

Juanita Drive Master Plan Recommendations

(Prepared November 27, 2013)

The Juanita Drive Master Plan consists of a variety of projects that meet the study's guiding principles in a manner that can be phased in over the next several years. The plan recognizes that Juanita Drive passes through a wide variety of land use types, topography, and natural settings. These conditions dictate that some unique treatments are needed to address specific safety, access, and mobility needs. However, the plan contains several common 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, bicycle lanes with a buffer, 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

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

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

Proposed Roadway Cross Section

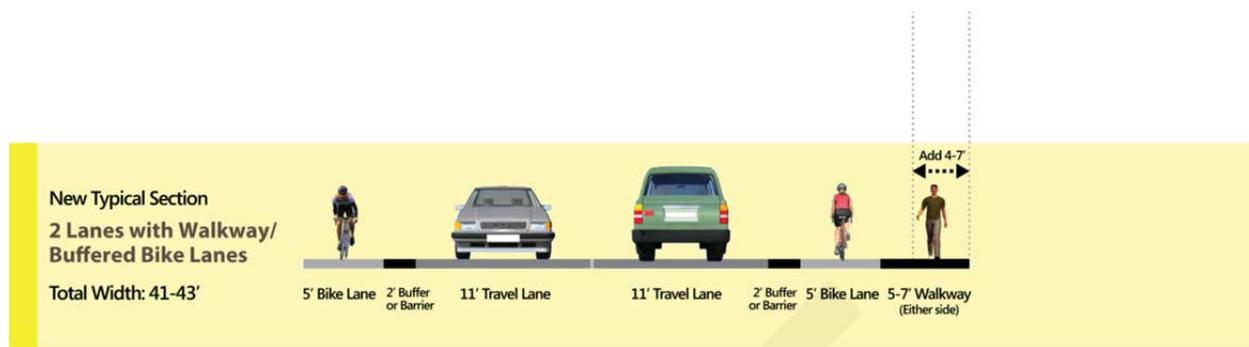
Basic Cross Section

A basic roadway cross section consists of the following (see **Figure 1**):

- 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 topography and steep slopes. This cross section would require adding from 4 to 7 feet of pavement width throughout the corridor.

Figure 1- Basic Cross Section



The buffered bicycle lane would provide a safer environment for bicyclists along 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, the buffer could contain some 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.

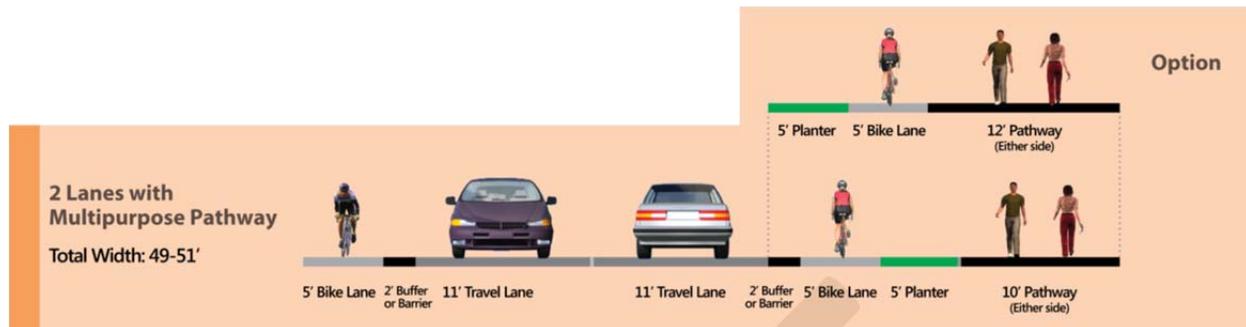
The walkway could be designed either as an asphalt surface flush with the bicycle lane (with paint separation), a textured or colored pavement, gravel pathway or as a raised sidewalk. These decisions could vary throughout the corridor and would be made with community input during the design process. 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

A multipurpose trail could be constructed through the park sections of the corridor to provide a more pleasant and safe environment for all nonmotorized users. **Figure 2** 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 being adjacent to the travel lanes or next to the trail.

Figure 2- Cross Section with Multipurpose Trail



The multipurpose trail would need to be designed in harmony with the park setting, taking into consideration the possible 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 much shorter in length and the steep slopes would require expensive construction. In that section, a separated narrower trail is shown as an option.

Other Cross Sections

In the more urban portions of the corridor, the cross sections would include combinations of three lane designs, sidewalks, and planter strips. For the most part, there would be limited changes to the existing cross-sections in these portions of the corridor.

Project Recommendations

The master plan consists of 30 projects grouped into logical packages along Juanita Drive. The total cost of the plan ranges from \$20 to \$25 Million, depending on the design options, as summarized in **Table 1**. 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 million. Intersection treatments including turn pockets, crossing treatments and lighting would require \$5-6Million, while various other nonmotorized, Intelligent Transportation Systems (ITS), safety and lighting treatments would constitute \$3 to \$4 million.

Interim 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 situation leads to having 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 an interim, 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 edge stripes and some use of guide posts or other physical treatments around tight

corners. The cost is on the order of \$900,000. It is estimated that some of the work performed in this project could be incorporated into the permanent cross section design, but a substantial portion of the project should be considered interim.

Table 1 - Summary of Recommended Projects

Projects	Cost
Basic Cross Section	\$10.3 M
Multipurpose Trails through Parks	\$2.8 M
Intersections (Re-channel /Roundabout)	\$5.3M/\$6.5M
Uphill Bicycle Lane throughout Corridor	\$0.9M
Other Pedestrian/Bike Safety Treatments	\$1.7M
Intelligent Transportation Systems	\$1.1 to \$2.3 M
Other Safety Projects	\$0.2M
Total Projects	\$19.5 to \$24.7 Million

Table 2 lists the specific projects, shown in **Figures 3a through 3b**. The costs are considered to be conservatively high with large contingencies applied. The ‘low’ costs in the table include the basic cross section. The ‘high’ costs add the multipurpose trails and two roundabouts, at NE 122nd Pl and NE 138th St.

The projects are shown as high, medium, and lower priority based on rating them against the guiding principles of the study. **Appendix A** 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 during the community outreach events. The prioritization process is most helpful to the city when looking to seek grant funds or packaging project elements along the corridor.

Table 2-Recommended Projects

Juanita Drive Transportation Improvements					
Project ID¹	Project Location	Project Description	Total Cost (In 1,000s) Low	Total Cost (In 1,000s) High	Rating
I1	97th Ave NE/ 98th Ave NE Intersections	Retime signals	\$105	\$105	L
I2	NE 116th Pl Intersecton	Rechannelize	\$125	\$125	L
I3	112th Ave NE Intersection	Rechannelize Intersection/ Pedestrian Crossing	\$1,894	\$1,894	H
I4	76th Pl NE/ NE 122nd Pl Dual Intersections	Rechannelize/ combine intersections with signal (L) or roundabout (H)	\$1,184	\$1,377	M
I5	NE 128th St Intersection	Left turn pocket/ pedestrian crossing	\$1,082	\$1,082	H
I6	NE 132nd St Intersection to NE 133rd Place	Left turn pocket/ pedestrian crossing/ walkway	\$878	\$878	H
I7	NE 138th St to south of NE 141st St	Walkway/ Bike lane northbound/ NE 138th Pl rechannelization L Roundabout (H)/ pedestrian crossing	\$497	\$2,315	H
I8	NE 141st St Intersection	Add left turn signals	\$55	\$55	L
NM1	98th Ave NE Intersection	Pedestrian/ Bicycle enhancements	\$83	\$83	M
NM2	93rd Ave NE Intersection	Pedestrian Crossing	\$156	\$156	M
NM3	86th Ave NE Intersection	Pedestrian Crossing/Drainage	\$525	\$525	M
NM4	NE 124th St Intersection	Pedestrian Crossing/ walkway to NE 123rd St	\$193	\$193	H
NM5	NE 132nd St- Juanita Drive to 72nd Ave NE	Pedestrian/Bicycle Corridor treatment	\$316	\$316	M
NM6	Big Finn Hill Park	Pedestrian crossing/ trail connection	\$203	\$203	H
NM7	NE 143rd St Intersection	Pedestrian Crossing	\$148	\$148	L
NM8	Corridor	Bicycle safety treatments	\$75	\$75	H
NM9	Corridor	Create northbound bicycle lane	\$890	\$890	H
R1	NE 116th Pl to 86th Ave NE	Cross Section/ Drainage Improvements/ Gateway median	\$4,994	\$4,994	M
R2	86th Ave NE to NE 112th St	Cross Section/ close 83rd Ave NE	\$972	\$972	M
R3	NE 112th St to 79th Way NE	Cross Section	\$1,051	\$1,051	L
R4	79th Way NE to NE 120th St	Cross Section	\$550	\$1,530	L
R5	NE 120th St to NE 122nd Lane	Extend 3rd lane/ walkway on east side	\$309	\$309	H
R6	NE 124th St to NE 132nd St	Cross section	\$985	\$985	M
R7	NE 133rd Pl to south of NE 138st St	Cross section	\$781	\$1,682	H
R8	NE 138th Pl to NE 141st St	Cross section/ Gateway Median	\$449	\$575	M
R9	NE 141st St to NE 143rd St	Cross Section	\$63	\$63	L
V1	NE 122nd Pl	Lighting Upgrade	\$50	\$50	H
V2	Corridor- selected locations	Center line Rumble Strips	\$50	\$50	H
V3	NE 138th Pl Intersection	Left turn refuge for EB to NB movement	\$41	\$41	M
v4	Corridor	ITS Integration- Signals	\$1,050	\$2,250	L
	H=High; M=Medium; L=Lower				
		Total	\$19,524	\$24,742	

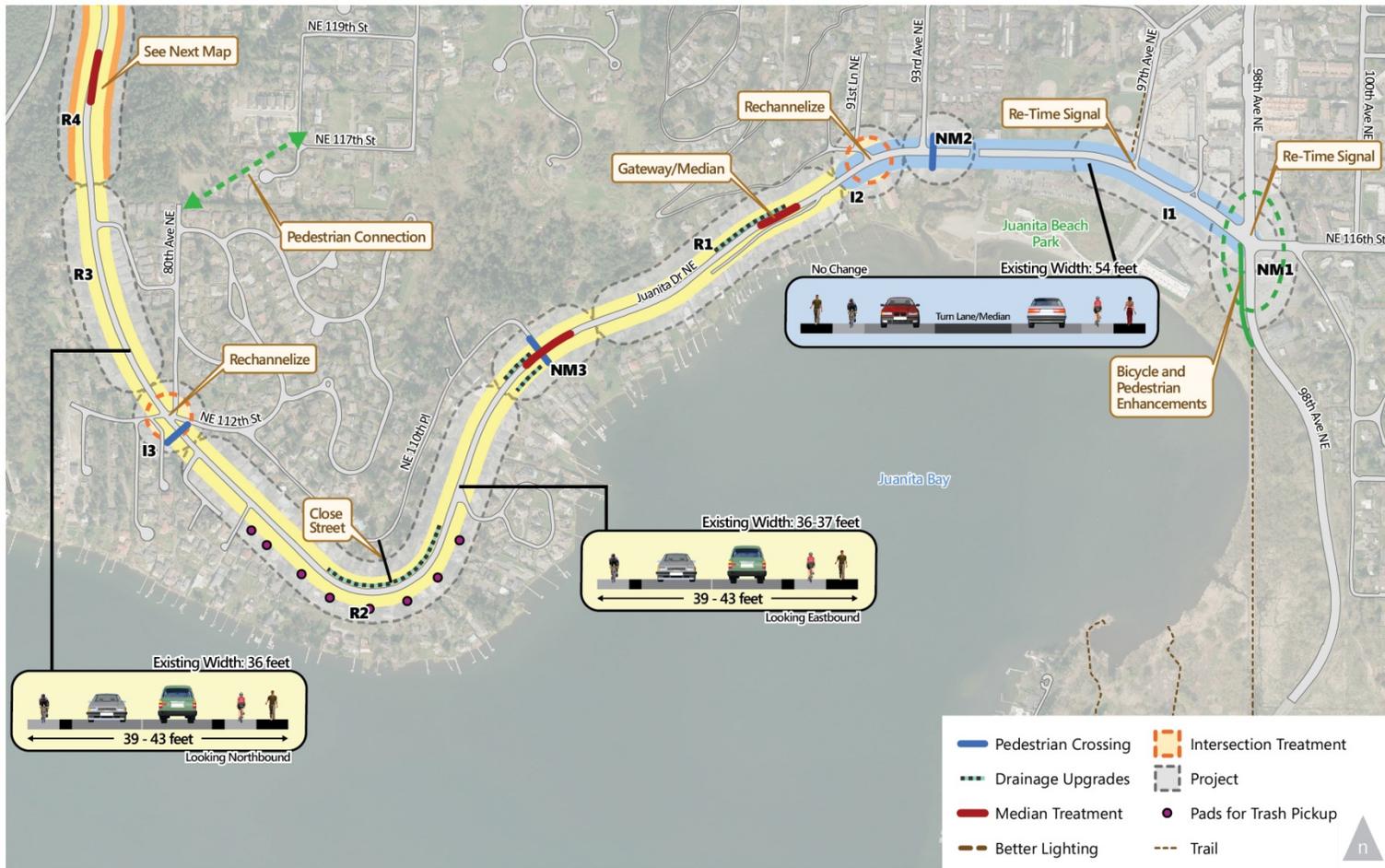


Figure 3a
 Juanita Drive Corridor Study
 Recommendations

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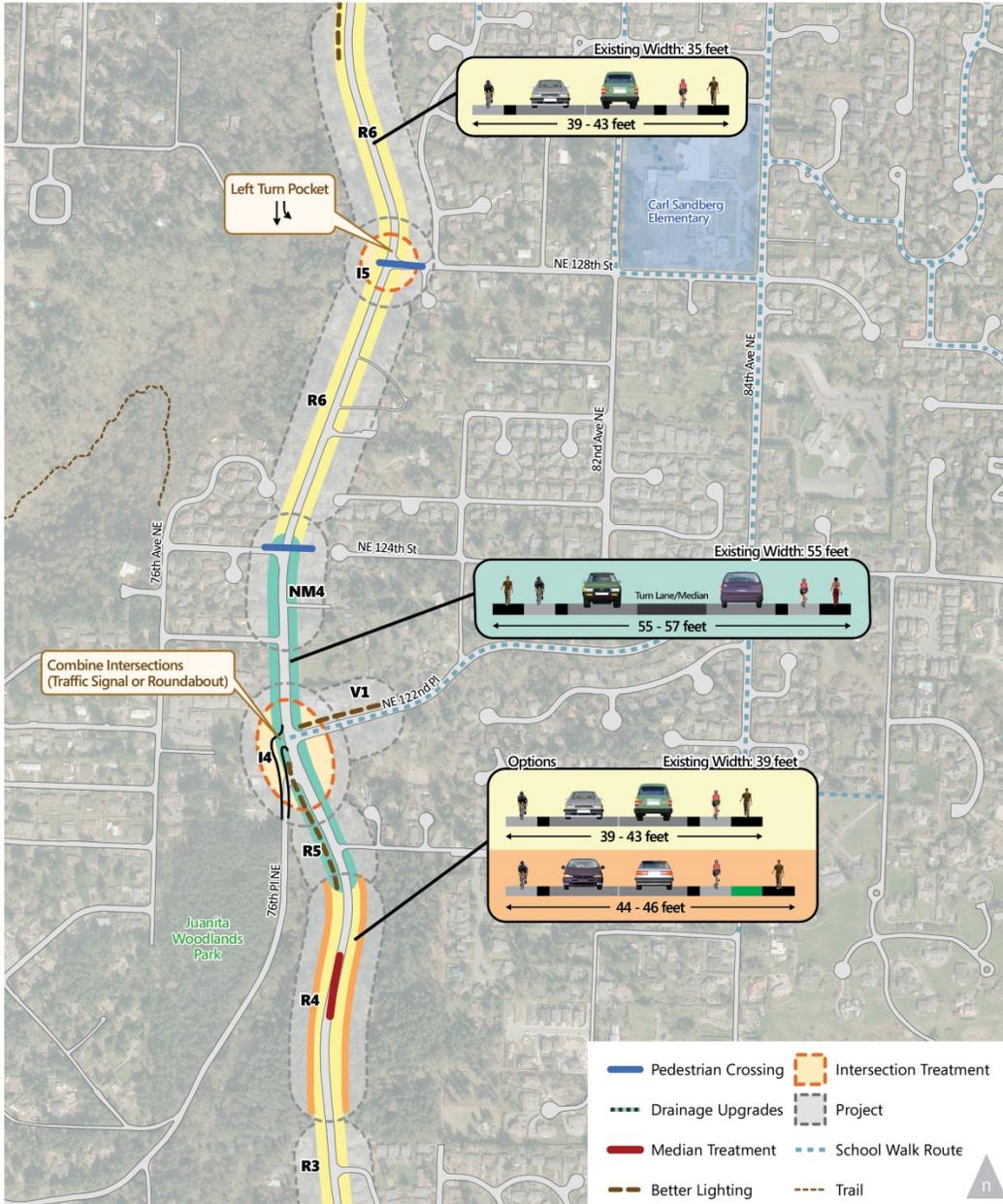


Figure 3b

Juanita Drive Corridor Study Recommendations

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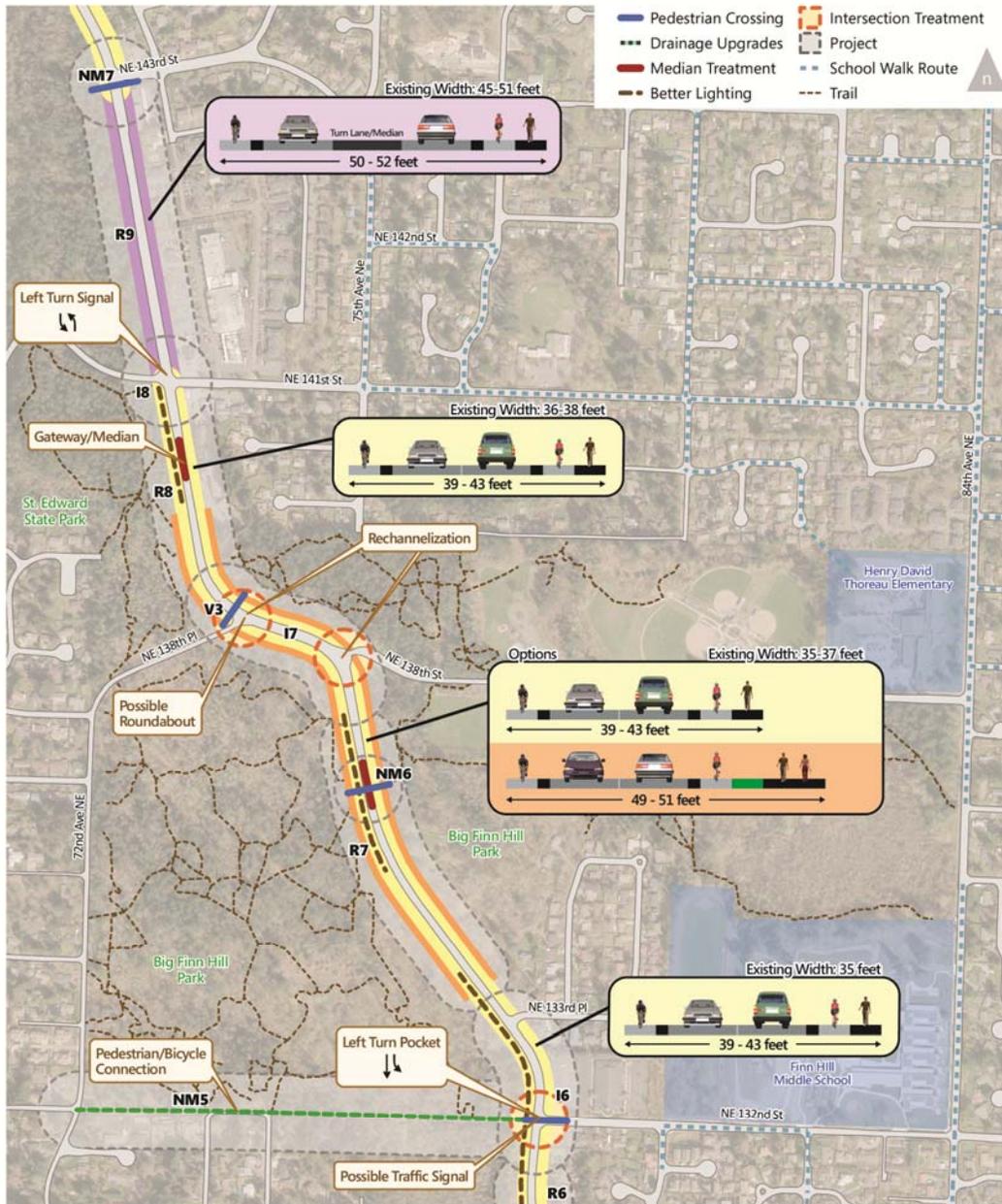


Figure 3c

Juanita Drive Corridor Study Recommendations

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'Quick Win' Projects

Realizing the overall high cost of the plan, the project list was examined for relatively lower cost actions that would produce some immediate benefits to Juanita Drive. **Table 3** lists these quick win projects along with their estimated cost.

Table 3- Quick Win Projects

ID	Project Description	Estimated Cost (\$000)
NM8	Interim Pedestrian/Bicycle Safety Treatments	\$80-100
V2	Centerline Rumble Strips	\$50
V1	Lighting Upgrade (NE 122 nd Pl)	\$50
New	Gateway Signs (north and south ends of corridor)	\$40
V3	Left turn refuge pocket-NE 138 th Pl	\$40
NM1	98 th Ave Bicycle/Pedestrian Enhancements	\$90
	Total	\$350-\$370

In addition to these projects, there are three flashing pedestrian crosswalk projects--(Big Finn Hill Park (NM6); NE 143rd St (NM7); 93rd Ave NE(NM2)-- that could be implemented for around \$500,000 total, including linking the two trails in the park. In total, these quick win projects could be completed for less than \$1 Million.

Project Packaging

To assist the city in developing data for its Capital Improvement Program and grant applications, the plan includes nine (9) 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 4**.

Table 4-Juanita Drive Project Groups

	Project Group Description	Projects Included
1	Corridor Pedestrian Treatments	NM1 NM2 NM6 NM7
2	Neighborhood Access Points- 86th Ave NE; NE 112th St/80th Ave NE	NM3 I3
3	South Corridor - Juanita Lane to NE 120th St	R1 R2 R3 R4 I2
4	Holmes Point Drive/ NE 122nd Place Intersection	R5 I4 V1
5	Central Corridor- NE 124th St to NE 133rd St	R6 I5 I6 NM5 NM6
6	North Corridor- Big Finn Hill Park to NE 140th St	R7 I7 R8 V3
7	North Corridor- NE 141st St to NE 143rd St	I8 R9
8	Corridor Interim Bike and Safety Treatments	NM8 NM9 H10
9	Corridor ITS Integration	V4 I1

Appendix A- Prioritization Criteria and Project Ratings

See separate attachment

Appendix B- Project Group Fact Sheets

See separate attachment. Detailed cost sheets will be added in the study report.

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