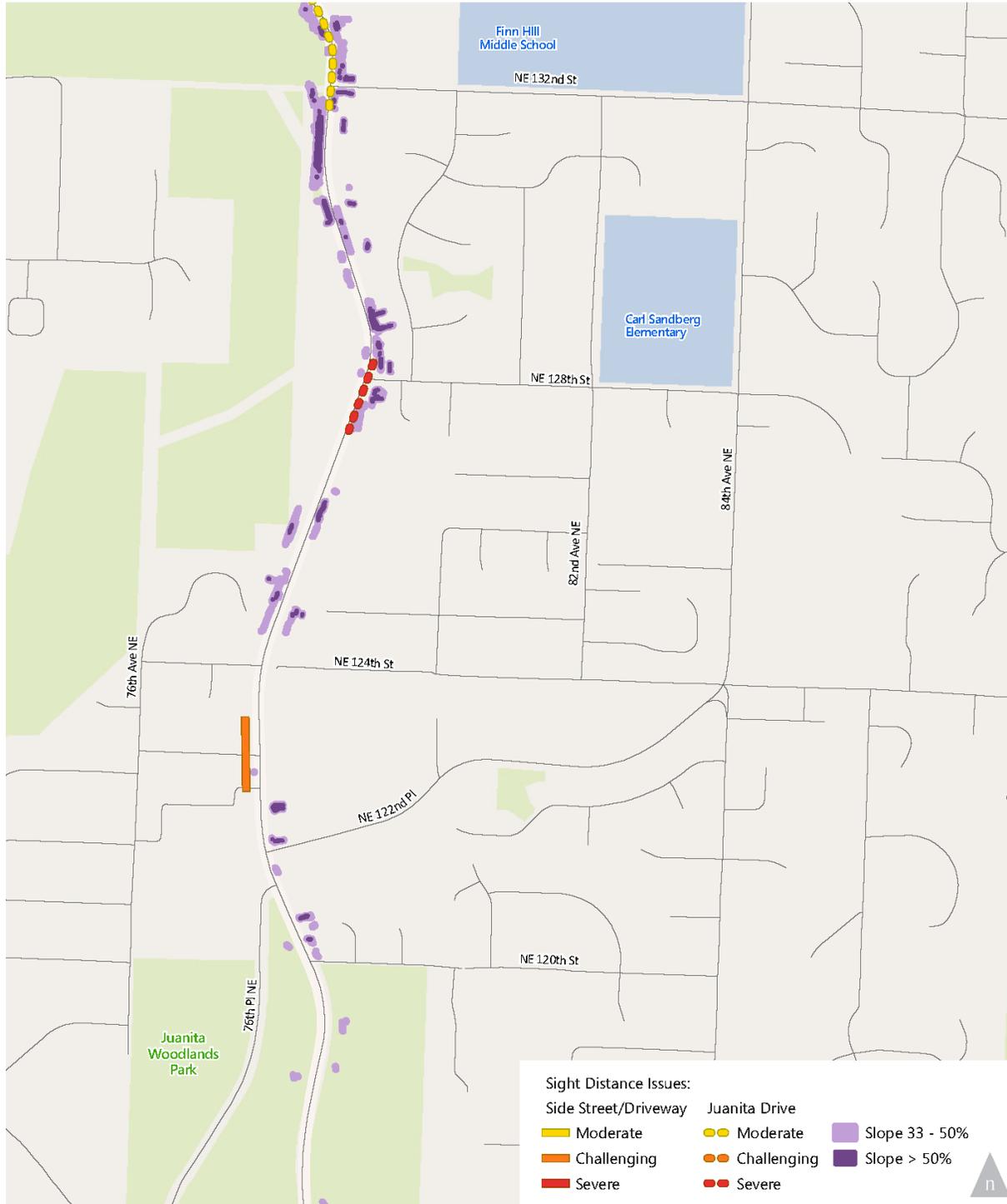


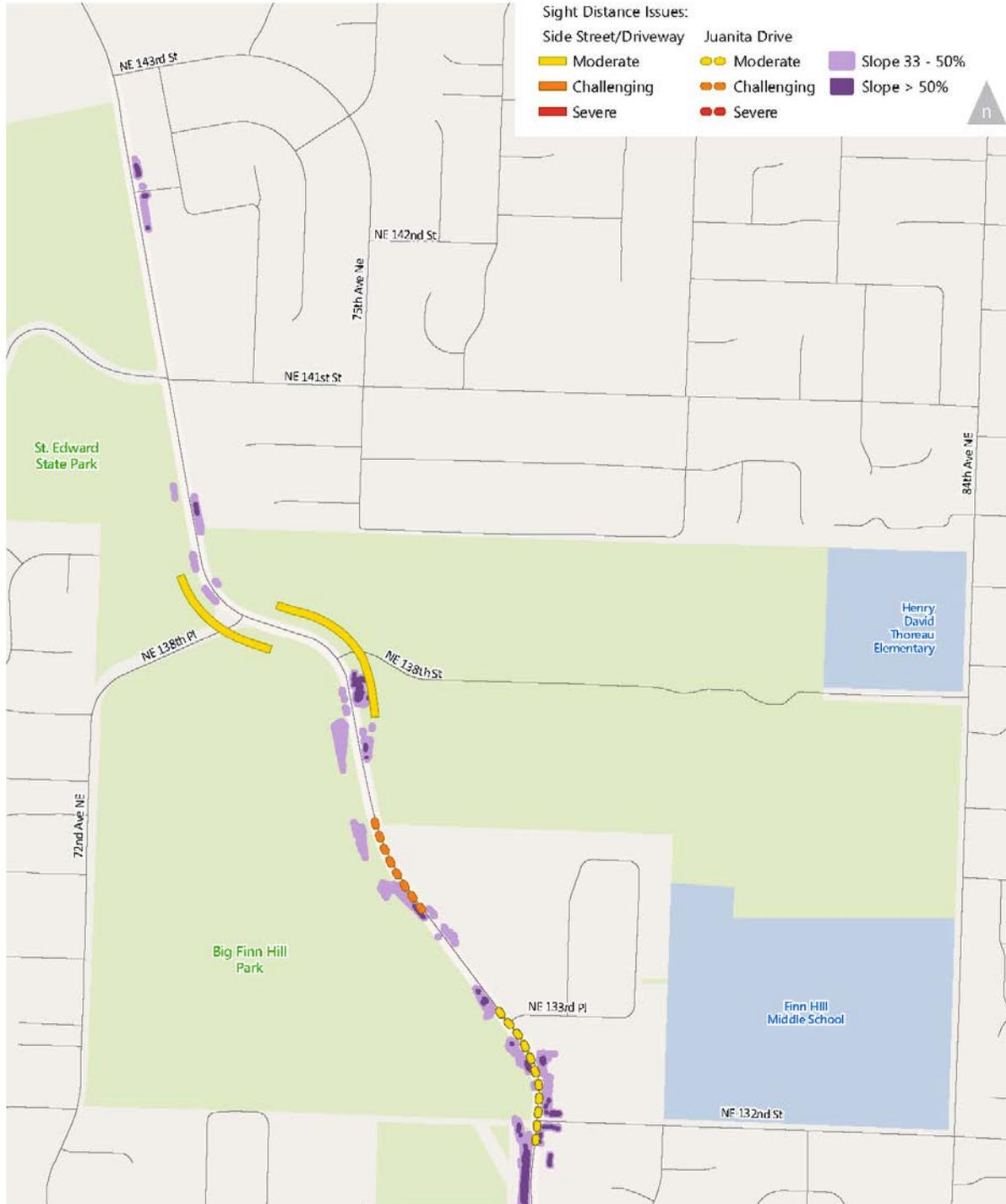
FIGURE 5B: SLOPE AND SIGHT DISTANCE – CENTRAL



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FIGURE 5C: SLOPE AND SIGHT DISTANCE – NORTH



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FIGURE 6: DRAINING ISSUES AND CONCERNS



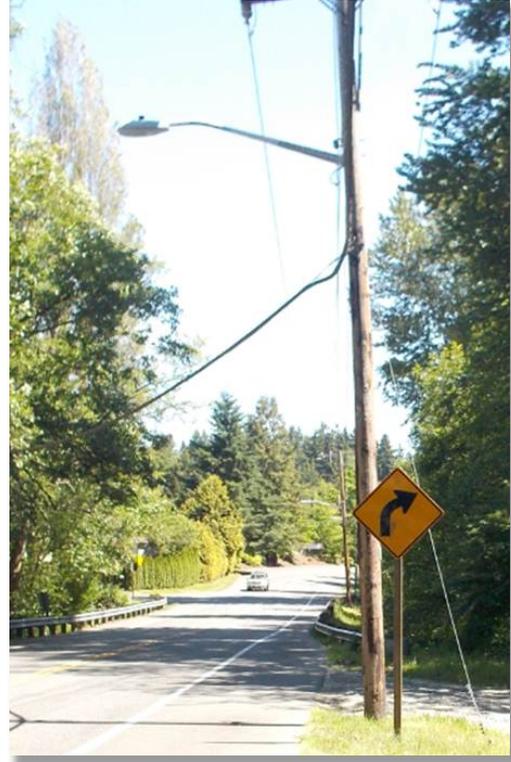
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LIGHTING

The existing lighting system on Juanita Drive consists of street lights mounted on timber and aluminum poles. Most of the street light poles are on the west side of the roadway with a mounting height of approximately 25 feet, with the exception of the north and south portions of the project where the poles are aluminum and staggered on both sides of the roadway. Spacing of the street lights varies along the corridor, which affects the lighting quality. On the north end from NE 143rd Street to NE 120th Street spacing varies from 100 feet to 400 feet. South of NE 120th Street spacing is approximately at 100 feet.

Existing light levels were determined using lighting analysis that examined *average light levels* (i.e. average light visible per square foot on the roadway) and what is called the *uniformity ratio*, the average light level to the darkest areas on the roadway.



The existing light levels along the north end of the project (from NE 143rd Street to NE 120th Street) are variable with several dark sections of roadway. In the south portion of the project (from NE 120th Street to 98th Avenue NE) the average light level is reasonably good.

While the overall average light levels in the corridor generally exceed the minimum standards, there are several sections of poor lighting within the areas listed below:

- South of NE 141st Street for approximately 600 feet
- South of NE 138th Street for approximately 800 feet
- North of NE 133rd Place for approximately 600 feet
- South of Holmes Point Drive for approximately 800 feet
- NE 141st St south to NE 132nd Street

In addition, there are two intersections with poor lighting: NE 141st Street and NE 122nd Place/Holmes Point Drive.



TRANSPORTATION OPERATIONS

The guiding principles emphasize safety for all modes. Understanding the transportation operations is important to the safety issues. This section describes existing transportation operations along Juanita Drive for each supported transportation mode: automobile, bicycle, pedestrians, and transit. Traffic flow, corridor safety, speed, and parking are discussed as they relate to these four modes of travel.

TRAFFIC FLOW

Peak hour and average weekday daily traffic (AWDT) counts were collected at five locations along Juanita Drive in 2012 (**Figure 7**). Counts were performed for a 24-hour period on Tuesday, Wednesday, and Thursday, days which represent the most typical weekday traffic conditions. Daily traffic totals for the three days were averaged to obtain the final AWDT values.

Results show that the southern portion of the corridor experiences the highest traffic demand, with 17,700 AWDT in the vicinity of Juanita Village. Continuing north, demand decreases to 11,100 AWDT in the vicinity of Big Finn Hill Park before increasing to 12,700 AWDT near the shopping center at NE 141st Street.

Peak hour traffic counts show that morning commute traffic on Juanita Drive is heaviest in the southbound direction. Comparable demand occurs northbound during the PM peak hour. As with the daily counts, AM and PM peak hour demand is heaviest near Juanita Village.

To better understand how peak hour travel patterns impact corridor traffic conditions, additional traffic counts were collected at eight intersections along Juanita Drive:

- NE 141st Street / Holmes Point Drive NE
- NE 132nd Street
- NE 128th Street
- NE 122nd Street
- 76th Place NE / Holmes Point Drive NE
- NE 112th Street/80th Avenue NE
- 97th Avenue NE
- 98th Avenue NE

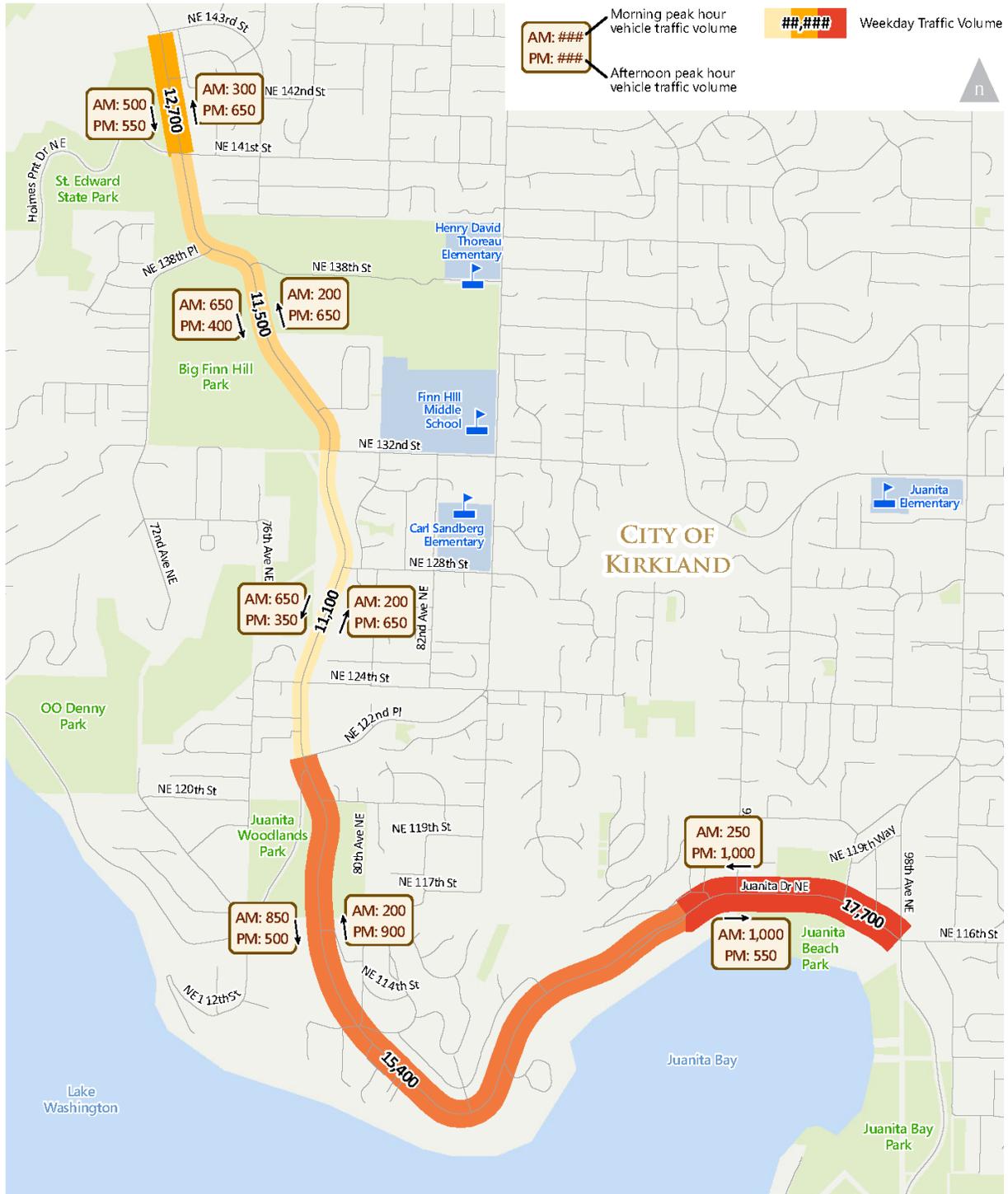
SR 520 TOLLING – TRAFFIC EFFECTS

In December 2011, WSDOT implemented a toll for all drivers crossing Lake Washington on the SR 520 bridge. When tolling began, peak period volumes increased on Juanita Drive. On 100th Avenue NE, a parallel north/south Kirkland corridor, volume increases were larger. As of 2013, volumes were down to 2011 levels on Juanita Drive but remained higher on 100th Avenue.

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FIGURE 7: EXISTING TRAFFIC VOLUME



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The intersection counts indicate high levels of congestion near Juanita Village. During the AM peak hour, traffic congestion occurs at 98th Avenue NE and 97th Avenue NE. During the PM peak hour, the 98th Avenue NE intersection is also heavily congested. All other intersections operate at reasonable congestion levels during the AM and PM peak hours, although slow moving, rolling traffic queues are commonly encountered heading southbound towards Juanita Village in the AM peak period and northbound towards the traffic signal at 76th Place NE / Holmes Point Drive NE during the PM peak period.

Based on the expected land use growth discussed previously, traffic demand along Juanita Drive could grow by 15 to 20 percent during the peak commute period by 2030. However, peak hour traffic growth along the central portion of the corridor will be constrained by the traffic throughput capacity at the southern and northern ends of the corridor. Because traffic demand is constrained, entering Juanita Drive at the 98th Avenue NE intersection at the southern end of the corridor and at Simonds Road NE (in the City of Kenmore) at the northern end, total peak period traffic demand on most portions of the corridor would likely increase by only 5 to 10 percent.

In 2030, the signalized intersections at 98th Avenue NE and 97th Avenue NE are expected to remain congested. Congestion at the 76th Place NE / Holmes Point Drive NE intersection would increase during the PM commute peak, resulting in longer traffic queues approaching the signal, but generally acceptable congestion levels compared to the city's standards.

An explanation of the intersection congestion calculation method and a table summarizing the specific intersection results are provided in **Appendix C**.

SAFETY

Along Juanita Drive, the existing roadway geometry, multiple driveway access points, and limited sight distance present safety concerns. Collision data for vehicles, bicycles, and pedestrians were collected to determine where these design concerns translate into safety deficiencies.

Collision data were obtained from the City of Kirkland for the Juanita Drive corridor. Collision data over a period of four years (January 2009 – December 2012) indicate a total of 142 collisions, an average of 36 collisions per year. Reports provide details about individual collisions, including type, probable cause, severity, time of day, weather conditions (summarized in the text box on the following page).

While the total number of collisions is not atypical of other Kirkland roadways, the severity of the collisions is higher than the City average. Thirty percent of the collisions resulted in injuries and there were



three fatalities, two involving a bicyclist. Exposure is high for bicyclists and pedestrians due to the limited sight distances, speeds, and lack of separation from motor vehicles.

Roadway segments and intersections with at least four collision events over the four year data period, representing the higher levels of collisions, are shown in **Figure 8**. Most of the rear-end collisions occurred at major cross streets where vehicles on Juanita Drive were stopped, waiting to turn left. Examples include the NE 132nd Street and NE 112th Street intersections. Angle collisions occur throughout the corridor often where drivers attempt to turn out of side streets or driveways onto Juanita Drive, facing high speed traffic and limited sight distance. Single vehicle and head-on collisions often occurred along segments where speeds exceed safe conditions (see next section). One example location is along the Juanita Woodlands Park.

COLLISION STATISTICS

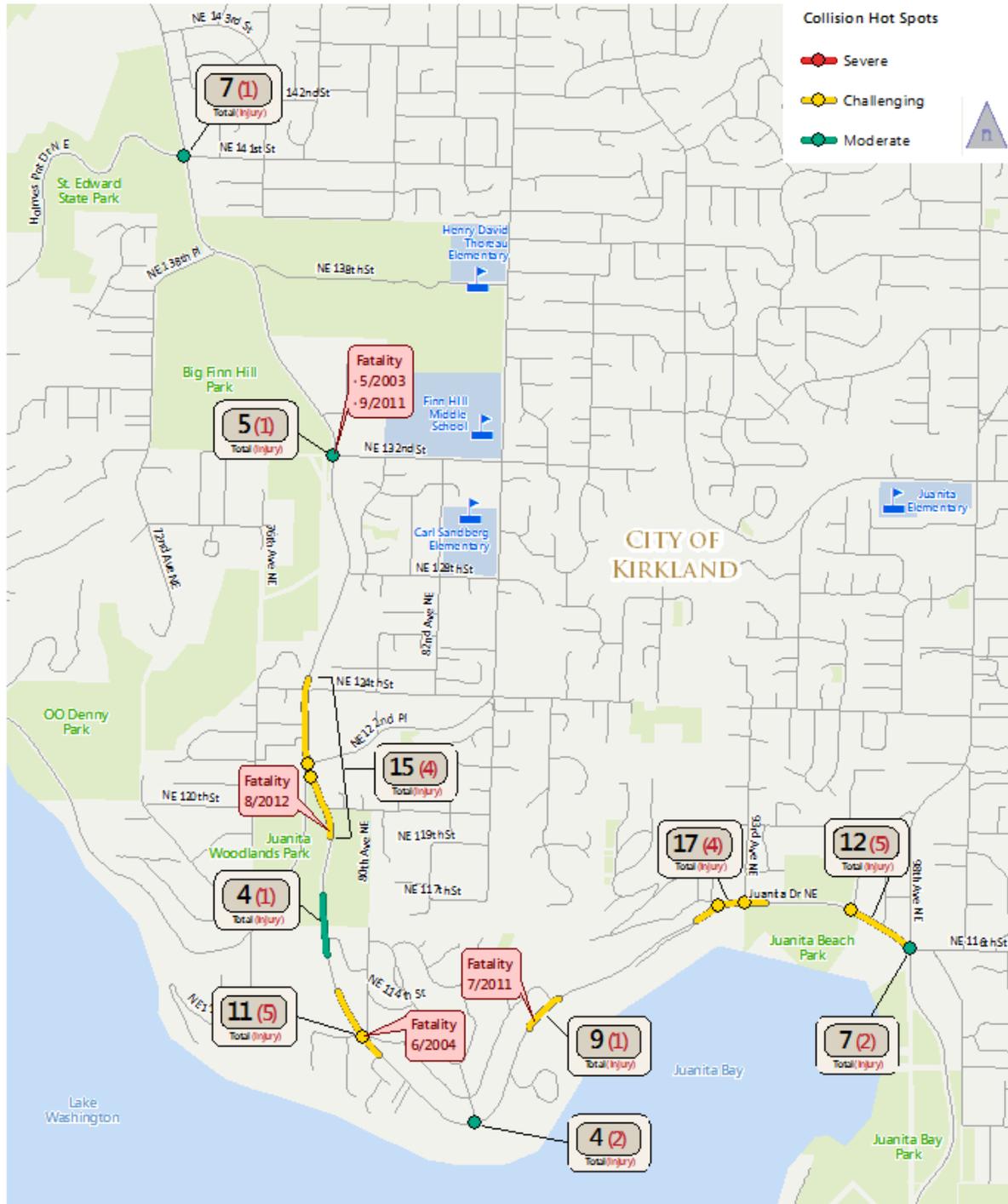
(JANUARY 2009 – DECEMBER 2012)

- Probable Cause and Type
 - Rear end was the most common type of collision, comprising 44% of the total.
 - 26% of all collisions were attributed to a driver exceeding reasonably safe speeds, based on police records.
 - Collisions attributed to DUI comprised 6% of the total, and about half of those were single vehicle collisions.
 - Single-vehicle collisions were 28% of the total.
- Conditions
 - 23% of all collisions occurred at night.
 - Weather conditions were wet or icy for 32% of all collisions.
- Severity
 - 30% of all collisions resulted in at least one injury.
 - Three collisions resulted in a fatality.
- Bicyclist and Pedestrians
 - Collisions involving a bicyclist were 5% of the total.
 - Two collisions resulted in a bicyclist fatality.
 - There was one collision involving a pedestrian over the 4-year period.

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FIGURE 8: COLLISION HOT SPOTS



SPEED

Speed is an important factor in the safety and perception of comfort along Juanita Drive. Speed studies were conducted at three locations along Juanita Drive in both the northbound and southbound directions. In general northbound travel is uphill and southbound is downhill. **Table 2** summarizes the posted speed limit and observed speed levels at these locations. Two speed values are shown:

- **50th Percentile Speed** – half of motorists travel below this speed, and half of motorists exceed this speed.
- **85th Percentile Speed** – 85 percent of motorists travel below this speed, and 15 percent of motorists exceed this speed. Typically, the 85th percentile speed is used to establish posted speed limits.

Results show that the majority of drivers exceed the posted speed limit throughout the study area. Speeding is particularly prevalent in the north and central areas of the corridor, where over 70 percent of drivers exceed the posted speed. Over 10 percent of drivers travel at extreme speeds (10 mph or more over the posted speed) northbound near Big Finn Hill Park and southbound (downhill) in the vicinity of Juanita Woodlands Park. Time of day data associated with the observations indicate that most extreme speeding occurs at night.

All of the horizontal curves meet the safety standards of the established 35 mph posted speed, but several curves do not meet the standards for 40 mph travel. This creates potentially unsafe conditions for motorists and other users, particularly at night and during inclement weather.

TABLE 2: OBSERVED CORRIDOR SPEEDS

Location on Juanita Drive	Posted Speed Limit (mph)	50 th Percentile Speed (mph)		85 th Percentile Speed (mph)	
		Southbound	Northbound	Southbound	Northbound
North ¹	35	37	41	40	45
Central ²	35	39	38	44	41
South / Juanita Village ³	25	25	27	29	31

¹ Recorded directly north of NE 138th Street

² Recorded directly north of NE 112th Street / 80th Avenue NE

³ Recorded directly west of NE 93rd Street

Source: Fehr & Peers, 2013.

PEDESTRIANS AND BICYCLISTS

Pedestrian and bicycle facilities in the Juanita Drive study area are depicted in **Figure 9**.

Pedestrians

Pedestrian facilities include sidewalks and crosswalks. To the east of NE 116th Place near Juanita Village and Juanita Beach Park, sidewalks are provided on both sides of the street, buffered from the roadway by landscaping strips and tree planter boxes. Pedestrian push buttons are located at the signalized intersections at 97th Avenue NE and 98th Avenue NE. Further west, there is a midblock crosswalk with warning beacons to connect Juanita Beach Park across Juanita Drive. At the 93rd Avenue crosswalk (pictured next page), crossing flags are provided.



Marked crosswalks are provided at the following locations:

- NE 141st Street (signalized intersection)
- 76th Place NE / Holmes Point Drive NE (signalized intersection)
- NE 122nd Street (signalized intersection)
- 86th Avenue NE (unsignalized intersection)

The 86th Avenue NE crosswalk presents safety concerns due to sight distance issues from both directions of travel on Juanita Drive.

For much of the corridor outside Juanita Village, sidewalks are not present on either side of the street. Sidewalks are typically provided only near commercial retail centers and at a few transit stops. Combined

with the lack of continuous sidewalks between neighborhood centers, the limited provision of safe and comfortable crosswalks limits pedestrian mobility along the full-length of the corridor.

Bicycles

Formal bicycle facilities are limited to the Juanita Village area (see Figure 9). Between 98th Avenue and NE 116th Place, five-foot wide bike lanes are provided on both sides of the roadway. Bike lanes continue to the east along NE 116th Street and connect to bicycle facilities along 98th and 100th Avenue NE. West of NE 116th Place, Juanita Drive does not have marked bike lanes but the shoulders are often used by bicyclists.

Near neighborhood retail centers the roadway has curb, gutter, sidewalk, and about five feet of striped shoulder space. Outside of the neighborhood retail centers, bicyclists commonly ride in the shoulders on either side of the roadway (pictured right). The striped shoulders function like bike lanes but do not include standard bike lane markings. While the shoulders work reasonably well for bicycles, there are many other formal and informal uses of the shoulder that interfere with bicycle use, including trash receptacle placement and pickup, mail delivery, vehicle breakdowns, parking, and delivery truck pull-off.

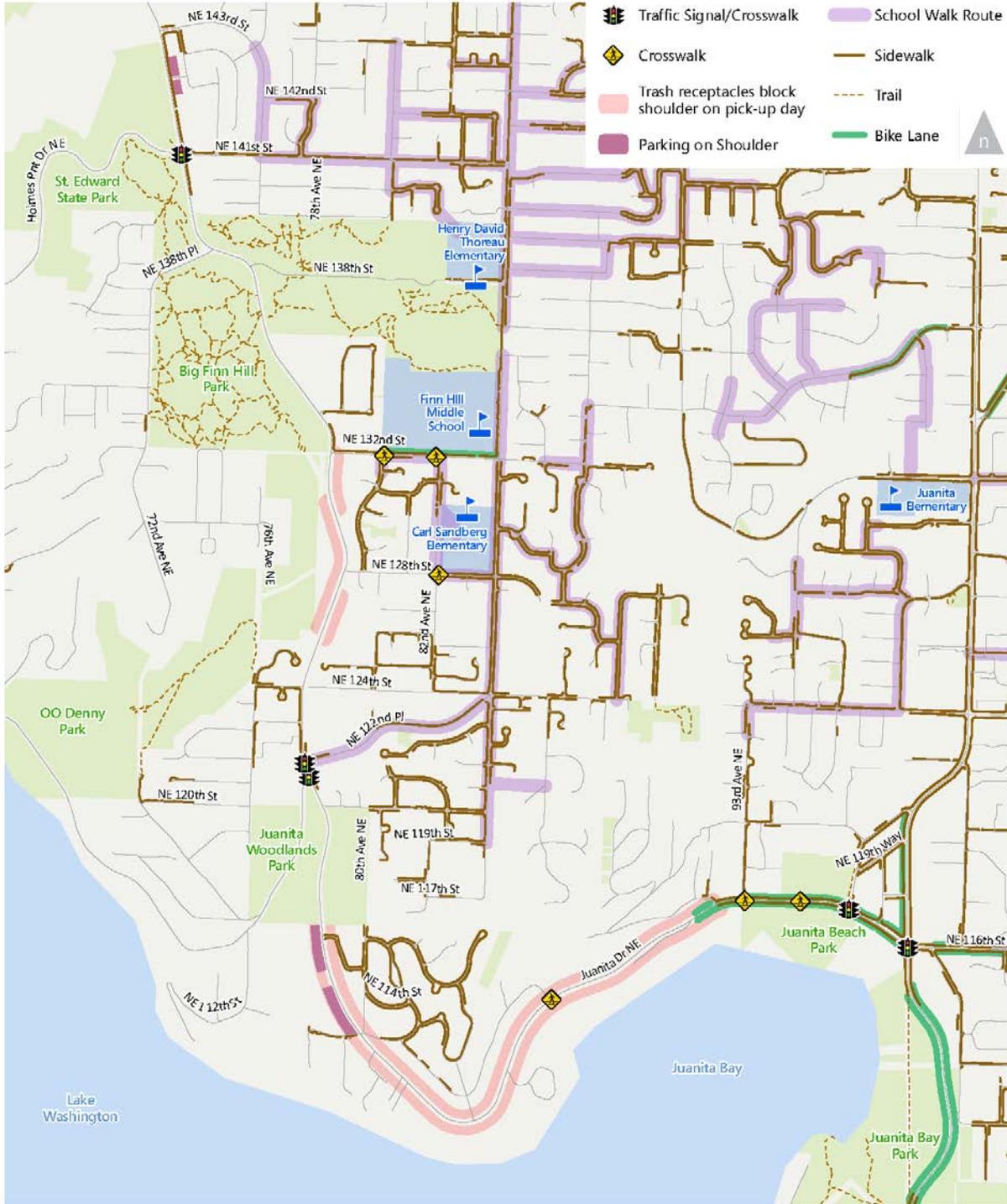


Despite the lack of formal bicycle facilities on much of the corridor, Juanita Drive is a popular north-south route for commuter and recreational bicyclists. Counts collected by WSDOT and the Cascade Bicycle Club at the intersection of Juanita Drive and NE 143rd Street in September 2012 indicate 28 bicyclists pass through during the AM peak travel period (7 – 9 AM) and 32 during the PM peak (4 – 6 PM). Outside of commute hours, a moderate number of recreational bicyclists travel the corridor. Bicycle volumes are typically higher during weekends.

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FIGURE 9: PEDESTRIAN AND BICYCLE FACILITIES



TRANSIT

King County Metro Transit (Metro) provides public transit service along Juanita Drive, offering two bus routes along the study corridor. Details of these passenger bus line routes, as of December 2013, are described below:

- **Route 260** – Route 260 connects Inglewood/Finn Hill with Downtown Seattle. It makes a clockwise loop of the Inglewood neighborhood, traveling south on 84th Avenue NE, west on NE 123rd Street/NE 122nd Place, north on Juanita Drive, and East on NE 141st Street before going south again onto 84th Avenue NE and heading east on NE 134th Street. Service includes three buses to Downtown Seattle during the AM commute period and three buses to Inglewood/Finn Hill during the PM peak period. There are three Route 260 stops that serve the Juanita Drive Corridor between NE 122nd Place and NE 141st Street.
- **Route 935** –Route 935 operates as Dial-a-Ride Transit (DART); passengers may wait at any of the route’s stops for regularly scheduled service or may place a reservation for pick-up at an off-route location within the defined service area. Route 935 connects Totem Lake to Kenmore via Juanita Drive and 84th Avenue NE. The AM commute period service (5 – 9 AM) includes five vans to Totem Lake and six to Kenmore. Between 3 – 6 PM, seven vans connect to Totem Lake and six to Kenmore. There are nine scheduled northbound and southbound Route 935 stops that serve the Juanita Drive Corridor between Juanita Village and the Kirkland city limits.



PARKING

Vehicle parking is not permitted in the shoulder on most portions of the corridor. In practice, on-street parking commonly occurs at certain locations, including the west shoulder between Juanita Woodlands Park and the NE 112th Street / 80th Avenue NE and the east shoulder near NE 142nd Street. These locations are indicated in Figure 9 with the pedestrian and bicyclist facilities.

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Use of shoulder space for on-street parking can create a variety of conflicts with the other functions of the shoulder (e.g., bicycle and pedestrian movement, trash receptacle placement and pickup, delivery pull-off space, vehicle breakdown space). For example, when vehicles are parked in the east shoulder near 142nd Street, northbound bicyclists are forced to merge from the shoulder into the travel lane (pictured right). This situation occurs throughout the corridor.



RECOMMENDED PLAN

The Juanita Drive Corridor Plan contains a variety of projects that meet the study's guiding principles, which can be phased in over the next several years. The plan recognizes that Juanita Drive passes through a wide variety of land use contexts, topography, and natural settings. This variety dictates the unique treatments that are applied to address specific safety, access, and mobility needs. However, the plan contains several features that are important to the overall upgrade of the corridor. These common features include the following:

- Basic roadway cross-section that contains a travel lane in each direction, buffered bicycle lanes, and a walkway on at least one side of the roadway. In some sections, an off-road multipurpose path is an option.
- Pedestrian crosswalks with flashing beacons.
- Street lighting upgrades.
- Drainage improvements.
- Intersection treatments, such as turn pockets and better sight distance.
- Traffic calming treatments to reduce speeds.
- Prohibition of on-street parking

The corridor plan does not recommend the addition of travel lanes to accommodate more traffic, but the intersection treatments will improve overall traffic flow and safety. Recognizing that many of these projects are expensive and will take several years to fund and implement, the plan sets priorities and identifies some 'quick win' projects that could be funded in the near future as funding becomes available.

The following sections describe the corridor plan recommendations in further detail.

PROPOSED ROADWAY CROSS-SECTION

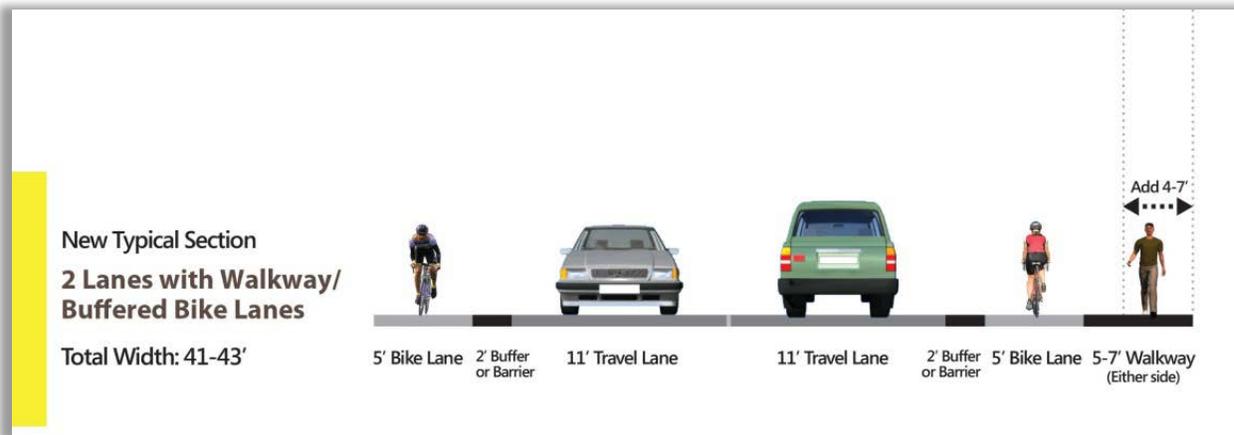
BASIC CROSS-SECTION

The recommended basic roadway cross-section consists of the following (see **Figure 10**):

- One 11-foot travel lane in each direction.
- Bicycle lanes in each direction, with a two-foot buffer separating the bicycle lane from the travel lane.
- A walkway (5-7 feet) on one side.

This cross-section (41-43 feet) fits within the existing roadway right-of-way (60 feet) but recognizes that much of the right-of-way is difficult to use given the hilly terrain and steep slopes. The cross-section would require adding from 4 to 7 feet of pavement width throughout the corridor. This design reflects the trade-offs needed to provide for safe conditions while respecting the natural environment and character of Juanita Drive.

FIGURE 10: BASIC CROSS-SECTION



The buffered bicycle lane would provide a safer environment for bicyclists throughout the corridor. The buffer is envisioned as a two-foot specially-painted area along most roadway sections. The buffer would provide visual cues to drivers while still allowing bicyclists access for passing or other maneuvers. The buffered bike lane would also be accessible for occasional use by waste management trucks, postal services, and emergency/maintenance vehicles. In some short areas, such as around curves, "green" bike lanes could be painted, or the buffer could contain physical treatments such as rumble strips, plastic

candles, or low curbing. Continuous physical separation of the bicycle lanes is not envisioned due to frequent driveway and intersection spacings, special vehicle access needs described above, and bicycle maneuverability.

The walkway could be designed either as an asphalt surface flush with the bicycle lane (with paint separation), a textured or colored pavement, gravel pathway or as a raised sidewalk. These decisions could vary throughout the corridor and would be made with community input during the design process. The walkway could be on either side of the roadway in the south section of the corridor, with the eastern side being most likely in the central and northern sections.

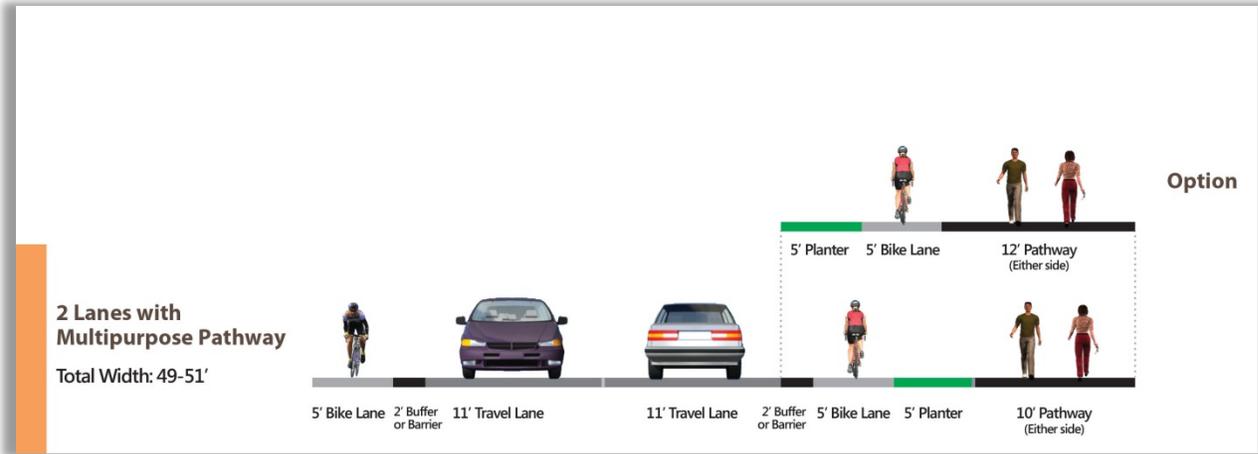
The basic cross-section assumes that on-street parking would be prohibited, which is the current condition throughout most of the corridor. Some of the informal parking that currently exists along the roadway shoulders would be eliminated due to the designation of the bicycle lane and walkway.

MULTIPURPOSE TRAIL CROSS-SECTION

Several members of the community favored the construction of a multipurpose trail along the corridor with separation from motor vehicles. This design was not practical in many sections due to topography, frequency of driveways, and cost. However, a multipurpose trail could be constructed through the park sections of the corridor to provide a more pleasant and safer environment for all nonmotorized users. **Figure 11** shows this cross-section, which would be about 10 feet wider than the basic cross-section. The multipurpose trail would be separated from the roadway by a planter strip, with the bicycle lane either adjacent to the travel lanes or next to the trail.

The multipurpose trail would need to be designed in harmony with the park setting, taking into consideration the likely need for additional right-of-way and tree impacts. The section through Big Finn Hill Park would lend itself most logically to this design treatment. The roadway section through Juanita Woodlands Park could also be considered, but it is shorter in length and the steep slopes would require expensive construction. In that section, a separated narrower trail could be an option.

FIGURE 11: CROSS-SECTION WITH MULTIPURPOSE TRAIL



TOWN CENTER AREA CROSS-SECTIONS

In the portions of the corridor that run through town centers there would be limited changes to the existing cross-sections; they would include three lane designs, sidewalks, and planter strips.

PROJECT RECOMMENDATIONS

The corridor plan consists of 32 projects grouped into logical packages as shown in **Appendix B**. The total cost of the plan ranges from \$19 to \$26 million, depending on the design options, as summarized in **Table 3**. About half of the cost (\$10 million) is to provide the basic cross-section through the corridor. Building the wider multipurpose trails through the parks would add around \$4.6 million. Intersection treatments including turn pockets, crossing treatments and lighting would require an additional \$5 to \$6 Million, while various other nonmotorized, Intelligent Transportation Systems (ITS), safety and lighting treatments would add around \$3 to \$4 million.

TABLE 3: SUMMARY OF RECOMMENDED PROJECTS

Projects	Basic Cost	Additional Costs for Option
Basic Cross-section	\$10.6M	\$3.3M (Multipurpose Trails)
Intersections	\$5.3M	\$1.2M (Roundabouts)
Uphill Bicycle Lane throughout Corridor	\$0.6M	
Other Pedestrian/Bike Safety Treatments	\$1.5M	
Intelligent Transportation Systems (ITS)	\$1.1M	\$1.2M (undergrounding utilities)
Other Safety Projects	\$0.2M	
Total Projects	\$19.3 Million	\$5.7 Million

Note: Not in priority order

Table 4 lists the individual projects, shown in **Figure 12 (a,b,c)**. The costs are considered to be conservatively high with large contingencies applied (generally 30% depending on project complexity). The basic costs in the table include the basic cross-section (see Figure 10). The option costs add the multipurpose trails, two roundabouts at NE 122nd Place and NE 138th Street, and undergrounding of utilities for the ITS project.

The projects in Table 4 are shown as high, medium, and lower priority based on rating them against the guiding principles of the study. The highest rated projects are marked with an asterisk (*). **Appendix B** shows the prioritization criteria and the rating results. All of the projects scored fairly well across the criteria, since they were developed with the guiding principles in mind. The biggest areas of difference in the priorities related to the degree to which the projects addressed known safety problems, how many travel modes they addressed, their cost, their ability to be phased, and degree of public support received

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during the community outreach events. The prioritization process will be helpful to the city seeking grant funds or packaging project elements along the corridor. **Table 5** summarizes what we heard from the community and what we propose the corridor plan recommends.

TABLE 4: RECOMMENDED PROJECTS

Project ID	Rating	Project Location	Project Description	Basic Cost ¹	Options Cost
I1	L	97th Ave NE/ 98th Ave NE Intersections	Retime signals	105	
I2	L	NE 116th Pl Intersection	Rechannelize	125	
I3	H*	112th Ave NE Intersection	Rechannelize Intersection/ Pedestrian Crossing	1,894	
I4	M	76th Pl NE/ NE 122nd Pl Dual Intersections	Rechannelize/ combine intersections with signal (L) or roundabout (H)	1,184	193 ^(R)
I5	H*	NE 128th St Intersection	Left turn pocket/ pedestrian crossing	1,082	
I6	H*	NE 132nd St Intersection to NE 133rd Place	Left turn pocket/ pedestrian crossing/ walkway	878	
I7	H*	NE 138th Pl Intersection	Roundabout Option (Add to cost of Project R8)		1,012 ^(R)
I8	L	NE 141st St Intersection	Add left turn signals	55	
NM1	M	98th Ave NE Intersection	Pedestrian/ Bicycle enhancements	83	
NM2	M	93rd Ave NE Intersection	Pedestrian Crossing	90	
NM3	M	86th Ave NE Intersection	Pedestrian Crossing/Drainage	525	
NM4	H	NE 124th St Intersection	Pedestrian Crossing/ walkway to NE 123rd St	143	
NM5	M	NE 132nd St- Juanita Drive to 72nd Ave NE	Pedestrian/Bicycle Corridor treatment	316	
NM6	H*	Big Finn Hill Park	Pedestrian crossing/ trail connection	203	
NM7	L	NE 143rd St Intersection	Pedestrian Crossing	90	
NM8	H*	Corridor	Bicycle safety treatments	129	
NM9	H	Corridor	Create northbound bicycle lane	377	
NM10	H	Corridor	Bicycle Signs for northbound bicycle lane	187	
R1	M	NE 116th Pl to 86th Ave NE	Cross-section/ Drainage Improvements/ Gateway median	4,994	
R2	M	86th Ave NE to NE 112th St	Cross-section/ close 83rd Ave NE	972	
R3	L	NE 112th St to 79th Way NE	Cross-section	1,051	
R4	L	79th Way NE to NE 120th St	Cross-section	550	980 ^(MP)
R5	H*	NE 120th St to NE 122nd Lane	Extend 3rd lane/ walkway on east side	309	
R6	M	NE 124th St to NE 132nd St	Cross-section	985	
R7	H*	NE 133rd Pl to south of NE 138st St	Cross-section	781	901 ^(MP)
R8	H	NE 138th St to North of NE 138th Pl intersection	Cross-section/ Intersection Channelization at NE 138th Pl and NE 138th St	497	806 ^(MP)
R9	L	NE 138th Pl to NE 141st St	Cross-section/ Gateway Median	449	575 ^(MP)
R10	L	NE 141st St to NE 143rd St	Cross-section	63	
V1	H*	NE 122nd Pl	Lighting Upgrade	50	
V2	H	Corridor- selected locations	Center line Rumble Strips	38	
V3	M	NE 138th Pl Intersection	Left turn refuge for EB to NB movement	41	
V4	L	Corridor	ITS Integration- Signals	1,050	1,200 ^(ITS)
V5	L	Corridor	Gateway Signs- North and South End	40	
Total				19,336	5,667

¹ in 1,000s

² Low = 1; Medium = 2; High = 3

* Highest Rated

^(R) Roundabout Options

^(MP) Widen for Multipurpose Options

^(ITS) ITS Undergrounding

1,205

3,262

1,200





TABLE 5: COMMUNITY INPUT ON THE RECOMMENDATIONS

What we Heard from the Community	What the Proposed Corridor Plan Recommends
Improving safety in the corridor is important; especially for bicycles and pedestrians	Separated walkway and bicycle lanes with buffer strips; intersection channelization; active pedestrian crossings
There are too many vehicle collisions	Intersection turn lanes to reduce rear end collisions; center line rumble strips to reduce head-on collisions
Traveling the corridor during rush hour is difficult, but minimal interest in widening the corridor for more automobile lanes	No new auto lanes, but some intersection turn lanes and traffic signal improvements
There aren't enough connections between neighborhoods and parks, including safe routes to local schools	Several new 'flashing' pedestrian crossings and links to neighborhoods, schools and parks
Provide as much separation as possible for pedestrians and bikes	Bike lanes with buffer strips and walkway on one side of road; option for multipurpose trail in Woodland and Big Finn Hill parks.
Mixed reactions to roundabouts; some people wanted them, some did not.	Options for a roundabout at NE 122nd St/Holmes Point Dr and at NE 138th Pl.
Don't impact the parks along the corridor	Two options in parks- basic cross section or wider section with multipurpose trail. Sensitivity to roadway width and right-of-way
Get something done soon!	Several 'quick win' projects that could be implemented soon as funding is available

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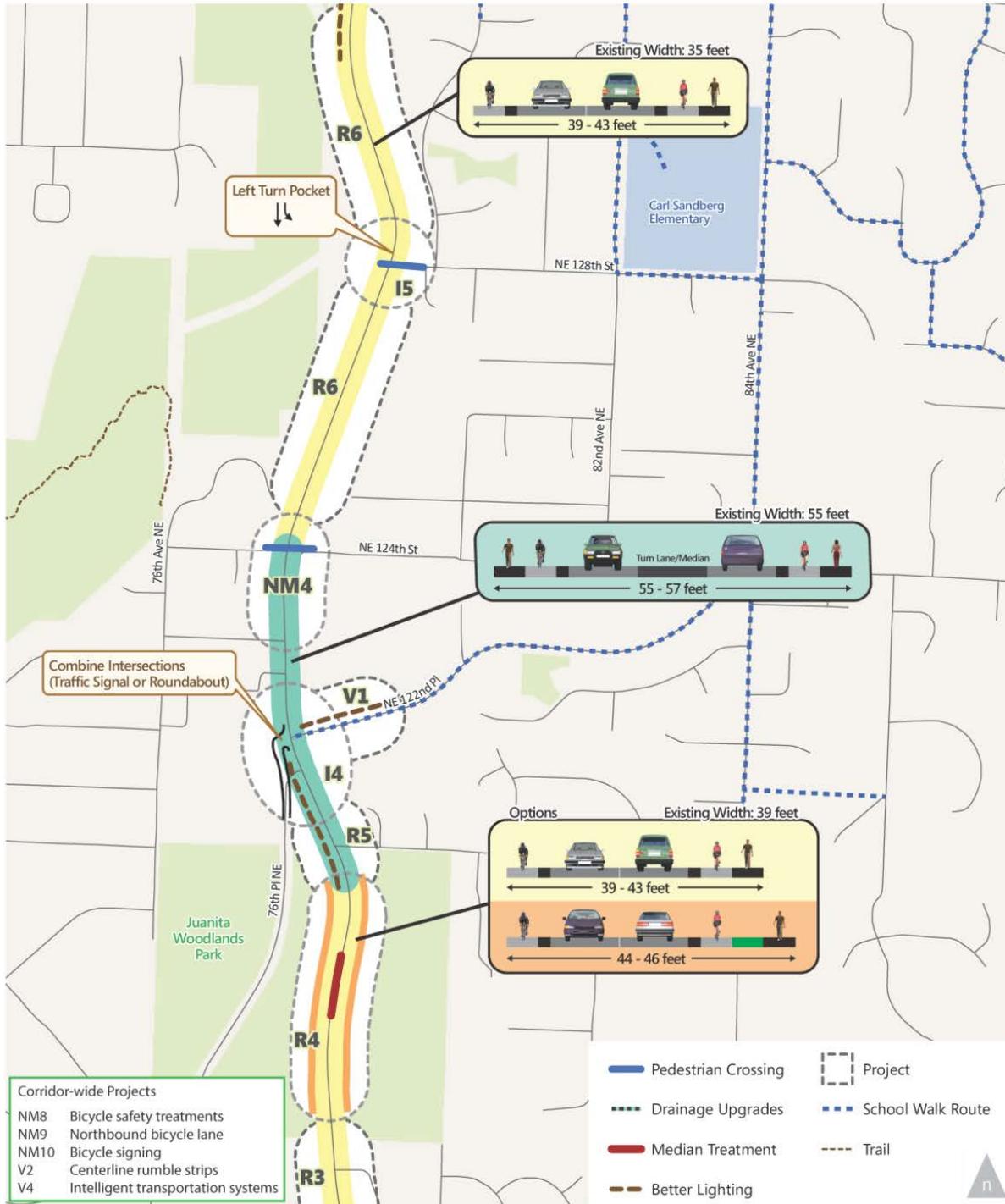
FIGURE 12A: RECOMMENDED PROJECTS - SOUTH



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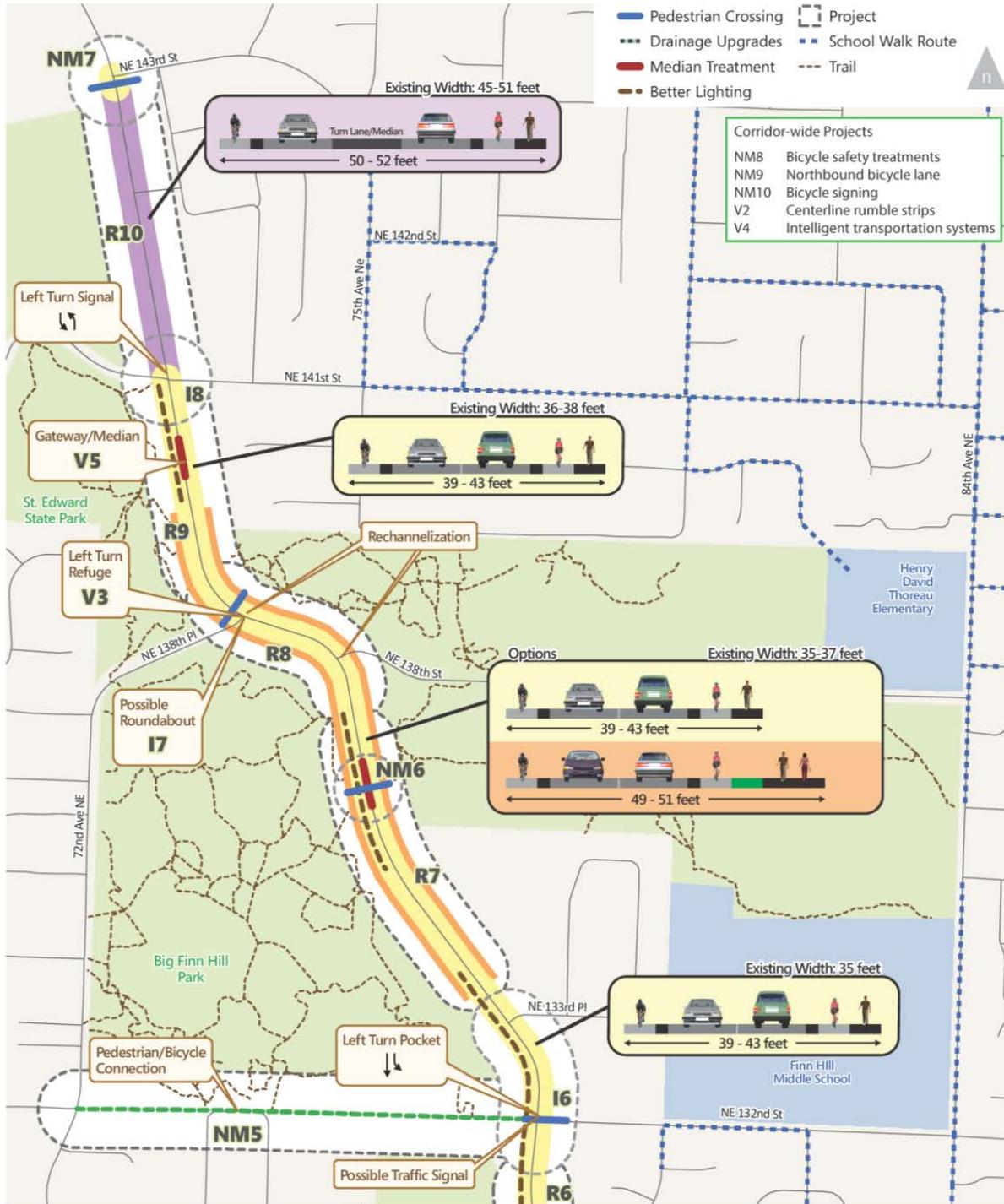
FIGURE 12B: RECOMMENDED PROJECTS - CENTRAL



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FIGURE 12C: RECOMMENDED PROJECTS - NORTH



'QUICK WIN' PROJECTS

Realizing the high implementation cost of the entire plan, the team identified several relatively low-cost actions that could produce immediate benefits. **Table 5** lists these quick win projects, which are depicted in **Figure 13** and listed based on their priority rating (i.e., H, M, L).

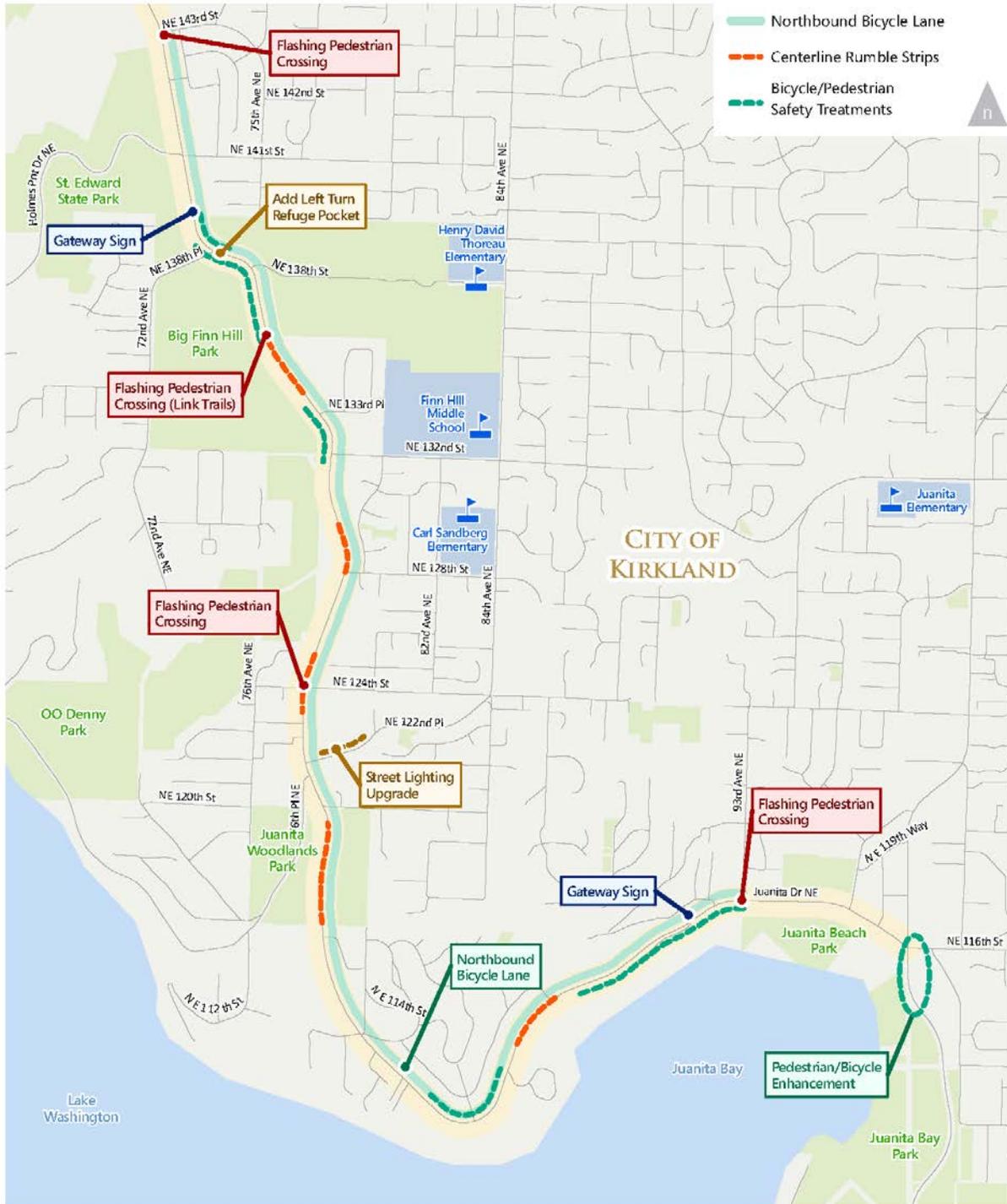
TABLE 6: QUICK WIN PROJECTS

ID	Project Description	Estimated Cost (\$000)	Priority Rating (Table 4)
NM6	Flashing Pedestrian Crossing at Big Finn Hill Park	\$210	H
NM8	Interim Pedestrian/Bicycle Safety Treatments	\$130	H
NM9	Northbound Bicycle Lane Throughout Corridor	\$380	H
NM10	Bicycle Signs for Northbound Bicycle Lane	\$190	H
V1	Lighting Upgrade (NE 122 nd Place)	\$50	H
V2	Centerline Rumble Strips	\$40	H
NM1	98 th Avenue Bicycle/Pedestrian Enhancements	\$90	M
NM2	Flashing Pedestrian Crossing at 93 rd Avenue NE	\$90	M
V3	Left turn refuge pocket-NE 138 th Place	\$40	M
NM7	Flashing Pedestrian Crossing at NE 143 rd Street	\$90	L
V5	Gateway Signs (north and south ends of corridor)	\$40	L
TOTAL		\$1,350M	

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FIGURE 13: QUICK WIN PROJECTS



Several of these projects could be transportation CIP. Others may require specific funding allocations from grants or other dedicated funds. One project merits specific discussion in the following section.

UPHILL BICYCLE LANE

Given the high cost of providing the basic cross-section throughout the corridor, it is likely to be built in phases. This would lead to discontinuous nonmotorized treatments along the corridor until the plan is finished. Particularly for bicycles, there is a need to provide a safe, continuous treatment along the full corridor. Otherwise, bicycles need to travel into and out of a designated bicycle lane. To address this concern, Project NM9 would construct a northbound buffered bicycle lane throughout the corridor. The result would be a five-foot bike lane with a 1-2 foot buffer in the uphill direction where bicyclists are slowest.

This project would be created with limited or no widening in most sections. The buffer would be delineated with painted edge stripes and some use of guide posts or other physical treatments around tight corners. Permanent bicycle lane signing (project NM10) would also be included. The cost is on the order of \$600,000. It is estimated that much of the work performed in this project could be incorporated into the permanent cross-section design, including the permanent bicycle signing.

PROJECT PACKAGING

To assist the city in developing data for its Capital Improvement Program and grant applications, the plan includes nine fact sheets that describe packages of projects that serve similar geographic or functional areas. **Appendix B** contains the fact sheets, which are one-page summaries followed by the detailed cost breakouts for each project in the group. The project groups are listed in **Table 6**.

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TABLE 7: JUANITA DRIVE PROJECT GROUPS

ID	Project Group Description	Projects Included
1	Corridor Pedestrian Treatments	NM1 NM2 NM6 NM7
2	Neighborhood Access Points- 86th Avenue NE; NE 112th Street/80th Avenue NE	NM3 I3
3	South Corridor - Juanita Lane to NE 120th Street	R1 R2 R3 R4 I2
4	Holmes Point Drive / NE 122nd Place Intersection	R5 I4 V1
5	Central Corridor- NE 124th Street to NE 133rd Street	R6 I5 I6 NM5 NM6
6	North Corridor- Big Finn Hill Park to NE 140th Street	R7 R8 R9 I7 V3 V5
7	North Corridor- NE 141st Street to NE 143rd St	I8 R10 NM7
8	Corridor Interim Bike and Safety Treatments	NM8 NM9 NM10 V2
9	Corridor ITS Integration	V4 I1





APPENDIX A: COMMUNITY OUTREACH SUMMARY

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Overview

The City of Kirkland developed a corridor plan for future transportation improvements to the Juanita Drive Corridor between Juanita Village and the northern City limits in Finn Hill. To better understand community concerns related to this corridor and to develop solutions to improve safety and mobility in the future, the City of Kirkland initiated an extensive public involvement effort.

The project team developed an overall communication and public involvement strategy, conducted stakeholder interviews, created project informational materials and website content, conducted and participated in community events and facilitated a project advisory group.

The City identified key target audiences to engage:

- Businesses and residents along the project corridor and within the City of Kirkland
- Users of the project corridor; local and regional
- Management and users of the parks and public spaces
- Local agencies, such as Lake Washington School District and Metro
- Community groups and organizations
- City of Kirkland staff, such as emergency response
- Elected officials

Community involvement was key in developing and implementing a successful corridor plan for Juanita Drive. To prepare a common vision for future improvements to the corridor, the City gathered input from the community at public workshops, briefings with neighborhood groups, and informational booths at local events. A community-based advisory committee was also formed to serve as a forum for additional dialogue and information sharing among community members and city staff.

Stakeholder Interviews

Interviews were conducted in Spring 2013 to inform key stakeholders about the project, identify key issues that should be addressed and better understand how stakeholders felt their organization, as well as the public, could influence the project moving forward. Interviewees included community leaders, business representatives, agency staff and emergency response providers.

What we heard from the community:



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- Improving safety in the corridor is important; especially for bicycles and pedestrians
- Traffic congestion during peak travel periods is a concern
- Limited sight distances throughout the corridor are a concern, especially for large vehicles
- Desire for quick implementation of improvements, if possible
- Any improvements should be context sensitive of the blend between rural areas, neighborhoods and business centers

Events

- May 8 – Kirkland Alliance of Neighborhoods, Heritage Hall
- May 13 – Juanita Neighborhoods Association, Juanita Elementary
- May 14 – Kirkland Business Roundtable, Eastside Tennis Center
- May 29 – Finn Hill Neighborhood Alliance, Finn Hill Middle School
- June 5 – Kirkland Wednesday Market, Marina Park
- June 7 – Juanita Friday Market, Juanita Beach Park, Walk & Roll Safety Fair
- June 8 – City Planning Day, Kirkland City Hall
- June 12 – Corridor Study Community Workshop, Finn Hill Middle School
- Sept. 8 – DennyFest, O.O. Denny Park
- Sept. 9 – Juanita Neighborhood Association, Juanita Elementary
- Oct. 7 – Juanita Corridor Study Community Open House, Finn Hill Middle School
- Oct. 19 – City Planning Day, Peter Kirk Community Center
- Nov. 6 – Finn Hill Neighborhood Alliance, Finn Hill Middle School

Advisory Committee Meetings

The purpose of the advisory committee was to provide a forum for dialogue and two-way information sharing between key stakeholders and the City. The City kept the committee informed and involved throughout the corridor study, including seeking their input on identifying issues to be addressed, developing alternatives, establishing criteria for evaluating alternatives and establishing a common vision for future improvements. The Committee also assisted with the broader public outreach process by providing input on tradeoffs and community priorities.

The committee was advisory in nature and met four times, at key milestones throughout the Corridor Plan process.



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- May 23, 2013
- July 31, 2013
- Sept. 10, 2013
- Oct. 29, 2013

Advisory committee members were:

- Mike Haschak – Kirkland Fire
- Bryan McNaghten – Kirkland Police
- Lisa Broulette – Kirkland Police
- Jon Pascal – Finn Hill Neighborhood Alliance
- Pierre Geurts – Finn Hill Neighborhood, At Large
- Norm Storme – Juanita Neighborhoods Association
- Scott Emry – Lake Washington School District
- Janice Gerrish – King County Parks Trail Board
- Sharon Clausson – King County Parks Staff
- Lance Carter – Juanita Businesses
- Nima Salestani – Finn Hill Businesses
- Daniel Weise – Cascade Bicycle Club
- Daniel Clark – Bastyr University
- Tedd McCagg – Finn Hill Neighborhood Alliance

Fairs and Festivals

Outreach at fairs and festivals provided the project an opportunity to engage a new subset of the community at events that attract a wider, and potentially new, audience. The project identified several local events within or near the corridor to share information about the process and solicit feedback at various stages of corridor plan development:

- June 5 – Kirkland Wednesday Market, Marina Park
- June 7 – Juanita Friday Market, Juanita Beach Park
- June 8 – City Planning Day, Kirkland City Hall
- Sept. 8 – DennyFest, O.O. Denny Park
- Oct. 19 – City Planning Day, Peter Kirk Community Center

What we heard:



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- Concerns about safety for all modes of traffic, including pedestrians and bicyclists
- Concerns about lack of proper sidewalks
- Lack of neighborhood and park connectivity, including safe routes to local schools
- Traveling the corridor during rush hour is difficult
- No interest in widening the corridor for more automobile lanes
- Concerns about vehicle collisions in certain areas of the corridor
- Excitement about the City looking into improving the corridor
- Approval of proposed draft alternatives for various segments of the corridor

Presentations to Neighborhood Groups

Attending and presenting at neighborhood association meetings allowed the project to share information about the Corridor Plan process and goals, and to solicit community input on the key corridor issues and potential solutions to consider. Presentations were given to several neighborhood and community organizations within the project corridor:

- May 8 – Kirkland Alliance of Neighborhoods, Heritage Hall
- May 13 – Juanita Neighborhoods Association, Juanita Elementary
- May 14 – Kirkland Business Roundtable, Eastside Tennis Center
- May 29 – Finn Hill Neighborhood Alliance, Finn Hill Middle School
- Sept. 9 – Juanita Neighborhood Association, Juanita Elementary
- Nov. 6 – Finn Hill Neighborhood Alliance, Finn Hill Middle School

Community Workshop – June 12, 2013

The community was invited to engage in a hands-on workshop with City and project staff to initiate a conversation about key issues related to the Juanita Drive Corridor. At the workshop, community members were asked to point out areas of concern on large maps of the corridor, propose solutions and provide general feedback about how the project should progress. Project staff gave a brief presentation and was available to answer questions. Comments received were then used to develop a suite of proposed alternatives.

To advertise the community workshop, staff distributed posters to community centers and businesses along the corridor, postcards were mailed to nearby neighborhoods within the project area, brief articles



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were provided to schools to include in their newsletters and the City sent a press release. In the end, more than 80 people participated at the event.

The team also conducted an informal, post-event survey to get feedback on how well the event went, how attendees heard about the event, what neighborhood or organization they represent, and potential opportunities for improvement.

What we heard:

- "This was great. The best, most informative Kirkland neighborhood event I've attended. Thanks."
- "Really impressed - great work - fun giving feedback/ideas."
- "Appreciate the introduction to the information and website for further information."
- "Great work. Good guiding principles!"
- "The present road markings are a dull yellow. Very hard to see at night especially in the rain."
- "Table events were great! Keep it up! Thanks for the opportunity to provide feedback."
- "Concerned about road widening north of NE 128th St. on east side of Juanita Drive and potential tree removal."
- Improving safety is a top interest, for all modes of traffic.
- Concerns about lack of light on the roadway when dark.
- Concerns about roadway drainage.
- Interest in community connectivity.
- Interest in improvements to bicycle safety and routes.

Open House – Oct. 7, 2013

Before the project team finalized the proposed improvements in the final report, the team sought out feedback from the community. At the open house, participants were encouraged to review draft alternatives for each segment of the corridor, ask staff questions and then note on a map their favorite alternative by placing a sticker next to it. General feedback and comments were also encouraged. Staff then used this input to further refine the alternatives.

To advertise the open house, staff distributed fact sheets, postcards were mailed to addresses within the project area and the City sent a press release.



JUANITA DRIVE Corridor Study



The team also conducted an informal, post-event survey to get feedback on how well the event went, how attendees heard about the event, what neighborhood or organization they represent, and potential opportunities for improvement.

What we heard about the draft recommendations:

- "Center turn lanes are very important."
- "Communication has been excellent!"
- "Very much in favor of crosswalks connecting east and west sides of Big Finn Hill Park."
- "Biggest concern is walking on Juanita Drive."
- "Roundabouts would greatly improve the flow on Juanita."
- "Great to have knowledgeable professionals to discuss details and possibilities. Good work!"
- "Juanita Drive needs turn lanes!"
- Mixed reactions to roundabouts; some wanted them, some did not.
- General agreement on various proposed alternatives.
- Excitement over dedicated bike lanes and pedestrian paths.





APPENDIX B

PROJECT FACT SHEETS

PRIORITIZATION RESULTS

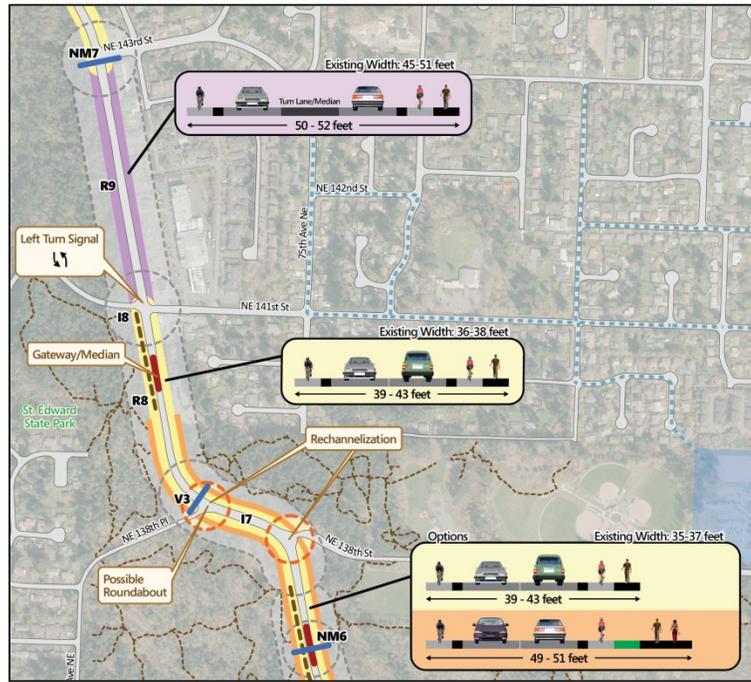
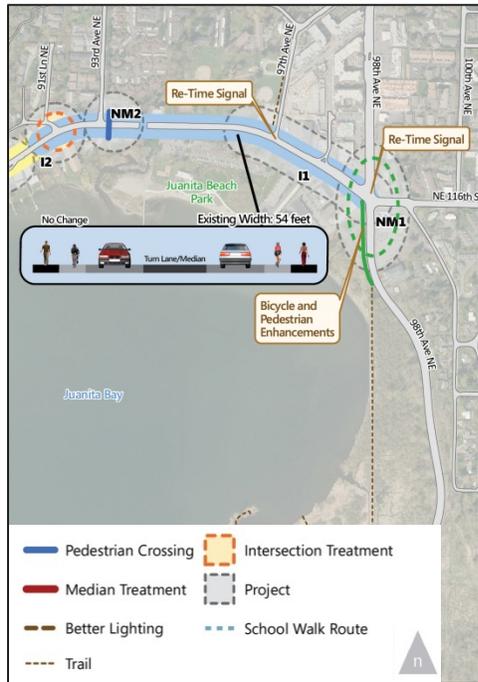
COST ESTIMATES

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Project Group 1 – Corridor Pedestrian Treatments – This project group includes crosswalk and other pedestrian infrastructure improvements.

ID	Location	Description/Justification
NM1	Juanita Drive / 98 th Avenue NE intersection	Pedestrian and bicycle enhancements. Widen sidewalk connection with Old Market Street Trail to the south. Add bike box on south intersection approach.
NM2	Juanita Drive / 93 rd Avenue NE intersection	Add flashing crosswalk to existing crosswalk.
NM6	Juanita Drive, approximately 600 feet south of NE 138 th Street	Construct mid-block Flashing crosswalk to connect Big Finn Hill Park trails on the east and west sides of Juanita Drive.
NM7	Juanita Drive / NE 143 rd Street intersection	Construct flashing crosswalk at intersection to connect residential neighborhood on the east side of the street with St. Edward State Park on the west.



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
NM1	\$83	--	M	No width on south approach for bike lane; widened sidewalk may require right-of-way.
NM2	\$90	--	M	Minimal
NM6	\$203	--	H	Integrate with full cross-section treatment, which may come later.
NM7	\$90	--	L	Minimal
Total	\$466	--		

^a H = high ; M = medium ; L = low



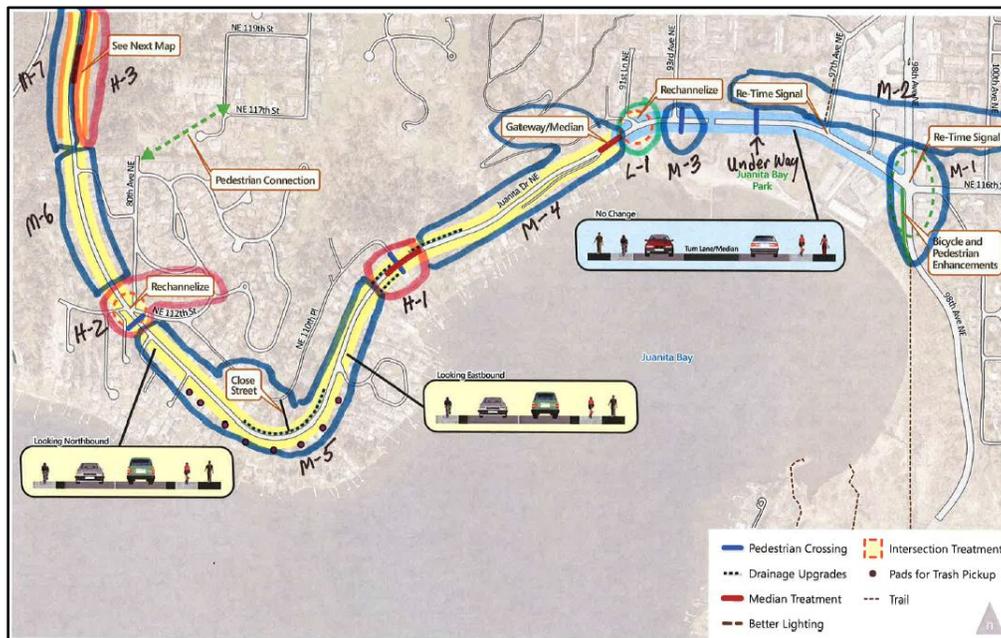
JUANITA DRIVE Corridor Study



Project Group 2 – Neighborhood Access Points – This project group includes improvements to 86th Avenue NE and NE 112th Street / 80th Avenue NE, principal access points to the Surfmerre and Hermosa Vista neighborhoods.

ID	Location	Description/Justification
NM3	Juanita Drive / 86 th Avenue NE intersection	Construct Rectangular Rapid Flashing Beacon ¹ crosswalk at intersection to connect residential neighborhoods on north side of street with transit stop on south side. Improve drainage on both sides of street.
I3	Juanita Drive / NE 112 th Street / 80 th Avenue NE intersection	Re-channelize as 4-legged intersection. Realign 80 th Avenue NE to intersect NE 112 th Street approximately 60 feet east of Juanita Drive. Construct Rectangular Rapid Flashing Beacon ¹ crosswalk at intersection to connect residential neighborhoods on east and west side of street.

¹ Rectangular Rapid Flashing Beacon can enhance safety by reducing crashes between vehicles and pedestrians at unsignalized intersections and mid-block pedestrian crossings by increasing driver awareness of potential pedestrian conflicts. Other flashing signals may be substituted in the future as technology changes.



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
NM3	\$525	--	M	Drainage concerns, sufficient advance crosswalk signing needed
I3	\$1,894	--	H	Slopes, right-of-way in Hermosa Vista to consolidate intersections, integrate crosswalk with turn pockets
Total	\$2,419	--		

^a H = high ; M = medium ; L = low



JUANITA DRIVE Corridor Study



Project Group 3 – South Corridor: Juanita Lane to NE 120th Street – This project group includes cross-section improvements to the south corridor of Juanita Drive from Juanita Lane to NE 120th Street.

ID	Location	Description/Justification
R1	NE 116 th Place to 86 th Avenue NE	Widen and reconfigure cross-section to include buffered bike lanes on both sides of street and walkway on north side of street. Improve downhill drainage.
R2	86 th Avenue NE to NE 112 th Street	Widen and reconfigure cross-section to include buffered bike lanes on both sides of street and walkway on north side of street. Close 83 rd Avenue NE intersection to vehicle traffic. Improve inside curve for bicycle and pedestrian passage. Create pads for trash pickups.
R3	NE 112 th Street to 79 th Way NE	Widen and reconfigure cross-section to include buffered bike lanes on both sides of street and walkway on east side of street.
R4	79 th Way NE to NE 120 th Street	Widen and reconfigure cross-section to include buffered bike lanes on both sides of street and walkway on east side of street. ¹
I2	Juanita Drive / NE 116 th Place intersection	Restripe intersection to improve vehicle sight distance and enhance safety for bicyclists and pedestrians.

¹ option to add separated pathway on east side through park



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
R1	\$4,994 ^b	--	M	Steep slopes, sloughing, proximity of Juanita Lane, drainage
R2	\$972 ^c	--	M	Steep slopes, drainage, frequent driveways, trash cans in shoulder
R3	\$1,051	--	L	Moderately steep slopes
R4	\$550	\$980 ^d	L	Steep slopes limits widening options without high costs
I2	\$125	--	L	Minimal
Total	\$7,692	\$980		

^a H = high ; M = medium ; L = low

^b drainage portion of cost is approximately \$98,000

^c drainage portion of cost is approximately \$98,000

^d adds multi-purpose trail



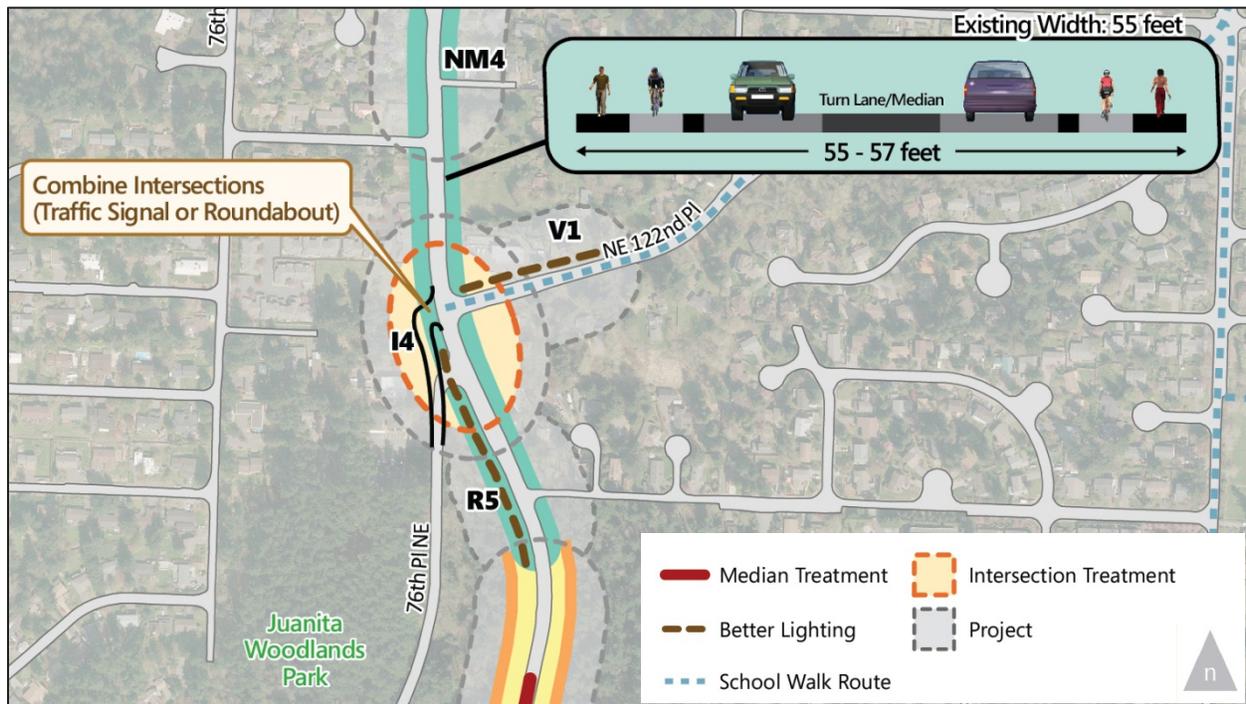
JUANITA DRIVE Corridor Study



Project Group 4 – Holmes Point Drive / NE 122nd Place Intersection – This project group includes intersection improvements and other upgrades in the vicinity of the Holmes Point Drive / NE 122nd Place intersection.

ID	Location	Description/Justification
R5	NE 120 th Street to NE 122 nd Lane	Widen and reconfigure cross-section to include center turn lane, bike lanes and walkway on east side of street.
I4	76 th Place NE and NE 122 nd Street intersections with Juanita Drive	Realign offset intersection to create single signalized intersection or roundabout. ¹
V1	NE 122 nd Place	Upgrade street-lighting in the vicinity of Juanita Drive

¹ roundabout an option to traffic signal



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
R5	\$309	--	H	Minimal
I4	\$1,184 ^b	\$193 ^b	M	Difficult configuration if fire station stays at this location
V1	\$50	--	H	Minimal
Total	\$1,543	\$193		

^a H = high ; M = medium ; L = low

^b basic = signal; option = additional for roundabout



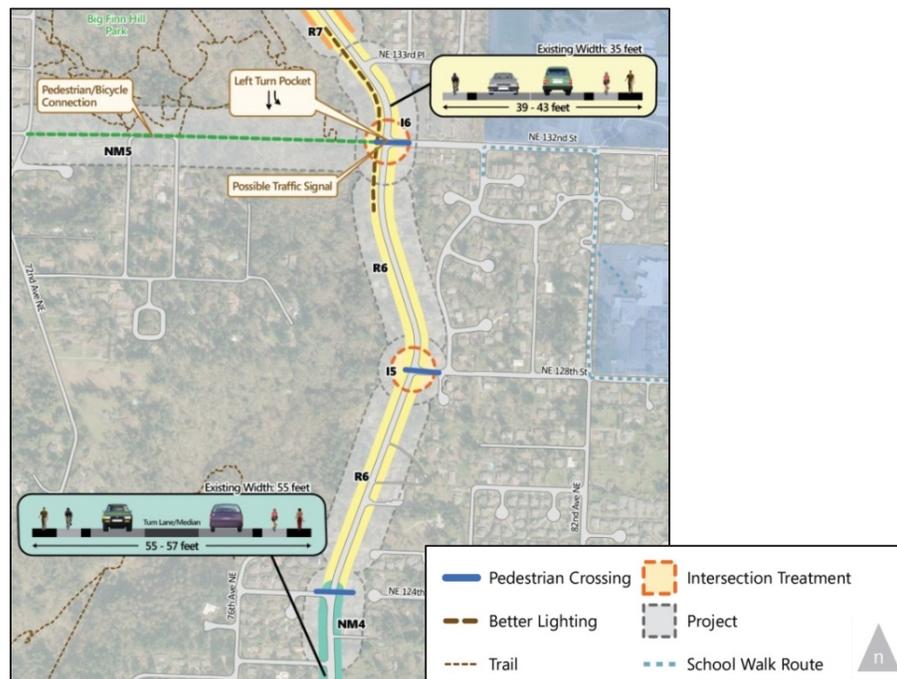
JUANITA DRIVE Corridor Study



Project Group 5 – Central Corridor: NE 124th Street to NE 133rd Street – This project group includes cross-section improvements to the central portion of Juanita Drive from NE 124th Street to NE 133rd Street.

ID	Location	Description/Justification
R6	NE 124 th Street to NE 132 nd Street	Widen cross section to include buffered bike lanes on both sides of street and walkway on east side of street.
I5	Juanita Dr / NE 128 th Street intersection	Widen southbound approach of Juanita Drive to include left turn lane. Construct flashing crosswalk at intersection.
I6	NE 132 nd Street to NE 133 rd Place	Widen southbound approach to NE 128 th Street to include left turn lane. Construct walkway to east side of street and pedestrian bridge west of Juanita Drive across [ravine]. Construct flashing crosswalk at intersection.
NM4	Juanita Drive / NE 124 th Street intersection	Construct flashing crosswalk at intersection. Improve walkway on west side of street from NE 124 th Street to NE 123 rd Street.
NM5	NE 132 nd Street to 72 nd Avenue NE	Construct pedestrian/bicycle pathway along existing easement. Build a nonmotorized bridge across Denny Creek.

¹ roundabout an option to traffic signal



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
R6	\$985	--	M	Some slopes
I5	\$1,082 ^b	--	H	Drainage on west side
I6	\$878	--	H	Lighting; link to nonmotorized path (NM5)
NM4	\$143	--	H	Tie to NE 124 th Street cul-de-sac
NM5	\$316	--	M	Bridge construction; interface with existing streets
Total	\$3,404	--		

^a H = high ; M = medium ; L = low

^b drainage portion of cost is approximately \$98,000



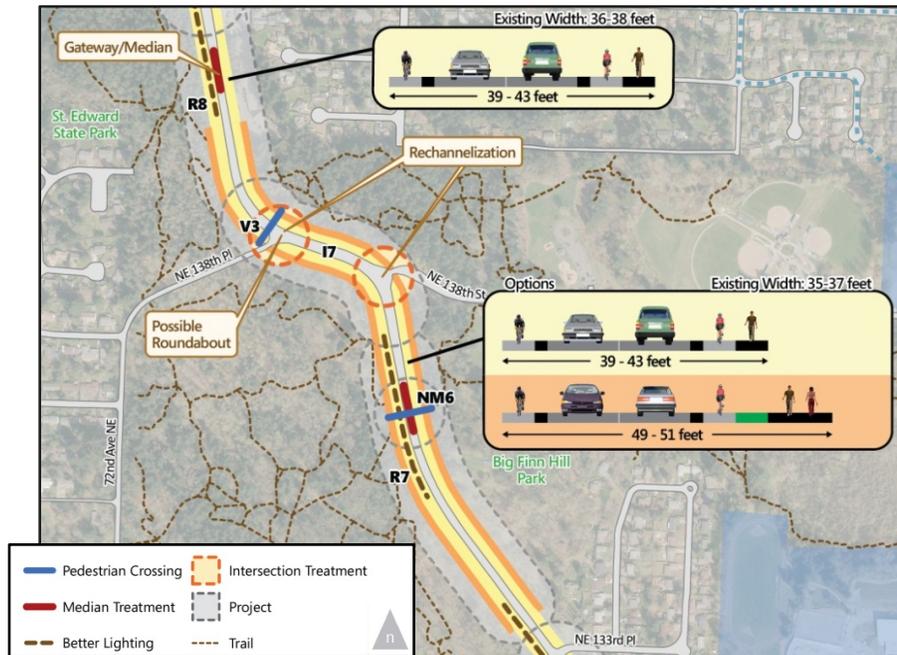
JUANITA DRIVE Corridor Study



Project Group 6 – North Corridor: Big Finn Hill Park to NE 140th Street – This project group includes cross-section improvements to the north corridor of Juanita Drive from Big Finn Hill Park to NE 140th Street.

ID	Location	Description/Justification
R7	NE 133 rd Place to south of NE 138 th Street	Widen cross section to include buffered bike lanes on both sides of street and walkway on east side of street ¹ .
R8	NE 138 th Street to north of NE 138 th Place	Widen cross section to include buffered bike lanes on both sides of street, rechannelize both NE 138 th intersections and construct walkway on east side of street ¹ .
I7	NE 138 th Place	Construct roundabout (option)
R9	NE 138 th Place to south of NE 141 st Street	Widen cross section and construct gateway median south of NE 141 st Street ² .
V3	Juanita Drive / NE 138 th Place Intersection	Reconfigure cross section directly north of intersection to include a refuge/merge lane for traffic turning left onto Juanita Drive from NE 138 th Place. (Interim treatment)

¹ option to construct separated multi-purpose trail through park section
² refer to Project V5 for Gateway sign project



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
R7	\$781	\$901 ^b	H	Steep slopes; park right-of-way and trees
R8	\$497	\$806 ^b	H	Steep slopes; park right-of-way and trees.
I7	--	\$1012 ^c	H	Slopes; regrading
R9	\$449	\$575 ^b	M	Steep slopes; park right-of-way and trees
V3	\$41	\$41	M	Minimal
Total	\$1,768	\$4,613		

^a H = high ; M = medium ; L = low

^b adds multi-purpose trail

^c roundabout incremental cost

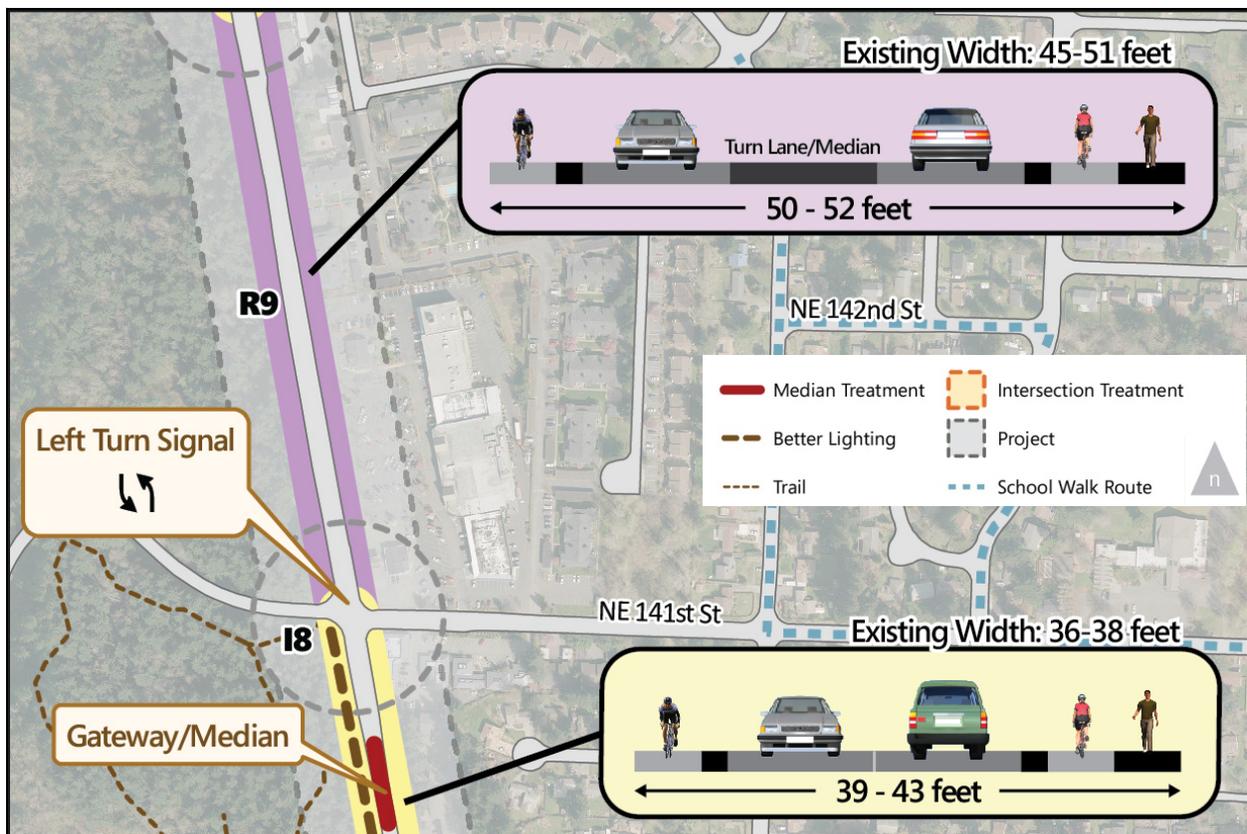


JUANITA DRIVE Corridor Study



Project Group 7 – North Corridor: NE 140th Street to NE 143rd Street – This project group includes cross-section improvements to the north corridor of Juanita Drive from NE 140th Street to NE 143rd Street.

ID	Location	Description/Justification
I8	Juanita Drive / NE 141 st Street Intersection	Modify signal head to accommodate protected northbound and southbound left turns.
R10	NE 141 st Street to NE 143 rd Street	Reconfigure cross section to include bike lanes on both sides of street.
NM7	NE 143 rd Street	Provide flashing crosswalk



ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
I8	\$55	--	L	Minimal
R10	\$63	--	L	Could affect parking on east side south of NE 143 rd Street
NM7	\$90	--	L	
Total	\$208	--		

^a H = high ; M = medium ; L = low



Project Group 8 – Corridor Bicycle Lane and Safety Treatments – This project group includes short-term corridor treatments to improve comfort and safety for bicyclists and motorists.

ID	Location	Description/Justification
NM8	Selected locations along corridor ¹	Construct interim “bicycle safety treatments” at pinch-points along corridor. Could include restriping, signing, barriers (e.g. candles, rumble strips)
NM9	Corridor	Rechannelize existing roadway to include northbound buffered bike lane.
NM10	Corridor	Add bicycle signs for northbound bike lane
V2	Selected locations along corridor ¹	Add center line rumble strips to help prevent drivers from veering out of travel lane

¹ to be determined during design

ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
NM8	\$129	--	H	Identify key locations
NM9	\$377 ^b	--	H	Determine minimal cross section to achieve buffered bike lane. Interim treatment.
NM10	\$187	--	H	
V2	\$50	--	H	Identify key locations
Total	\$743	--		

^aH = high ; M = medium ; L = low

^bportion of this project could be included in full cross section design

JUANITA DRIVE Corridor Study



Project Group 9 – Corridor ITS Integration – This project group includes intelligent transportation systems (ITS) upgrades for the Juanita Drive corridor and traffic signal timing.

ID	Location	Description/Justification
V4	Corridor – Signalized intersection from 98 th Avenue NE to NE 141 st Street	Integrate intersection signals with intelligent transportation systems (ITS) technology.
I1	98 th Avenue NE and 97 th Avenue NE intersections with Juanita Drive	Retime traffic signals to improve traffic operations at east end of corridor ¹ .

ID	Capital Cost (in 1,000s)		Priority ^a	Challenges to be resolved
	Basic	Options		
V4	\$1,050	\$1,200 ^b	L	Determine overhead or underground design
I1	\$105 ^c	--	L	Minimal
Total	\$1,155	\$1,200		

^a H = high ; M = medium ; L = low

^b underground utilities

^c tie to city's traffic signal and safety project underway in 2013/14



Appendix C
Corridor Profile Details