AGENDA

City Council Joint Meeting with the Parks & Recreation Commission

6:30 PM - Tuesday, June 11, 2019
City Hall Council Chambers, Sammamish, WA

Page		Estimated Time
	CALL TO ORDER	**6:30 pm**
	PUBLIC COMMENT **Note:** *This is an opportunity for the public to address the Council. Three-minutes limit per person or five-minutes if representing the official position of a recognized community organization. If you would like to show a video or PowerPoint, it must be submitted or emailed by 5 pm, the end of the business day, to the City Clerk, Melonie Anderson at manderson@sammamish.us. Please be aware that Council meetings are videotaped and available to the public.*	
	TOPICS	**7:00 pm**
3 - 64	1. **Discussion**: Klahanie Park Master Plan - Programming and Concept Alternatives View Agenda Item	
65 - 79	2. **Discussion:** Lake Washington School District - Athletic Field Scheduling by the City View Agenda Item	
	3. **Council Break**: Commissioners adjourn and time to reset room for final discussion.	
80 - 281	4. **Discussion:** WSDOT's Draft SR 202 Corridor Study View Agenda Item	
	ADJOURNMENT	**10:00 pm**

City Council meetings are wheelchair accessible. American Sign Language (ASL) interpretation is available upon request. Please phone (425) 295-0500 at least 48 hours in advance. Assisted Listening Devices are also available upon request.

Agenda Bill

City Council Joint Meeting
June 11, 2019

SUBJECT:	Klahanie Park Master Plan Discussion - Programming and Concept Alternatives
DATE SUBMITTED:	June 04, 2019
DEPARTMENT:	Parks & Recreation
NEEDED FROM COUNCIL:	☐ Action ☑ Direction ☐ Informational
RECOMMENDATION:	Review and provide input on programming and concept alternatives for the master plan development.
EXHIBITS:	1. Exhibit 1 - PowerPoint Presentation 2. Exhibit 2 - Memorandum: City Council and Parks & Recreation Commission Meeting #1 Questions 3. Exhibit 3 - Public Survey #1 Summary 4. Exhibit 4 - Focus Group Survey #1 Summary

BUDGET:

Total dollar amount	$169,000
Fund(s)	Parks Capital Improvement Fund

☑ **Approved in budget**
☐ **Budget reallocation required**
☐ **No budgetary impact**

WORK PLAN FOCUS AREAS:

☐	Transportation	☐	Community Safety
☑	Communication & Engagement	☐	Community Livability
☐	High Performing Government	☑	Culture & Recreation
☑	Environmental Health & Protection	☐	Financial Sustainability

NEEDED FROM COUNCIL:

Klahanie Park Master Plan Discussion - Programming and Concept Alternatives

KEY FACTS AND INFORMATION SUMMARY:

The purpose of this discussion is to review and provide input on park programming and concept alternatives for the master plan development of Klahanie Park.

Summary:
Klahanie Park is a 64-acre park located in the southeast section of the City. The park is comprised of natural turf fields including two multi-purpose sports fields, one baseball field, and a cricket pitch. Additionally, the park features a small play structure, restrooms, parking, a segment of King County's East Plateau Trail, natural areas and Queen's Bog, which is one of roughly fifty bogs located in Washington State. Having been in use for nearly 25 years with only minor improvements, park features are nearing the end of their life cycle or are in need of repair. A master plan will be the City's first attempt to look at potential improvements to this park in a comprehensive manner utilizing a process that provides opportunity for involvement of the entire community. It will also enable the City to consider how a previous County park will best incorporate into Sammamish's overall park system.

Master Plan Phase I:
The first set of meetings were held in March 2019 with the City Council, Parks & Recreation Commission, a focus group, and the community, to solicit input on hopes, dreams, and concerns related to the master plan. Two surveys were prepared as part of this first phase, one for a focus group and one for the public. Neither of the surveys were statistically valid. The vision and programming survey for the public had 677 participants, with 56% of participants living one mile or less from the park. A brief summary of these surveys are provided as exhibits to this agenda bill.

A total of six concept alternatives are prepared, three park concepts and three trail concepts. The intent is to demonstrate a minimum, moderate, and maximum approach to park development. Based on the feedback received at the first set of workshops, the overall goals and objectives are to protect Queen's Bog, to provide a balance between active and passive activities and include unprogrammed spaces for families to gather informally. Lastly, it is important to note that elements from each concept can be mixed and matched, they are not necessarily exclusive to the alternative they are shown on.

A representative from the consultant team, HBB, will present a summary of the first public workshop, online public survey results, project goals, and discuss programming and concept alternatives in further detail at the June 11, 2019 City Council Joint Meeting with the Parks & Recreation Commission. At that time, City Council and the Parks & Recreation Commission will be asked to provide input on programming and concept alternatives for the master plan development. This information will be used, in conjunction with input received from City staff and the public, to assist with the development of a preferred master plan alternative.

Project Background:
The park was built by the Homeowners Association and transferred to King County in 1994 following construction. In January 2016, Klahanie Park was transferred to the City as part of the Klahanie annexation. Since annexation, improvements have been made to the park, which include drainage modifications to the baseball field, installation of the City's first and only cricket pitch, turf aeration of the two multi-purpose sports fields, irrigation improvements and minor renovations to the restrooms.

Following annexation, the City took over field reservations for the two multi-purpose fields and baseball field. In addition, the City introduced annual recreation events during the summer, such as the Shakespeare in the Park and KidsFirst programs.

Master Plan Process:
A twelve to eighteen-month effort is anticipated for the master plan process with participation from the community at large, City staff, Parks & Recreation Commission, City Council, and community stakeholders. The master plan process consists of three phases as described below:

Phase 1 Site Investigation and Analysis (Complete)
Evaluate existing site conditions, identify sensitive areas, complete site studies, and develop an overall understanding of the site. During this initial phase, a survey will be developed and used to assist with the development of initial park concepts for public discussion.

Phase 2 Park Program
Following survey development, the first public meeting will be held to present site analysis, initial survey results, and provide the Sammamish community an opportunity to share their hopes, dreams and concerns for the park.

Based upon the results of site analysis, City staff input, technical input and initial public input, a preliminary park design program will be developed that details proposed uses, design character and criteria.

Phase 3 Master Plan Development
The remaining public engagement will take place during the third phase of the master plan process. Two to three Master Plan alternatives will be prepared, based upon the approved design program. This will include a narrative that summarizes the existing conditions, design alternatives, cost implications and regulatory criteria, and identifies issues which will require further study at the next stage of project development.

Based upon feedback from the community, Parks & Recreation Commission, and City Council, the alternatives will be revised in to one preferred Master Plan alternative with a preliminary cost estimate. The final deliverable will be a Master Plan Report, with final project drawings and narrative, project process, project phasing scenarios and phase costs.

Anticipated Timeline:

- Parks & Recreation Commission Meeting #1: March 6, 2019 (Complete)
- City Council Meeting #1: March 12, 2019 (Complete)
- Focus Group Meeting #1: March 14, 2019 (Complete)
- Public Meeting #1: March 21, 2019 (Complete)
- Public Meeting #2: May 23, 2019 (Complete)
- **Joint City Council/Parks & Recreation Commission Meeting #2: June 11, 2019**
- **Public Meeting #3: August 2019**
- **Parks & Recreation Commission Meeting #3: September 4, 2019**
- **City Council Meeting #3: October 2019**

Next Steps:

A preferred master plan alternative will be developed over the summer based on feedback received and will be brought back in front of the community, Parks & Recreation Commission, and City Council early this fall.

FINANCIAL IMPACT:

N/A

OTHER ALTERNATIVES CONSIDERED:

N/A

RELATED CITY GOALS, POLICIES, AND MASTER PLANS:

2018 Parks, Recreation & Open Space (PRO) Plan

Joint Meeting
City Council and Parks & Recreation Commission
June 11, 2019

KLAHANIE PARK
Master Plan

Sammamish
Parks and Recreation

Overview: What we will be discussing

A. Introductions ..... 2 minutes

B. Presentation ..... 45 minutes

   a. Location & Context
   b. 2018 Parks, Recreation & Open Space Plan
   c. Timeline & Project Background
   d. Existing Conditions
   e. Outreach Summary
   f. Goals & Objectives
   g. Programming Alternatives
   h. Trail Alternatives

C. Discussion ..... 40 minutes

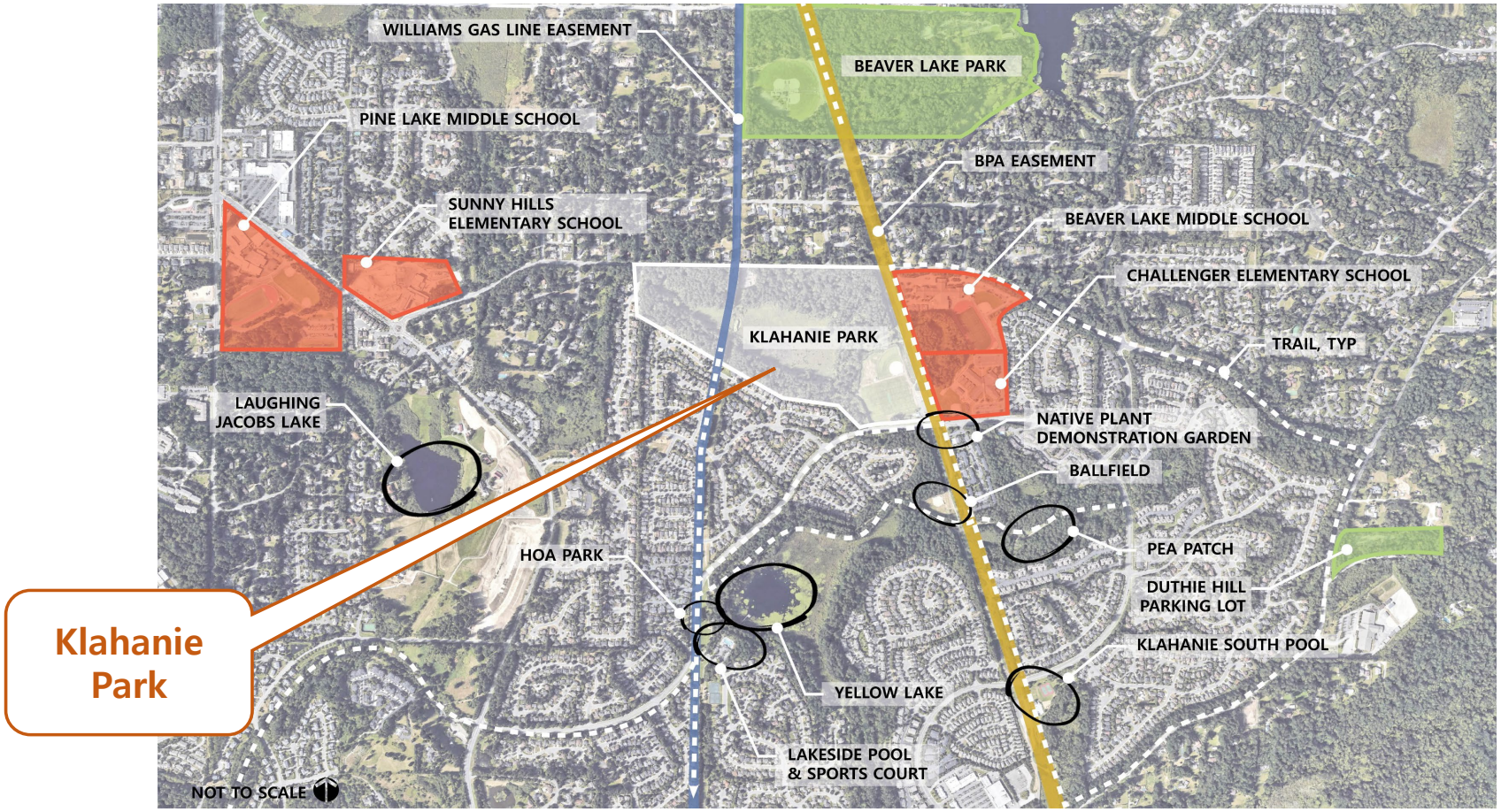
D. Next Steps ..... 3 minutes

Location & Context

City Map

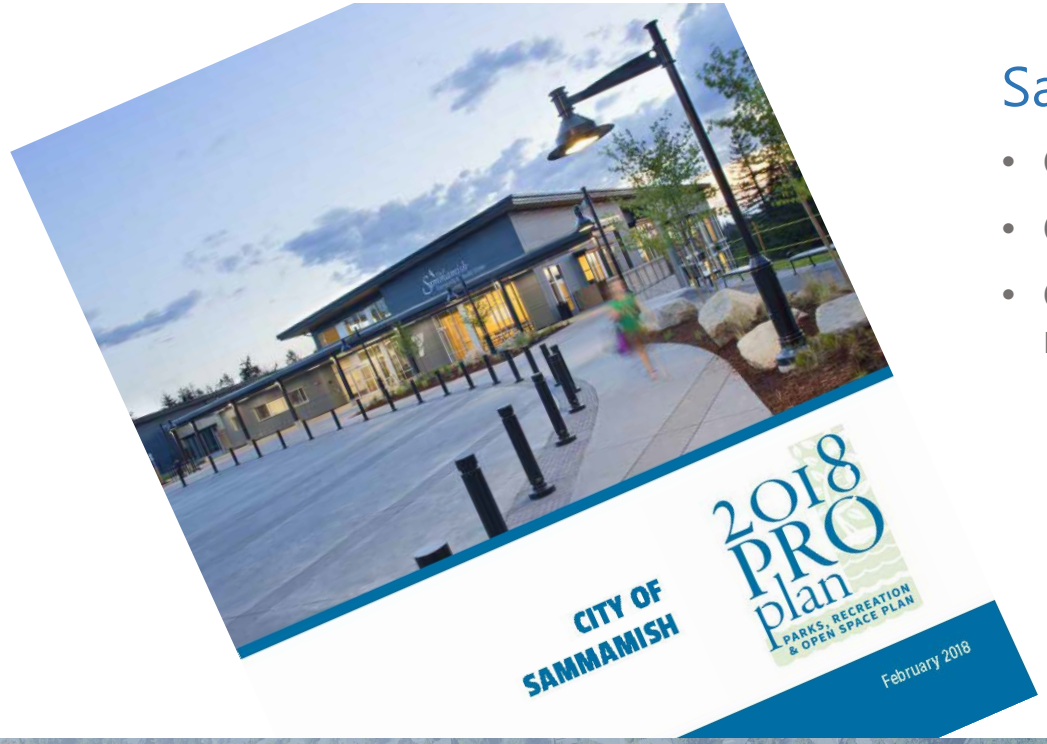

Sammamish Commons
Hazel Wolf Wetlands
Pine Lake Park
Beaver Lake Park
Klahanie Park
You Are Here
228th Ave SE
SE Duthie Hill Rd
Soaring Eagle Park
Thirty Acres Park
Steven & Rosina Kipper Preserve
Beaver Lake Preserve
Duthie Hill Park

Site Context



2018 Parks, Recreation & Open (PRO) Space Plan Vision

The overall vision for Sammamish's Parks and Recreation system sees parks as an integral part of our healthy and sustainable community by connecting people to nature, play, and culture.

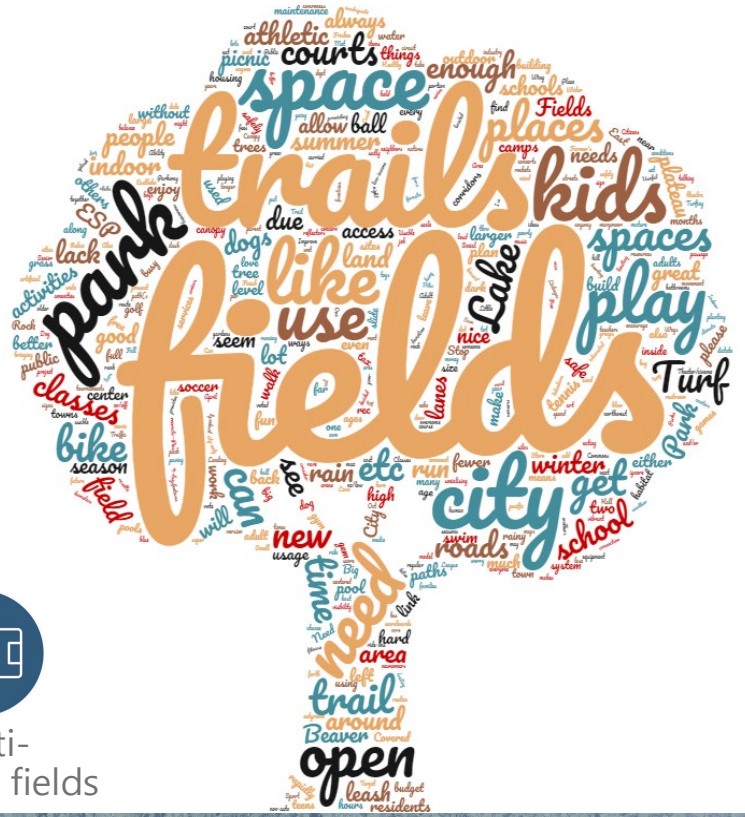


Sammamish Parks & Recreation Goals

- Conservation of natural resources
- Opportunities to improve health and wellness
- Create social equity in access to parks and recreation for all residents

2018 PRO Plan

Missing Elements of the Existing Park & Recreation System...



Top priorities for active and passive use from online survey...

- Natural surface trails
- Boardwalk trails
- Playground
- Picnic areas
- Restroom
- Flexible space
- Multi-purpose fields

2018 PRO Plan

Community Park

- *15 to 60 acres* in size
- within a *two- to five-mile* travel distance from the park
- can also serve as local neighborhood parks
- offer *programmed activities*, as well as passive, unstructured recreation
- *require support facilities* such as restrooms, parking lots and maintenance facilities
- athletic fields may be *natural, synthetic turf, or a combination of surfaces*, with or without field lighting

Neighborhood Park

- *5 to 15 acres* in size
- within a *half-mile* walking or biking distance from the park
- provided by City or Homeowner Association
- offer active and passive activities on limited scale, used primarily for *unstructured recreation*
- *may have support facilities* such as restrooms and parking lots

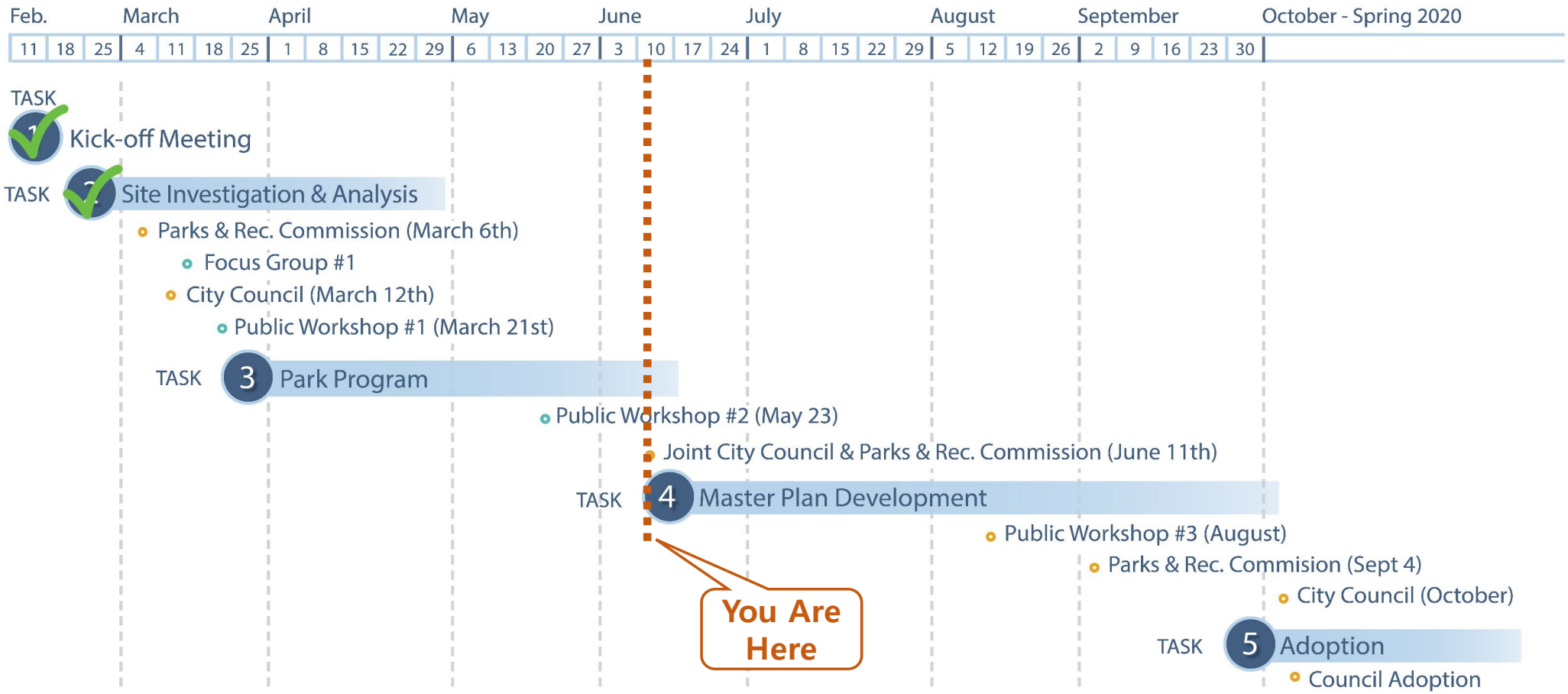
Park Type / Name	Classification	Acreage
Community Parks		
Beaver Lake Park	Community	79.2
Big Rock Park	Community	36.3
East Sammamish Park	Community	18.8
Klahanie Park	Community	64.1
Pine Lake Park	Community	19.0
Sammamish Commons	Community	39.1
Sammamish Landing Park	Community	7.8
Neighborhood Parks		
Ebright Creek Park	Neighborhood	12.3
NE Sammamish Park	Neighborhood	5.7
Preserve / Natural Areas		
Illahee Trail Park	Natural Area	12.7
30 Acres Park	Natural Area	29.9
Beaver Lake Preserve	Preserve	55.7
Evans Creek Preserve	Preserve	213.2
Steven & Rosina Kipper Preserve	Preserve	17.1
	Total	**611.0**

Timeline & Project Background

Background & History

- 1994 – Park transferred to King County following construction by Homeowner's Association (HOA)
- 2016 – Klahanie Park transferred to City
- 2017 – Minor drainage improvements completed at baseball field
- 2018 – PRO Plan completed
- 2019 – Master Plan commences

Project Timeline



Master Plan

1. Site Analysis & Project Scoping

- ☑ Evaluate Existing Conditions
- ☑ Complete Site Studies
- ☑ Park Classification
- ☑ Case Studies

2. Community Survey

3. Public Meeting #1

- ☑ Hopes, Dreams, & Concerns
- ☑ Opportunities & Constraints

4. Public Meeting #2 & #3

- ☑ Schematic Concepts
- ☑ Project Goals & Objectives
- ☑ Design Alternatives
- ☐ City Council & Parks & Recreation Commission Updates

5. State Environmental Policy Act (SEPA)

6. Master Plan Adoption

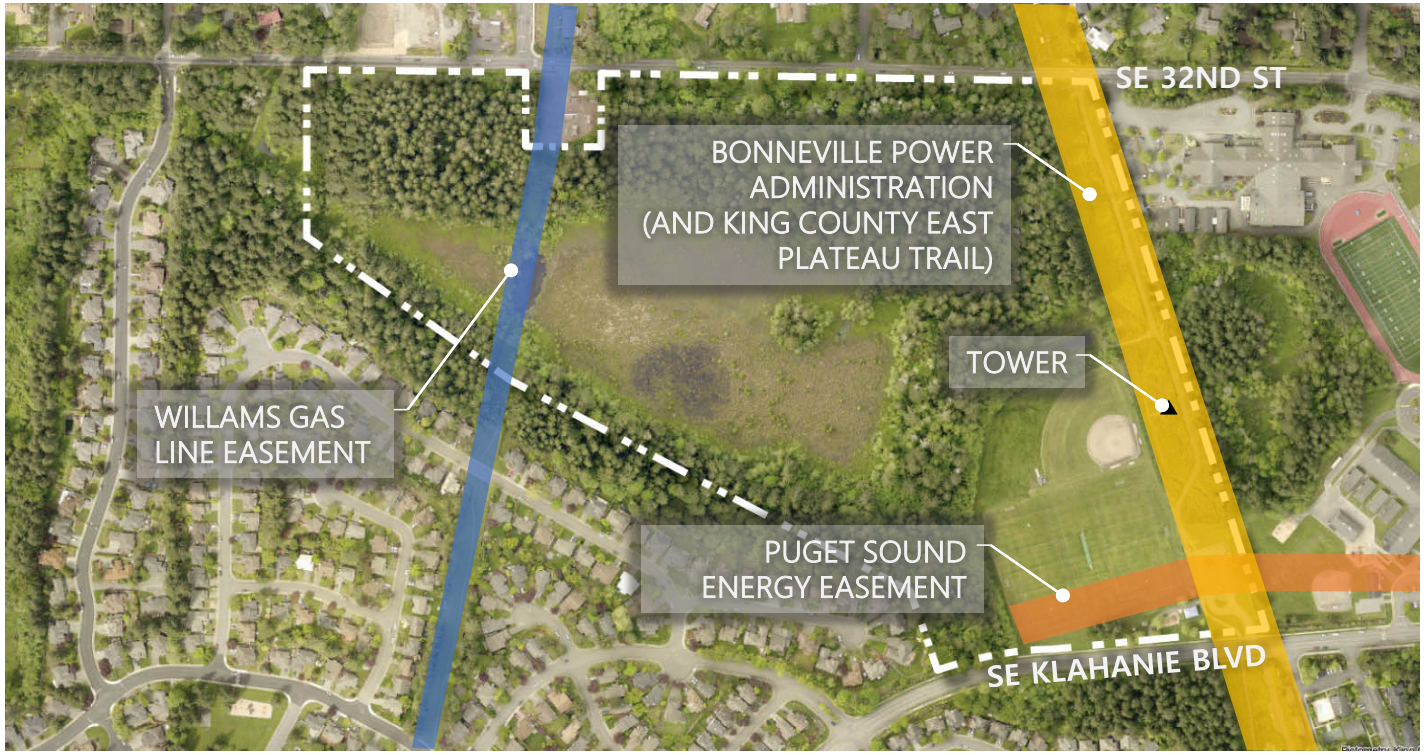
Existing Conditions

Existing Conditions

Existing Features

- Queen's Bog
- Trails
- Athletic Fields
- Play Area
- Restroom
- Parking

Easements


SE 32ND ST
BONNEVILLE POWER ADMINISTRATION (AND KING COUNTY EAST PLATEAU TRAIL)
TOWER
WILLAMS GAS LINE EASEMENT
PUGET SOUND ENERGY EASEMENT
SE KLAHANIE BLVD

Active Recreation Areas

Bog, Critical Areas, & Trails

Outreach Summary

Workshop #1

- Protect the environment
  the bog is a treasured resource, as are the adjacent wetlands and wildlife that inhabit the park, keep any new improvements away from buffers and include restoration, education, etc. to celebrate the environment (without allowing access directly to it)
- More family activities
  picnic areas and shelters, group picnic, unprogrammed open space for informal pick-up games and lawn games
- Gathering areas and events
  ways to come together as a community, hold large and small events, celebrate
- Community garden areas
  pollinator plants, native plant demonstration, sensory gardens, p-patch
- Balance active and passive areas
  the fields are used, but it leaves no space for informal, passive activities when the fields are programmed – especially during prime weekend times; more flexibility of uses would be beneficial

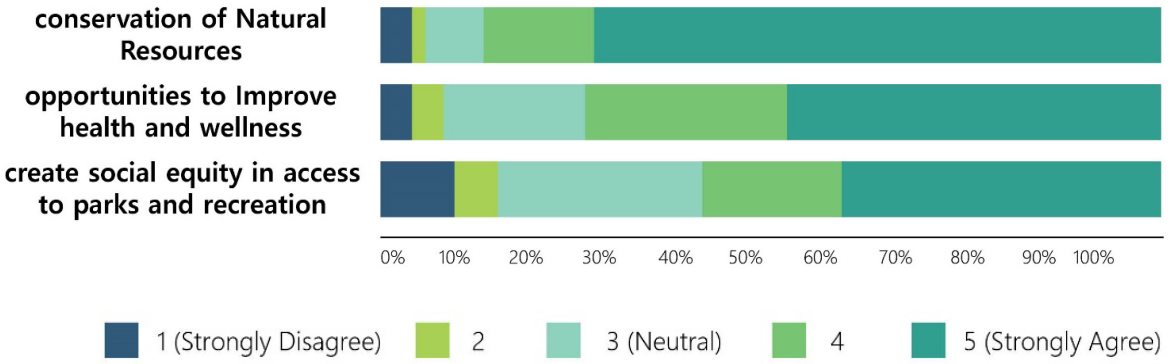
Open House #1 – Survey

677

Survey Participants

68% of survey participants visit the park regularly (at least weekly) and live within 3 miles of Klahanie Park

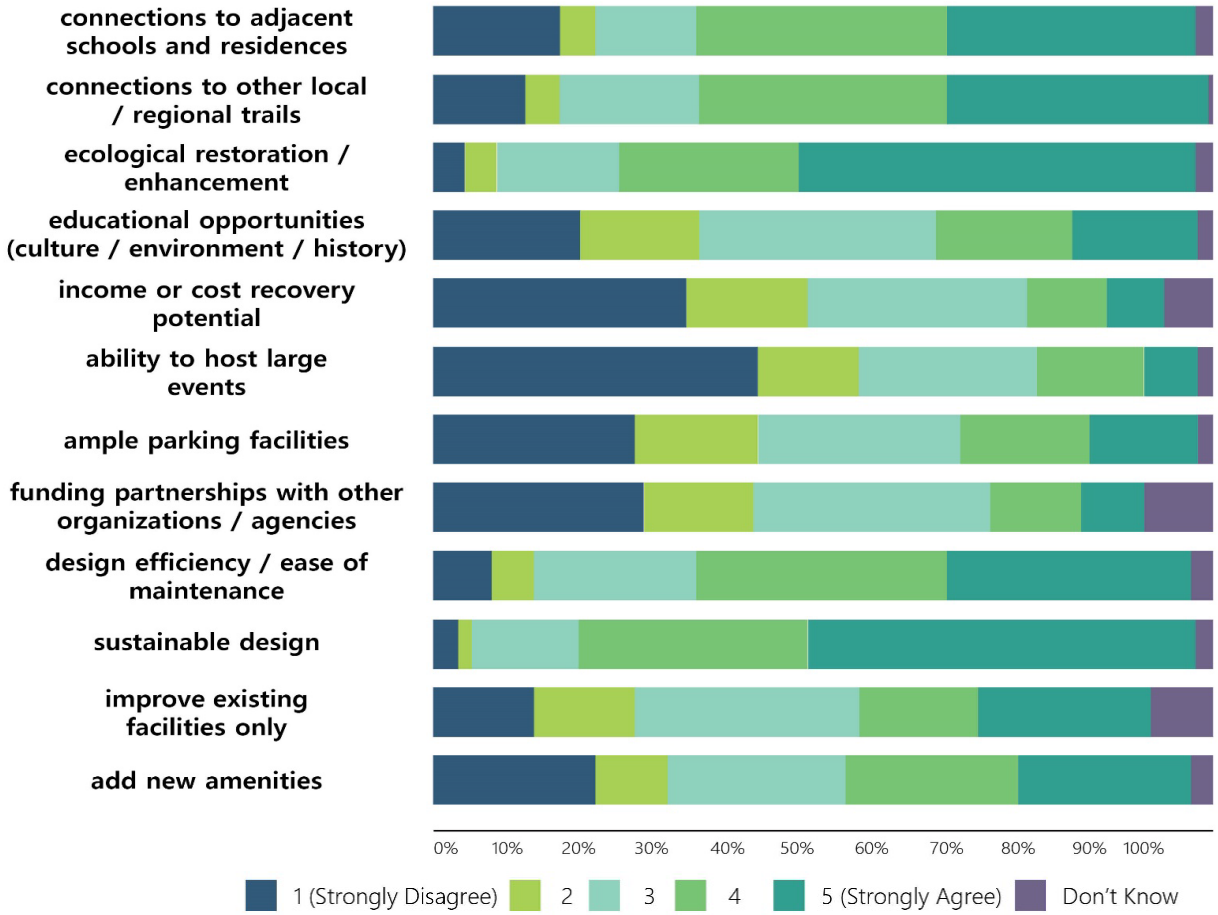
What extent should Klahanie Park support each vision & mission?



Open House #1 – Survey

What one word would you use to describe your vision for Klahanie Park?

How important are each of the following principles to Klahanie Park?



Open House #1 – Survey

What do you like **best** about Klahanie Park?

What do you like **least** about Klahanie Park?

Goals & Objectives

The overall vision for Klahanie Park is a place to . . .

1. **Protect Queen's Bog . . .**

   .... and the rest of the natural environment, educate the community about the unique nature of the bog, and partner with the adjacent schools to enhance the park as a learning environment.

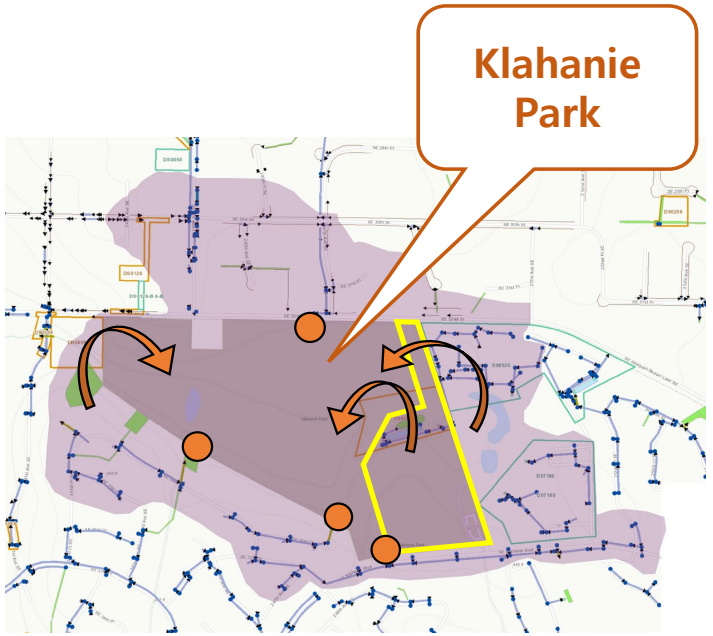
2. **Gather and celebrate . . .**

   .... to come together as a community, celebrate our diverse backgrounds and cultures, build memories with our families and each other.

3. **Balance passive and active activities . . .**

   .... recognizing the park serves a larger community need but should still retain its neighborhood scale and character.

Programming Alternatives – Queen's Bog



175.5 acres of stormwater makes its way to the bog

1.9 miles of new trails proposed

14.5 acres of park re-development proposed

4 points of discharge

3 indirect overflow routes

** Existing stormwater facility is inspected and maintained by the City annually.*

Programming Alternatives – Queen's Bog

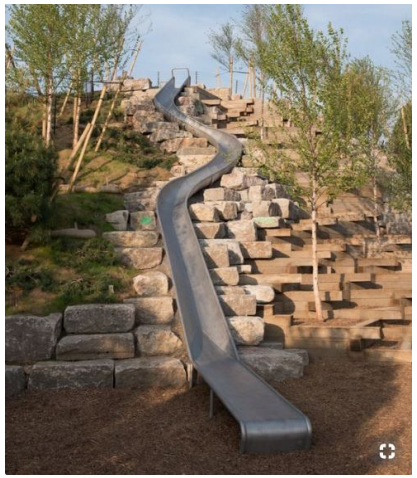
- Redirect stormwater through raingardens, biofiltration swales, and infiltration areas so it is treated before it reaches the bog
- Keep proposed improvements out of wetland and bog areas
- Improve buffers with understory vegetation, support natural tree succession
- Educate about the importance of the bog and the habitat / ecosystems they support
- Use full cut-off light fixtures and locate outside of buffer areas to limit light exposure on urban wildlife

Programming Alternatives – Gathering Areas

Play-Structure
Playground

PLAYGROUND CHARACTER



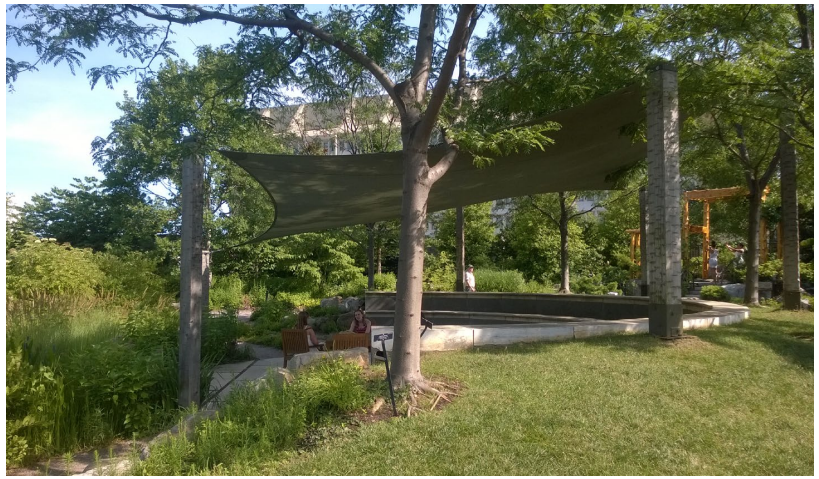


Programming Alternatives – Gathering Areas

Play-Structure Playground

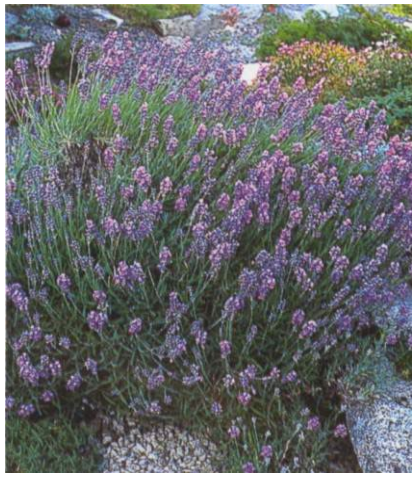
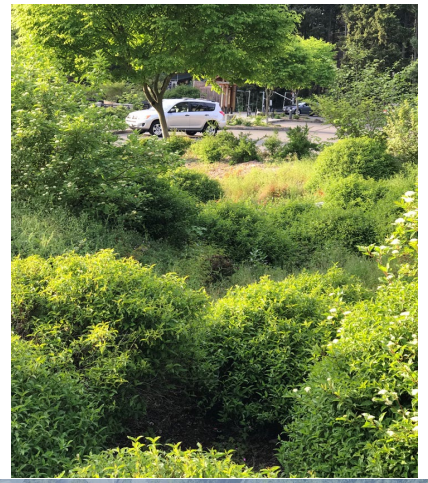
Crowded Small Space

SHELTER / ARCHITECTURAL CHARACTER



Programming Alternatives – Gathering Areas

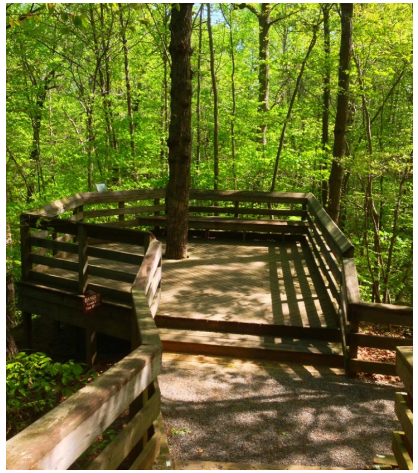
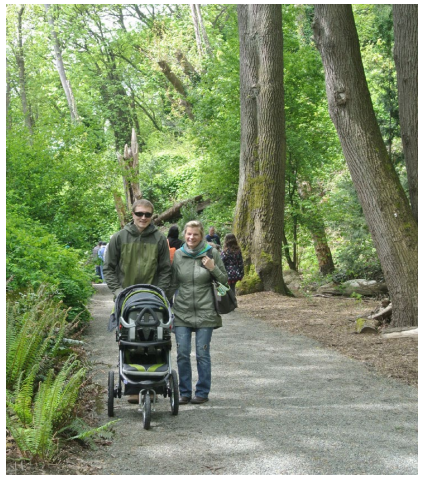
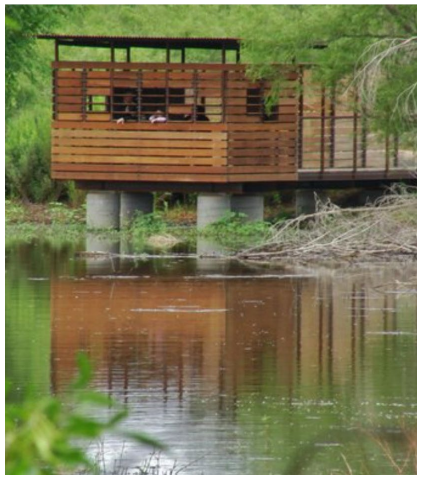
DEMONSTRATION GARDEN CHARACTER

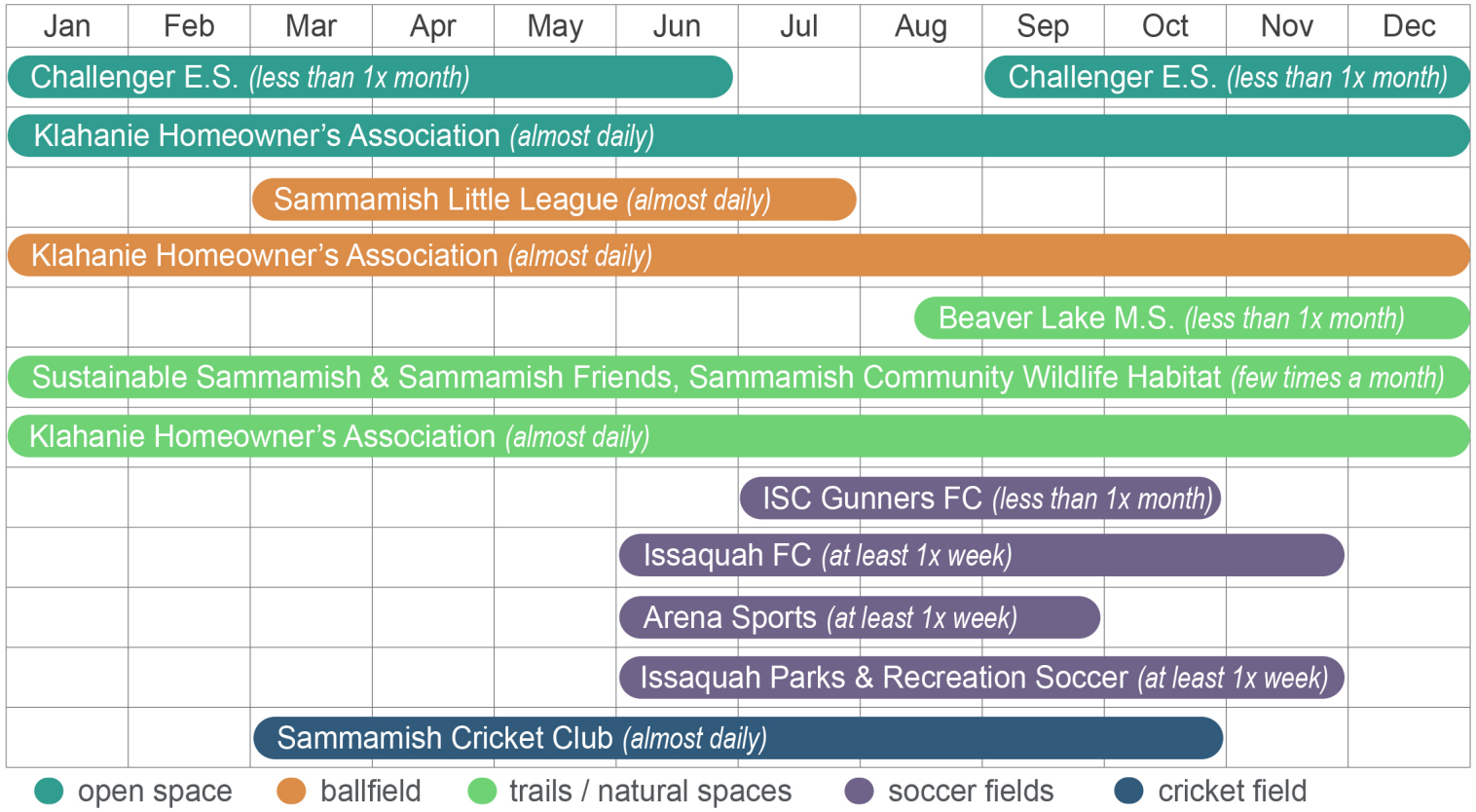
Programming Alternatives – Balanced Activities / Trails

TRAIL CHARACTER & EDUCATION OPPORTUNITIES



Programming Alternatives – Balanced Activities / Fields



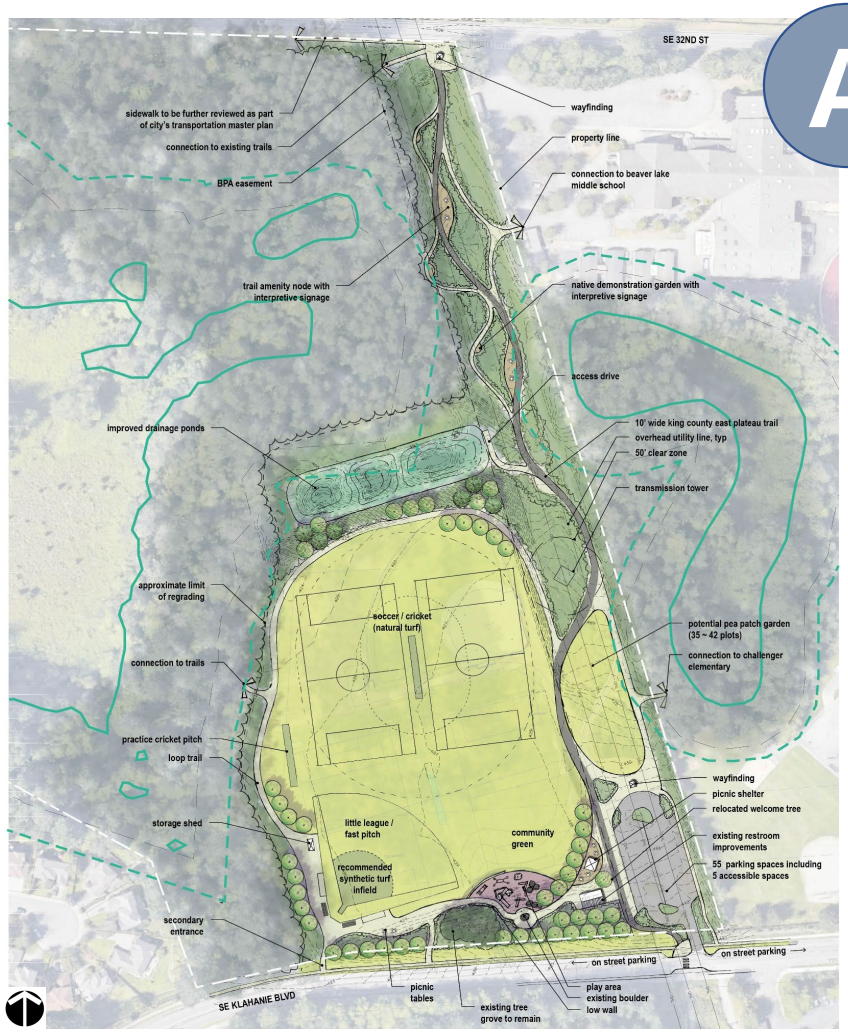
5%-10%+

Estimated annual growth in participation

fully scheduled

Afternoons and weekends for youth and adult leagues (9 months of the year)

Concept Alternatives



Concept Alternatives

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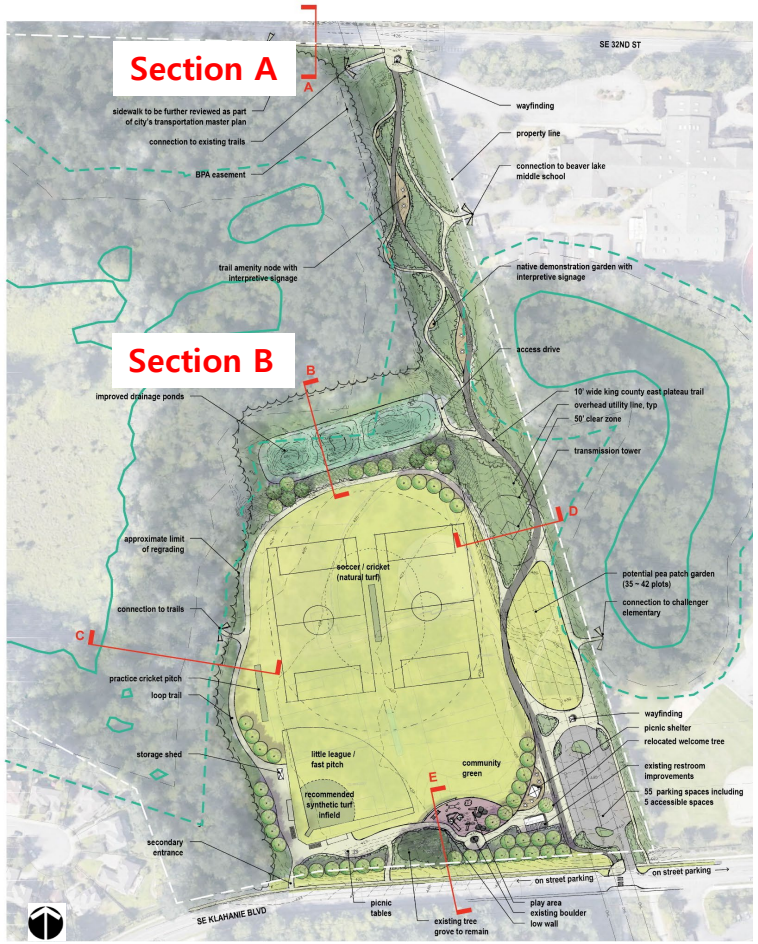

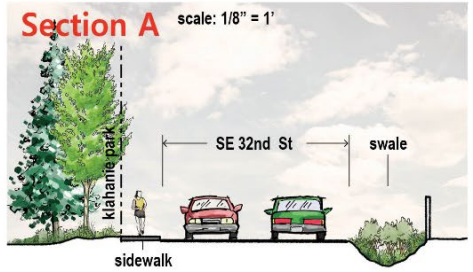

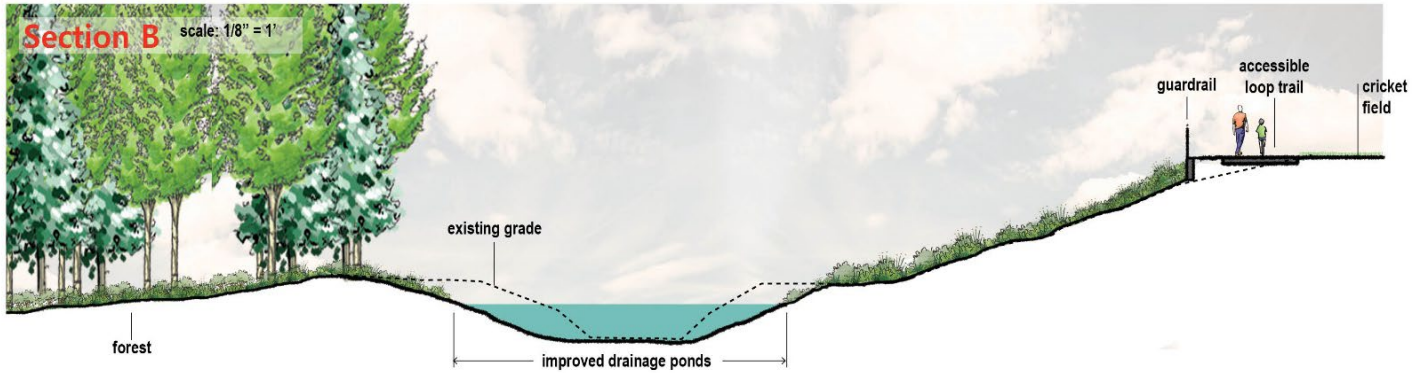

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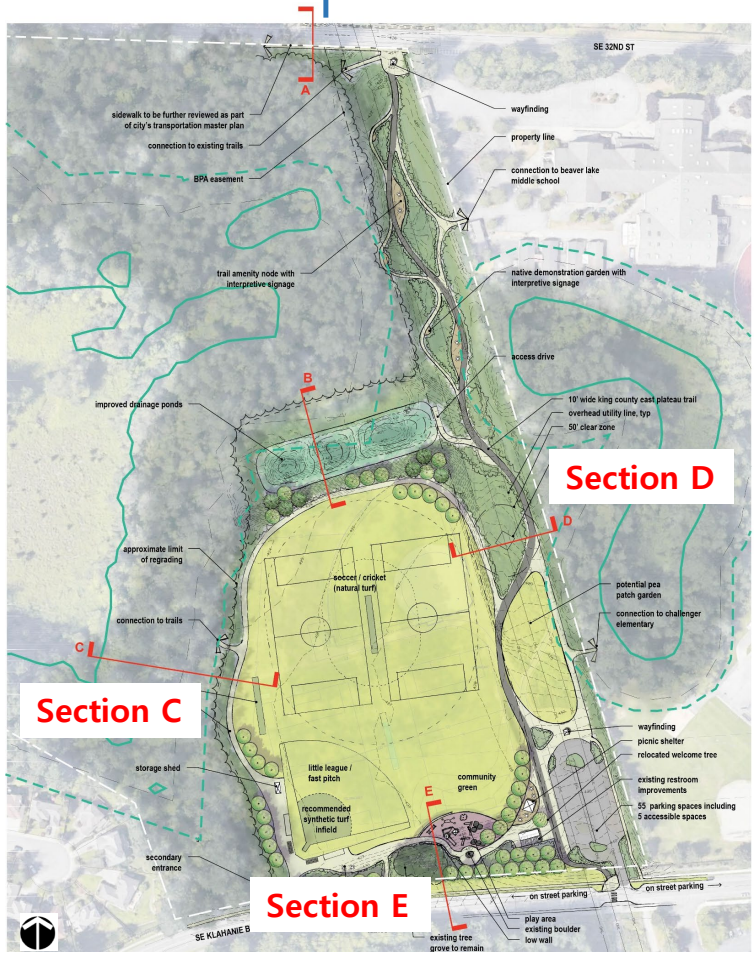

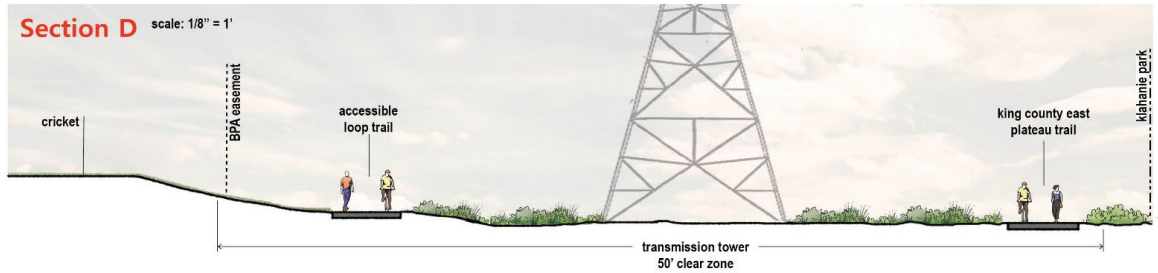

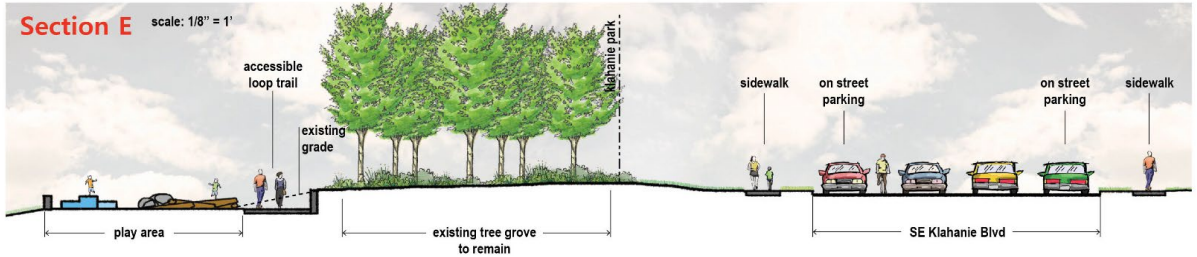

Concept Alternatives

Concept Alternatives

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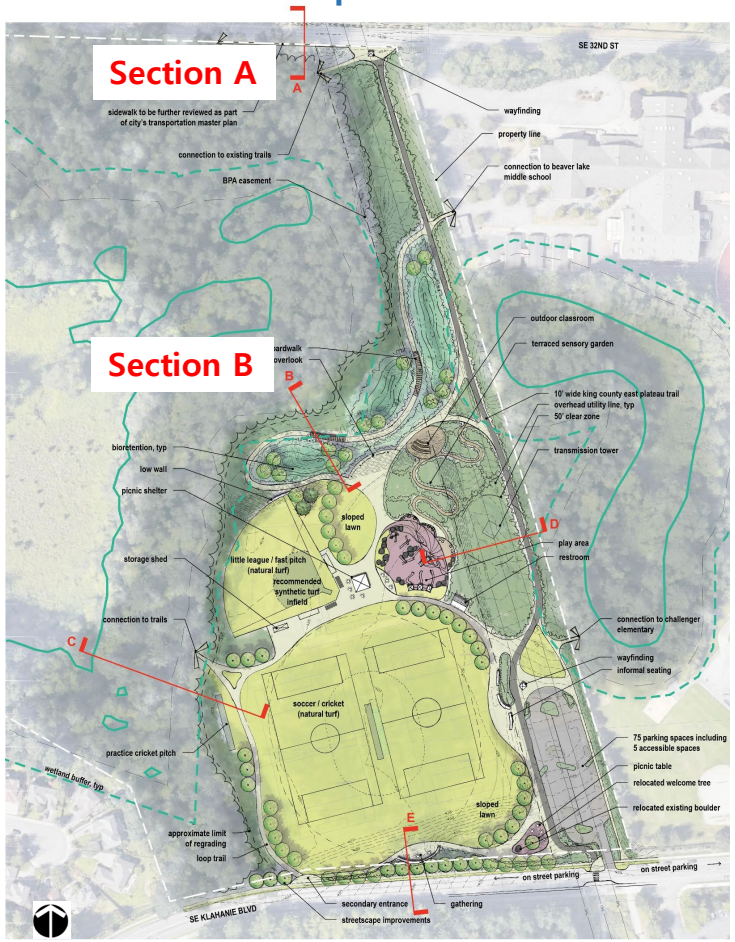

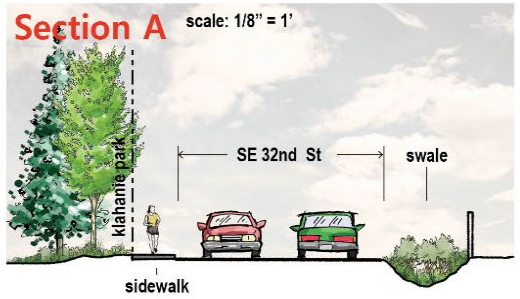

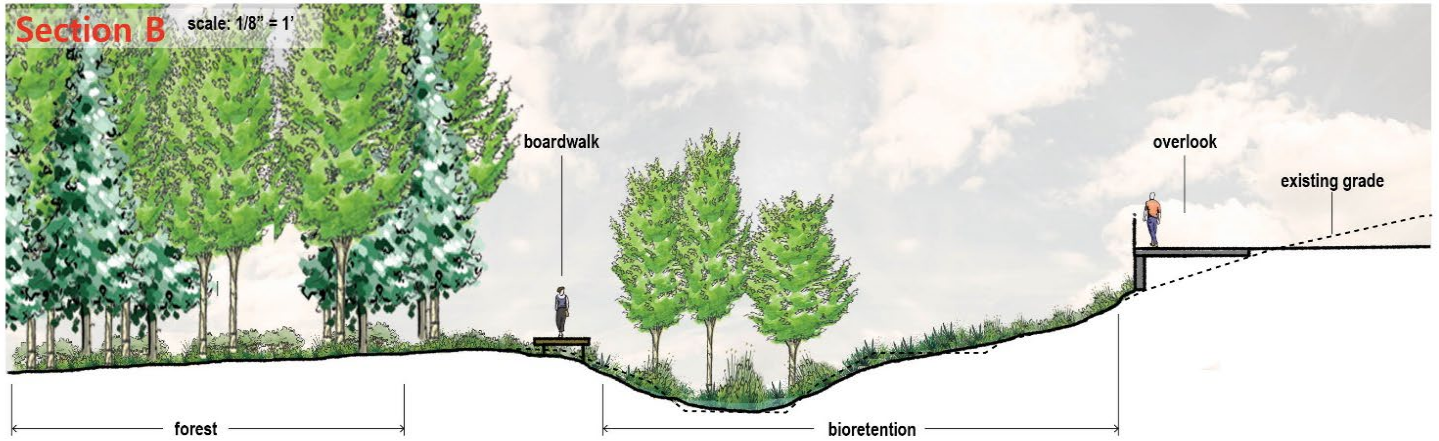

Concept Alternatives

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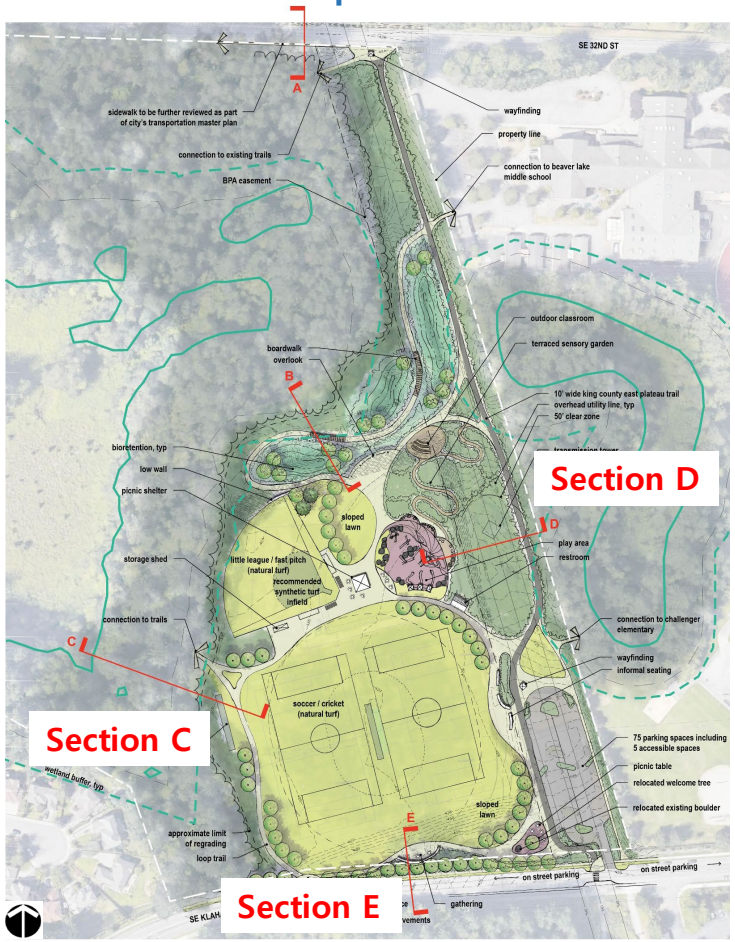
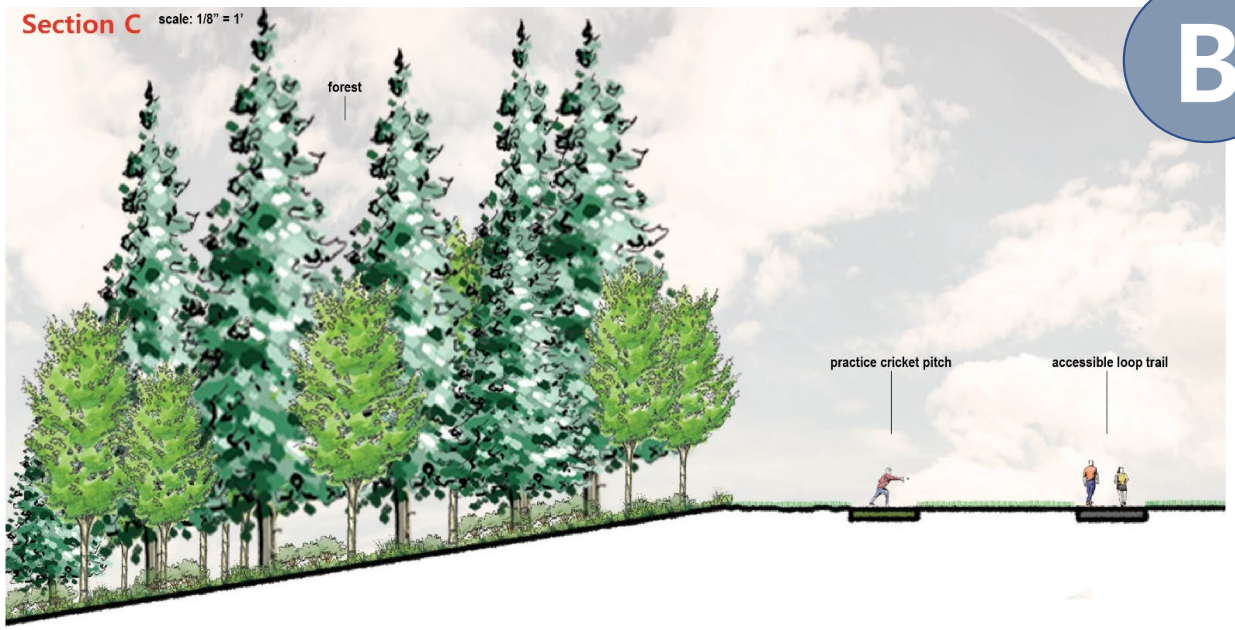
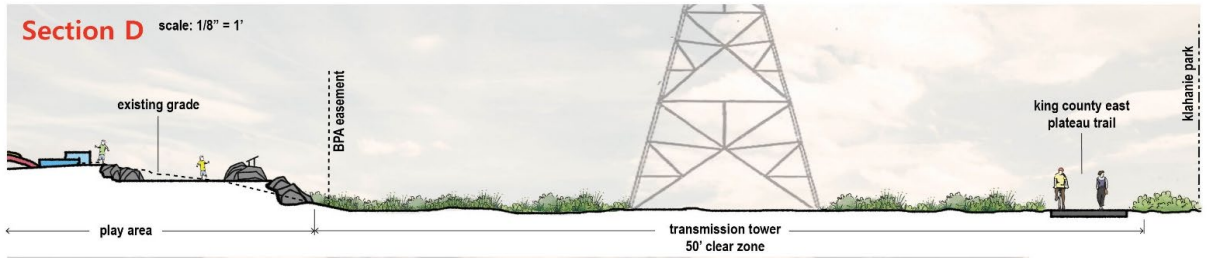
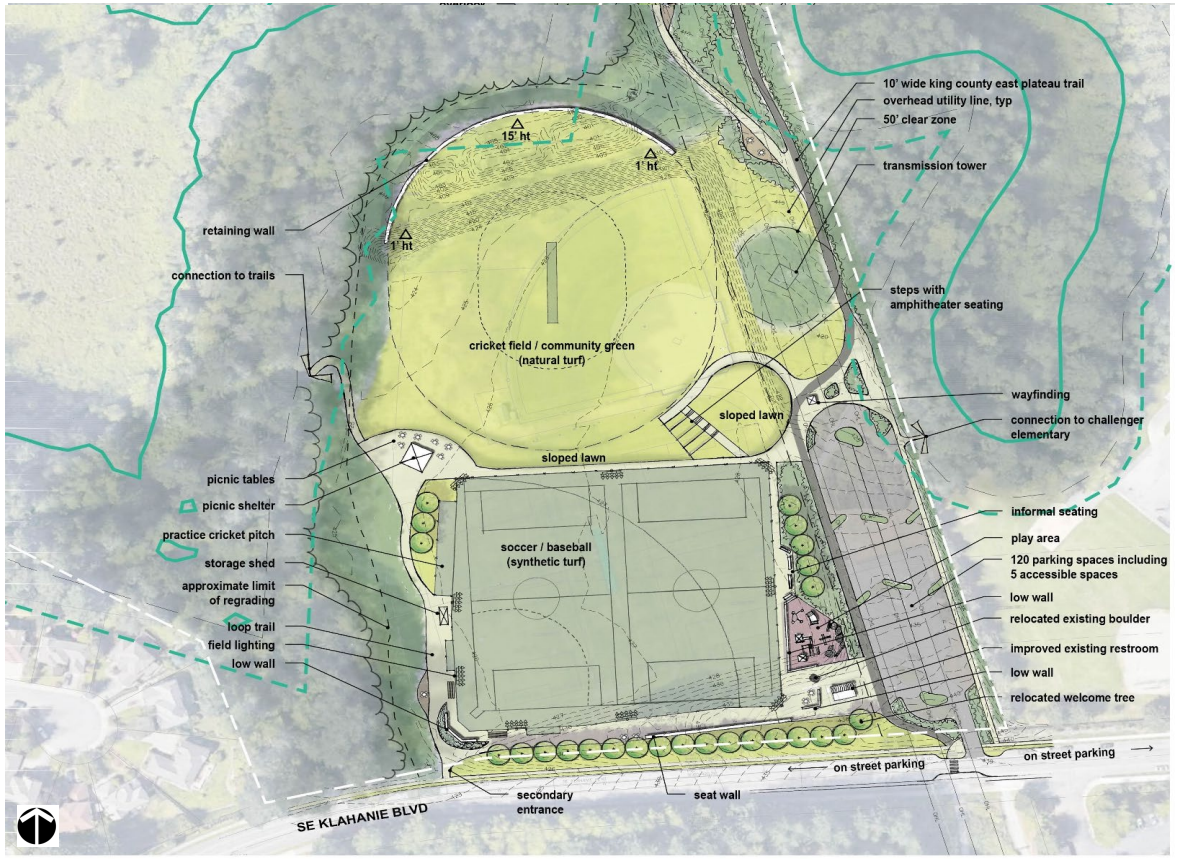
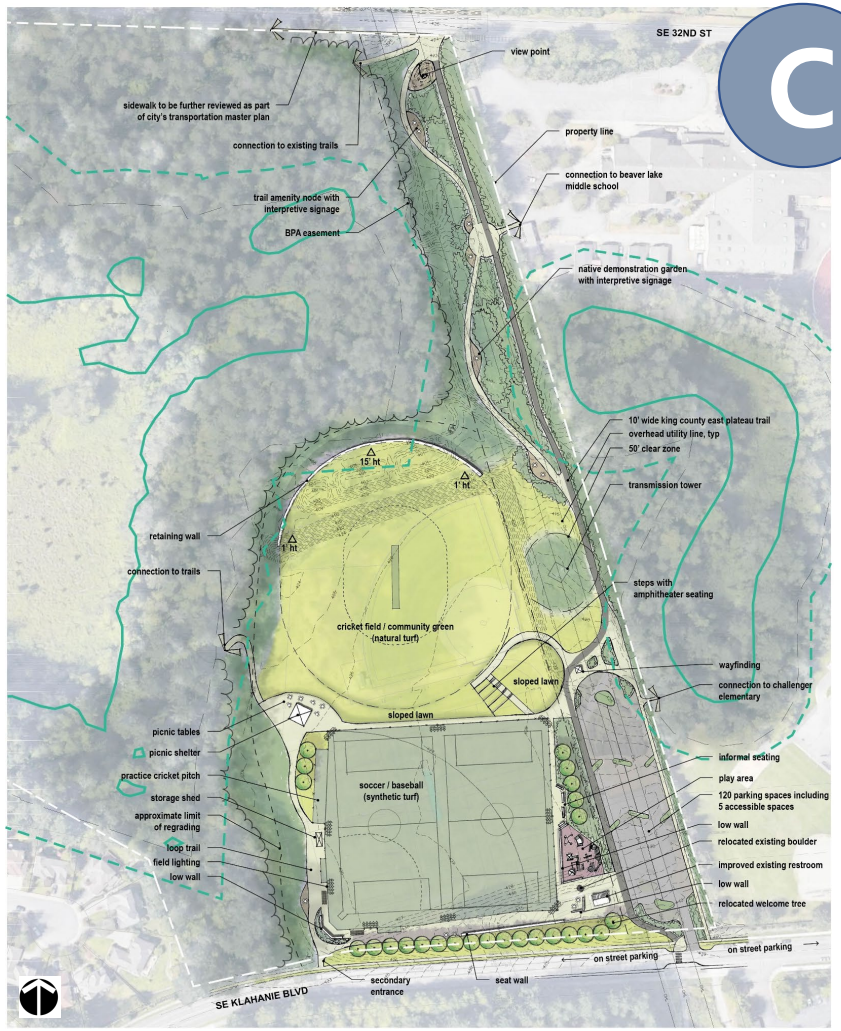






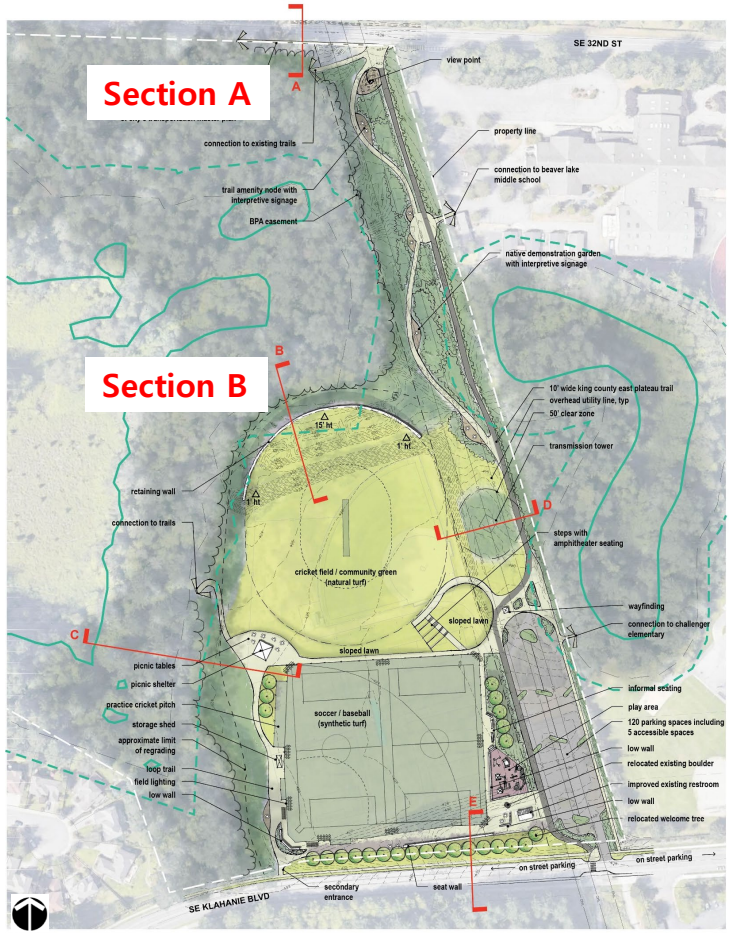
Concept Alternatives

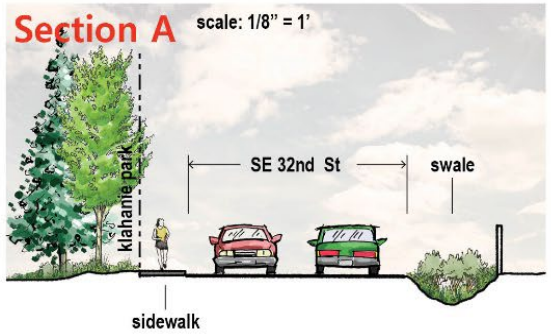


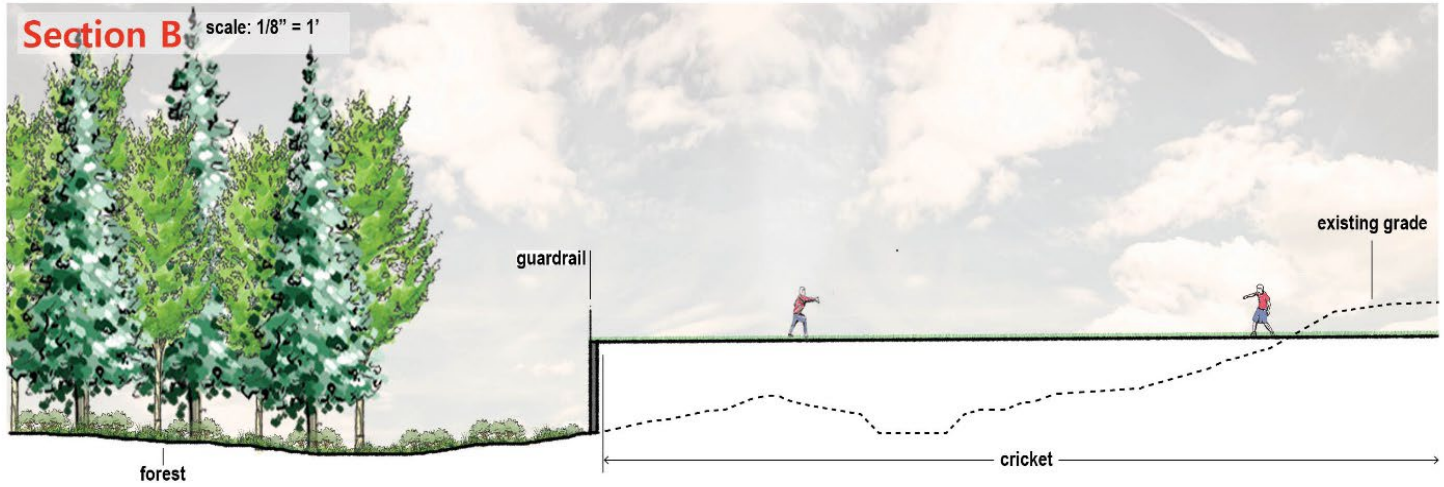


Concept Alternatives

C







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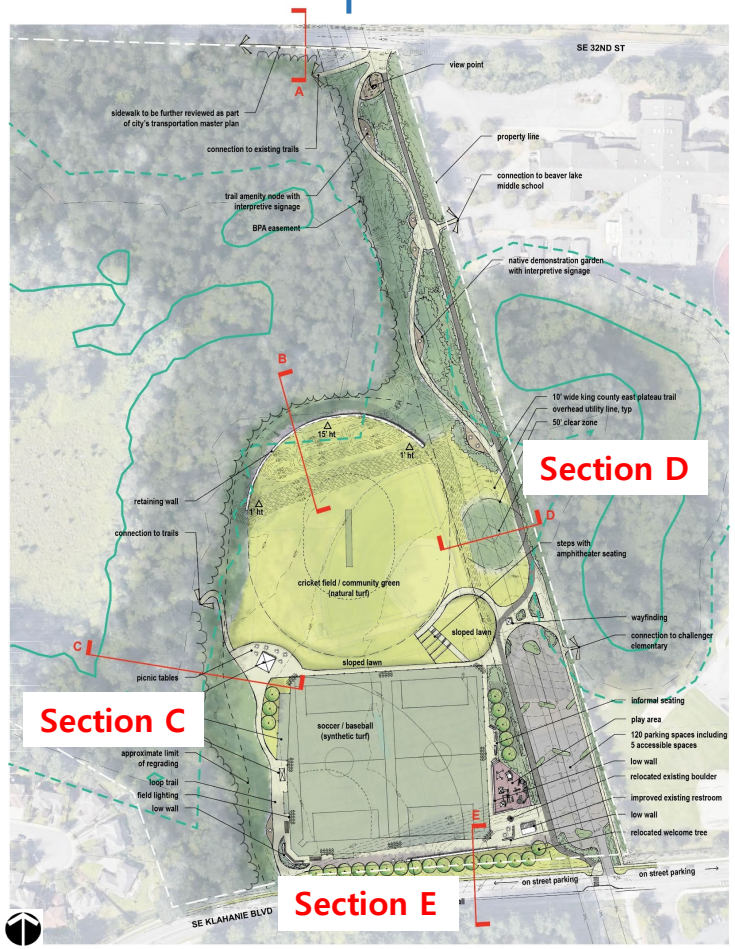
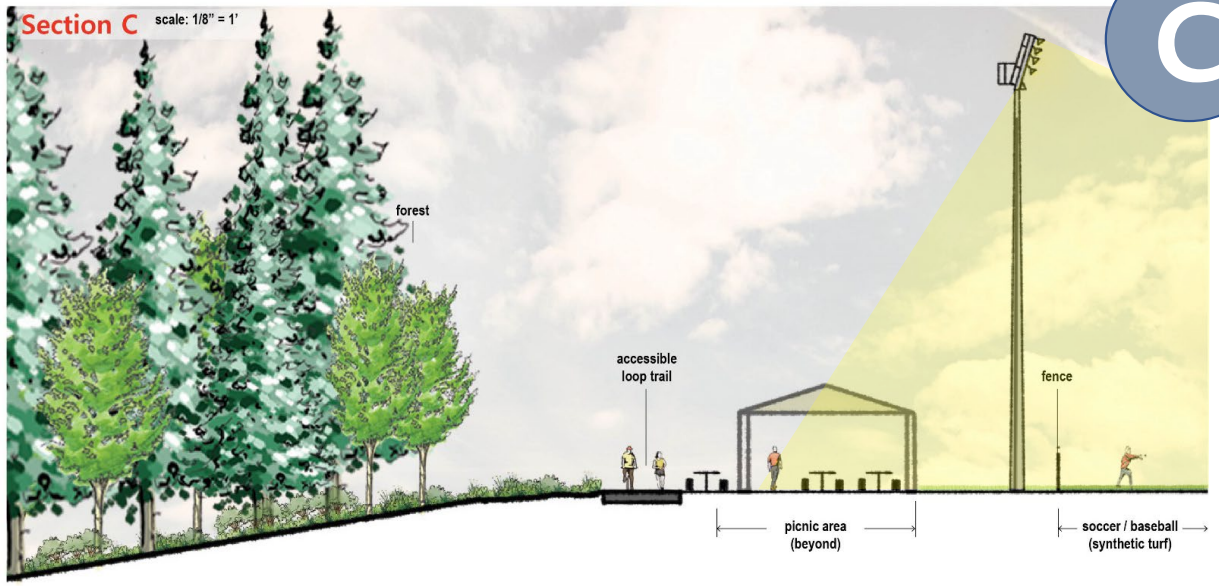
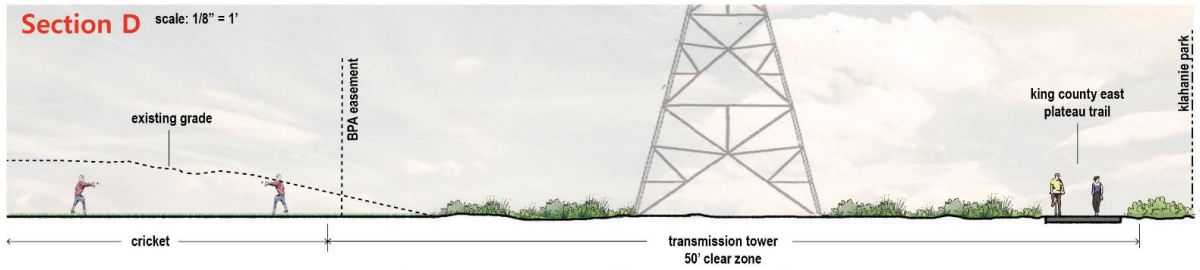
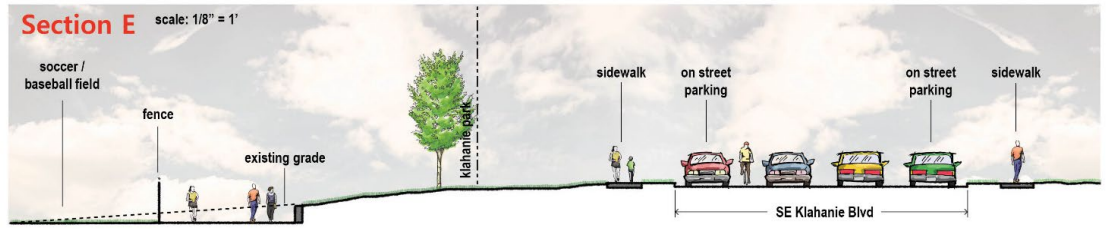








KLAHANIE PARK
Master Plan

39

Programming Alternatives – Balanced Activities / Fields

	Natural Grass	Synthetic Turf
Environmental Considerations **50%+** Increase in Use **100%** Increase in Reliability	• Routine mowing contributes to carbon emissions • Requires use of fertilizers, pesticides and herbicides that may leach into groundwater • Permeable surface filter stormwater • Biodegradable • High water use • Natural bacteria to process organic deposits • Requires establishment period and occasional 'resting' period prior to use • Use is limited by saturation after rain events	• Turf system has potential to be recycled, but costly • Retains heat contributing to urban heat index • Chemicals may be required to disinfect surface if needed; water wash-down optional • Minimal water-use except occasional cleaning • No natural bacteria to process organic deposit; additional fencing needed • No establishment or 'resting' period needed • Not susceptible to saturation after rain events

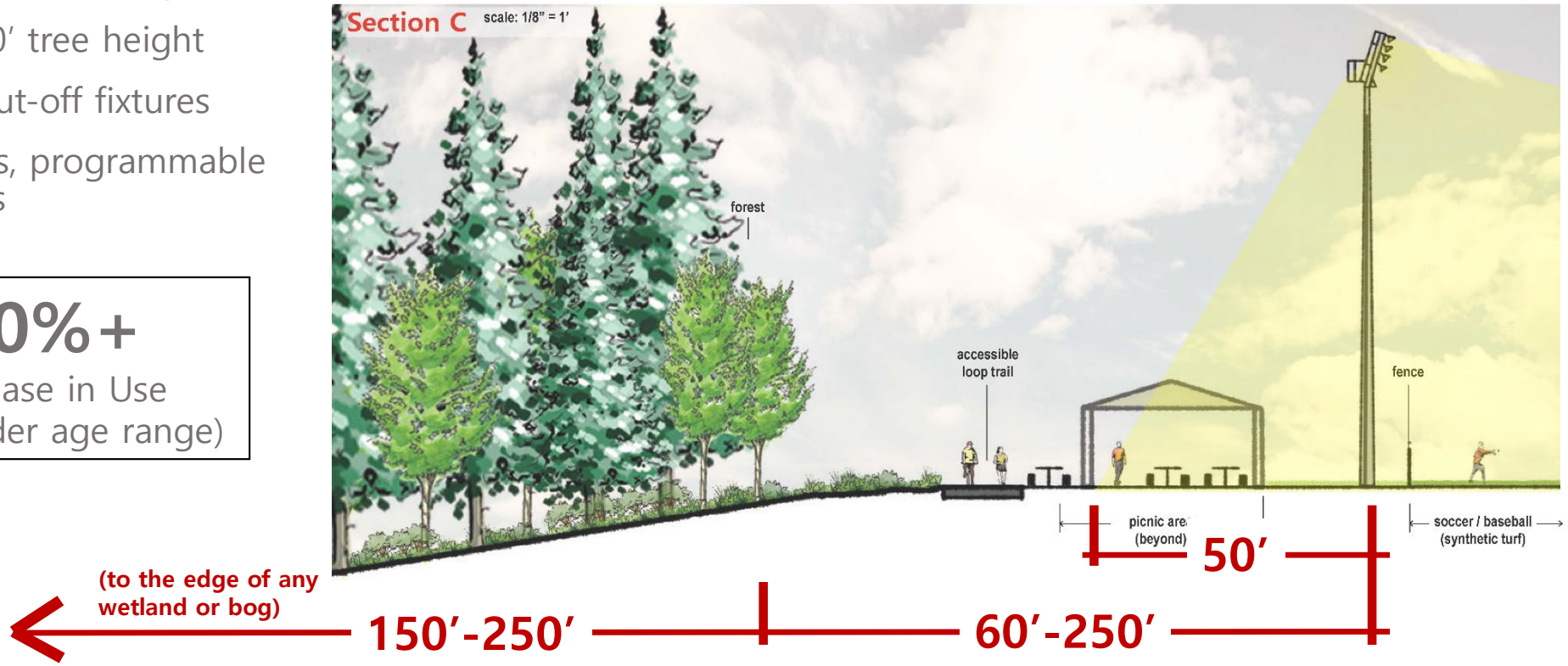
Programming Alternatives – Balanced Activities / Fields

	Natural Grass	Synthetic Turf
Installation Cost	$8 - $10 /sf Natural grass with underdrains	$15 – $18 /sf Synthetic surface, natural infill, with underdrains
Annual Maintenance	$50 - $75K / year (adequate maintenance) $100 - $150k / year (high level maintenance) More intensive regular maintenance	$20K - $40K /year Less intensive regular maintenance
Maintenance Equipment	Existing	Existing
Long-Term Replacement	Every 20 - 25 years ($6-$8 /sf) Surface and base materials	Every 8 - 12 years ($8-$12 /sf) Surface materials only
Stormwater	Collected and treated; overflow controlled by code	Collected and treated; overflow controlled by code
Materials	Natural grass; sand/topsoil base; underdrainage	Synthetic turf surfacing; cork or other natural infill; sand/gravel base; underdrainage

Programming Alternatives – Balanced Activities / Lights

- 70′ – 80′ pole height
- 60′ – 80′ tree height
- LED / cut-off fixtures
- Wireless, programmable controls

50%+
Increase in Use
(and wider age range)

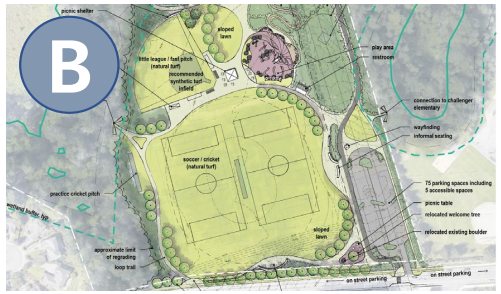


Concept Alternatives

What we heard from Public Workshop #2. . .

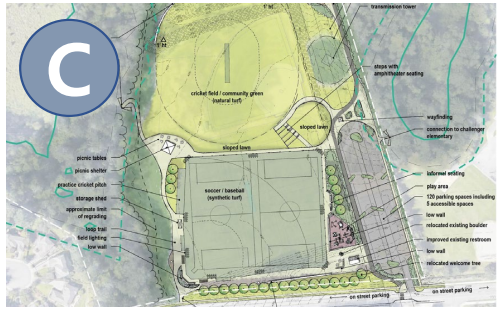
LIKED the open space, the community gardens, the big rock and trees remain, loop trail, meandering easement trail with amenity nodes, natural turf

DISLIKED the fencing that would make the entrance feel less welcoming



LIKED the similar efficiency of the sports fields to the existing, natural grass, natural stormwater treatment, central play area, ballfield fences out of the way

DISLIKED community open space is too small, distance of the play area to parking

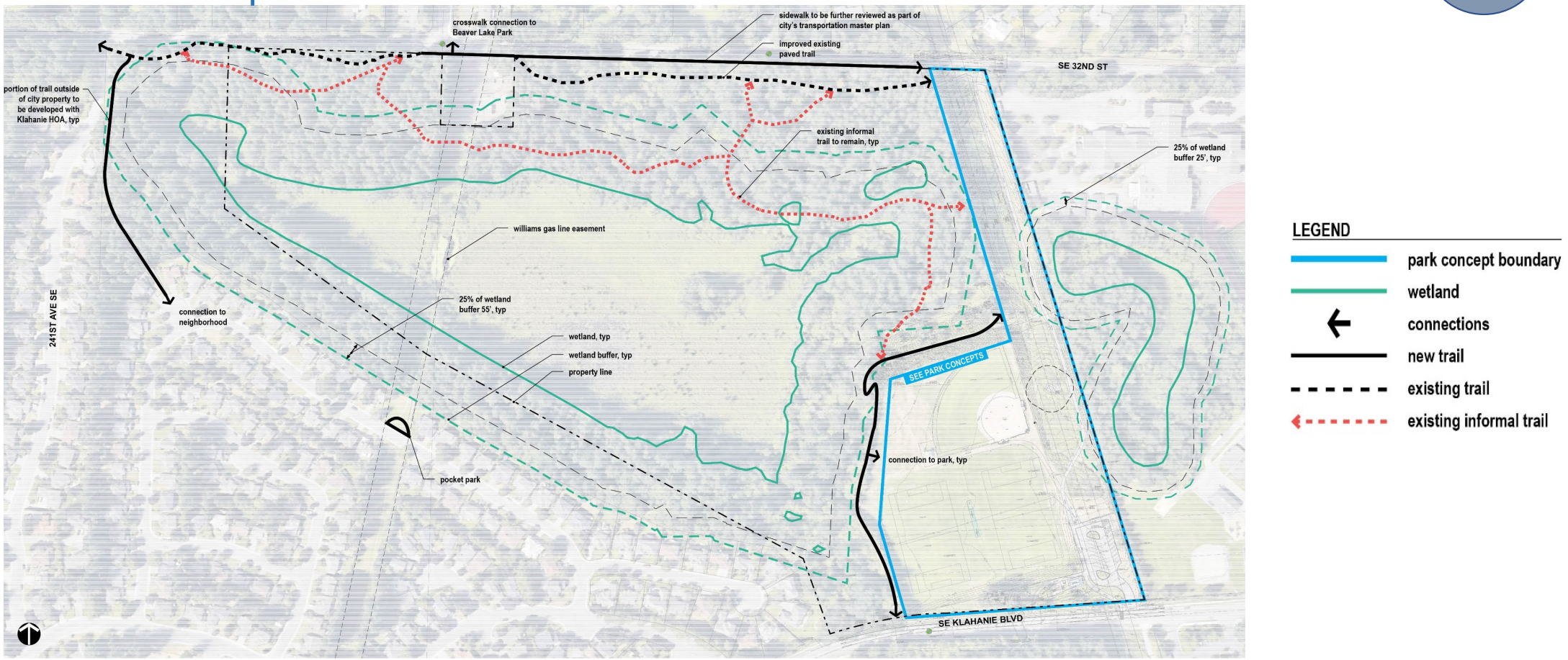


LIKED artificial turf, field lighting, full adult softball field, cricket field separation

DISLIKED artificial turf, field lighting, loss of the neighborhood character, too much impact, loss of nature, stormwater redesign, fencing along Klahanie Blvd.

Concept Alternatives

1



Concept Alternatives

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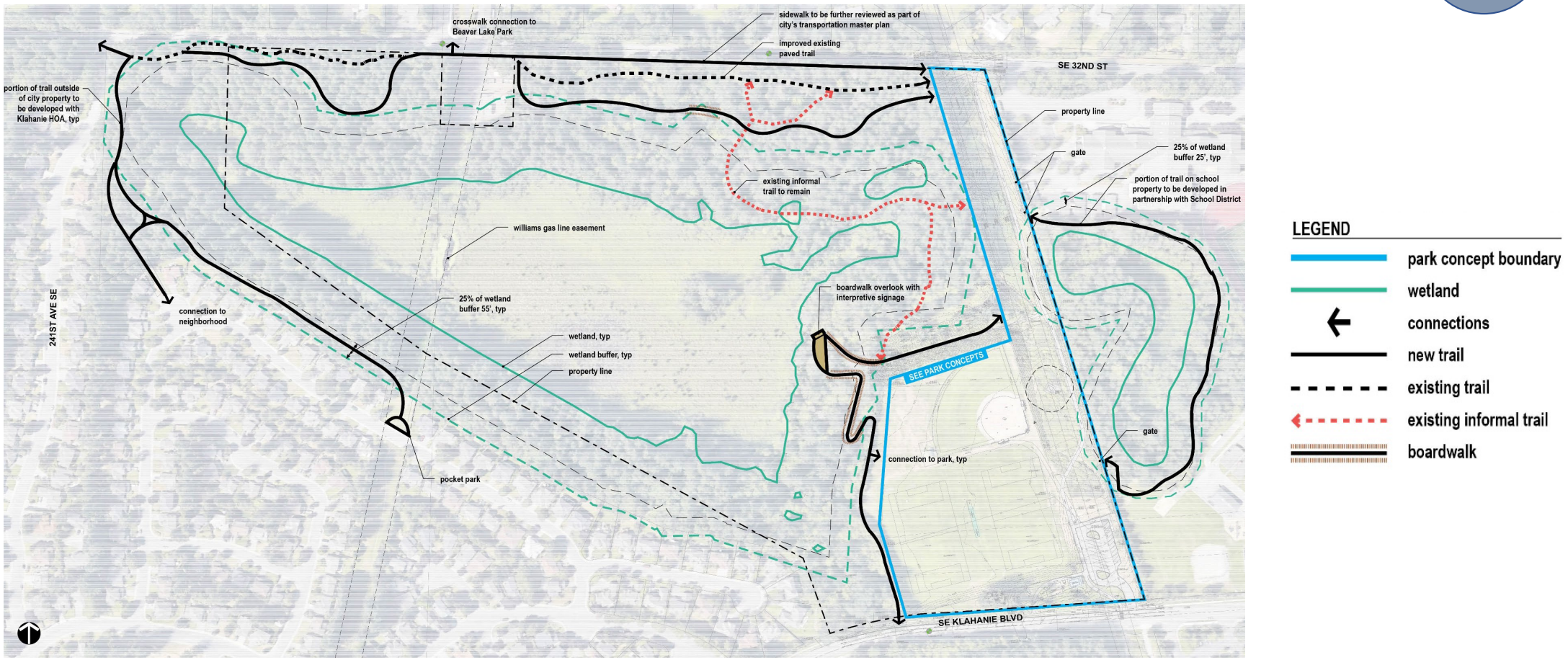
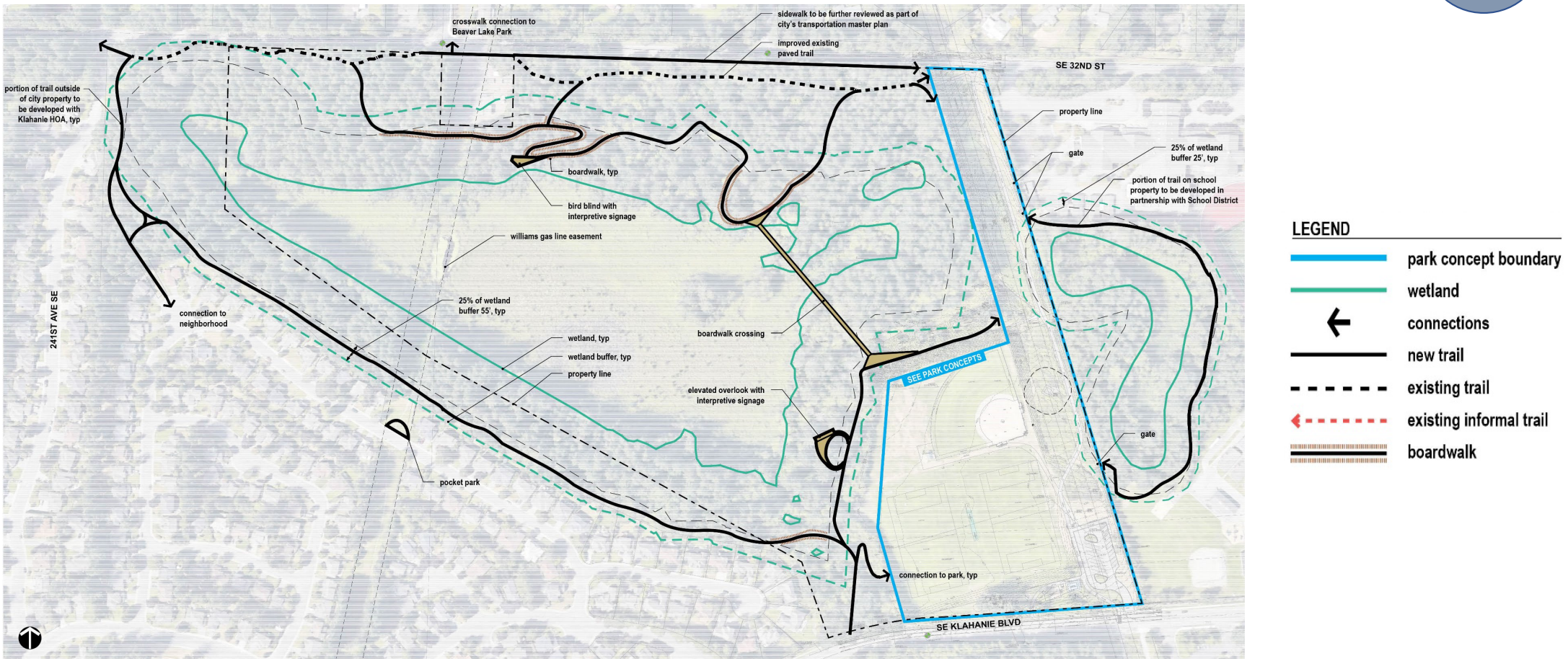


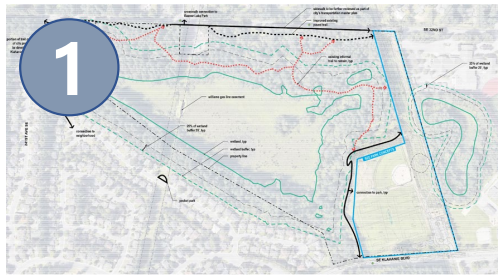
Concept Alternatives

3



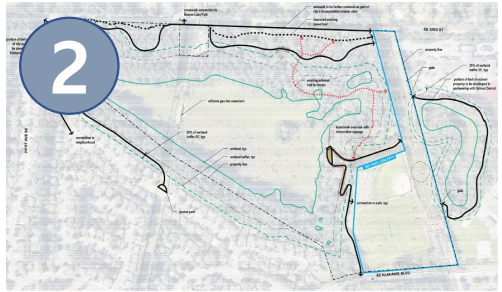
Concept Alternatives

What we heard from Public Workshop #2. . .



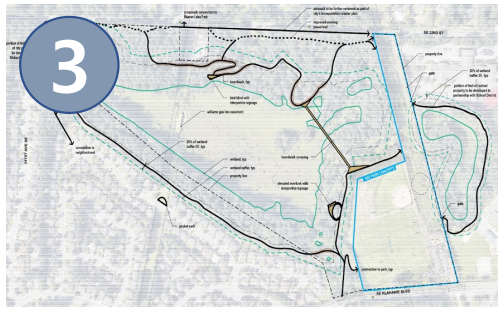
LIKED removed trails behind homes, minimum impact to the bog

DISLIKED



LIKED overlook but it needs to consider CPTED and impact on the environment, school wetland trail

DISLIKED trail behind homes



LIKED

DISLIKED trail behind homes, full loop trail has too much impact on bog, bridge over bog is too invasive, too much access to the bog

Discussion

Discussion

- What do you like about each alternative?
- What don’t you like about each alternative?
- Additional suggestions?
- What did we miss?

Next Steps

Next Steps

- Online survey (open June 5 – June 21)
- Preferred Concept development (Build a plan)
- Public Workshop #3 to review preferred concept (August)
- Present preferred concept to Parks & Recreation Commission (Sept. 4)
- Present preferred concept to City Council (October)

Memorandum

801 228th Avenue SE ▪ Sammamish, WA 98075 ▪ phone: 425-295-0500 ▪ fax: 425-295-0600 ▪ web: www.sammamish.us

DATE: May 31, 2019

TO: City Council and Parks & Recreation Commission

FROM: Shelby Perrault, Parks Project Manager
Anjali Myer, Parks & Recreation Deputy Director
Angie Feser, Parks & Recreation Director

RE: 3/6/19 Regular Meeting – Answers to Parks & Recreation Commission related to Klahanie Park Master Plan

3/12/19 Study Session – Answers to City Council Questions related to Klahanie Park Master Plan

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A representative from the consultant team, HBB, presented background information and an analysis of existing conditions and uses at Klahanie Park during the March 6, 2019 Parks & Recreation Commission meeting and March 12, 2019 City Council Study Session. During these meetings, City Council and the Parks & Recreation Commission discussed their hopes, dreams and concerns related to the master plan of Klahanie Park. The following answers are provided by the consultant team and city staff in response to questions raised by the Parks & Recreation Commission and City Council. The PowerPoint presentation referenced below is included as an exhibit in the Klahanie Park Master Plan discussion agenda bill for the June 11, 2019 City Council Joint Meeting with the Parks & Recreation Commission.

Responses to Parks & Recreation Commission Questions at March 6, 2019 Regular Meeting

A-1. How well used is the Klahanie P-Patch?

- The P-Patch in Klahanie is chartered under the Klahanie HOA and consists of 27 beds, 12 of which are currently rented. Each bed is 10' x 20'. The Klahanie Pea Patch committee (KPPC) is currently working on a 5-year re-location plan for better access and sunlight exposure. The KPPC is in the first year of the re-location plan and a future location has not been identified.

A-2. Where is all the drainage going?

- All stormwater from the southern portion of the park, in addition to a portion of Beaver Lake Middle School, is currently being directed to the detention ponds which then either infiltrate or overflow into the bog. The developed area of Klahanie Park accounts for approximately 12% of the overall stormwater that makes its way to Queen's Bog. Additional stormwater information related to Queen's Bog is provided on slide 24 of the June 11, 2019 PowerPoint presentation.

A-3. Will synthetic turf provide extended use and is there a demand from the sports groups?

- Yes, synthetic turf will provide extended use compared to natural grass. Synthetic turf fields can be rented year-round, while natural grass is only available March through October. It is also important to note that rainouts on natural grass are inevitable during those times. This happens most typically through early summer, when soils are inundated with rains and are essentially unusable for possibly days after the rain ceases because stormwater has nowhere to go. Simple wear and tear on grass is another issue to consider. Synthetic turf surfaces do not experience either of these issues.

City of Sammamish Washington

Memorandum

801 228th Avenue SE ▪ Sammamish, WA 98075 ▪ phone: 425-295-0500 ▪ fax: 425-295-0600 ▪ web: www.sammamish.us

- Currently, youth sports groups are the primary renters of City fields. Conversion to synthetic turf and lights would allow additional youth, young adult and adult sports groups to utilize City fields. At this time, sports groups have significantly reduced their requests for City field rentals because the City's fields are at capacity.

A-4. Does synthetic turf have more significant negative environmental impacts than natural grass?

- There are environmental impacts for both synthetic turf and natural grass. These impacts are compared on slide 40 of the June 11, 2019 PowerPoint presentation.

A-5. Are maintenance practices/materials in maintaining synthetic turf different or worse than natural grass?

- Synthetic turf maintenance requires less frequent use of gas-powered equipment, significantly less water usage, and far fewer chemical inputs than natural grass.

A-6. What would be long-term maintenance costs for natural grass versus synthetic turf?

- Generally speaking, a natural grass field costs $50,000 - $75,000 annually for adequate maintenance (water and mowing) or $100,000 - $150,000 annually for a high level of maintenance (water, seed, fertilizer, and mowing). Whereas a synthetic turf field costs $20,000 - $40,000 annually for maintenance.

A-7. Can a cost comparison be provided for synthetic turf and natural grass systems for maintenance and value of use?

- Currently, the natural grass field revenue does not cover annual maintenance costs. If a synthetic turf system was selected, the field revenue would potentially cover annual field maintenance costs. Additional information related to maintenance costs is provided on slide 41 of the June 11, 2019 PowerPoint presentation.
- In response to value of use, it is difficult to quantify the value of cool, soft, natural grass to that of durable and reliable synthetic turf. There are intangible benefits to each system.

A-8. What are the costs for natural infill (i.e. cork), tradition infill materials, and natural turf?

- The Infill costs included below exclude the cost of adjacent improvements, fencing, etc.:
  - Sand-Based Natural Grass: $8-$10/sf
  - Synthetic Turf w/ Styrene Butadiene Rubber (SBR) Crumb Rubber: $12-$15/sf
  - Synthetic Turf w/Coated SBR Crumb Rubber: $13-$16/sf
  - Synthetic Turf w/Granular Cork on a Supplemental Pad*: $15-$18/sf
  - Synthetic Turf w/Thermo Plastic Elastomer (TPE) on a Supplemental Pad*: $16-$19/sf

  **Use of Infill option without supplemental pad not recommended*

A-9. What portion of the future turf replacement costs can be offset with field reservation revenue?

- The table on the following page provides a breakdown of current field reservation fees and availability for synthetic and natural turf fields that the City rents.

City of Sammamish Washington

Memorandum

801 228th Avenue SE ▪ Sammamish, WA 98075 ▪ phone: 425-295-0500 ▪ fax: 425-295-0600 ▪ web: www.sammamish.us

Sammamish Athletic Field Rental Information

Comparison	Synthetic Turf	Natural Grass
Youth Reservations	$60 per hour	$17 per hour
Adult Reservations	$90 per hour	$30 per hour
Misc. Costs	$20 per hour - lights	$ 40 – field prep
Availability	9:00 a.m. – 9:00 p.m. Year-round	9:00 a.m. – Dusk March through October

A-10. What sports groups are playing during the February timeframe with synthetic turf? Additionally, how many sports groups are playing?

- February itself does not typically have any youth recreational activity, however there are year-round adult soccer leagues. In late February, high school softball, baseball, and soccer are gearing up for the season. Additionally, several youth sports are still active well into November, as well as year-round adult leagues.

Responses to City Council Questions at March 12, 2019 Study Session

B-1. What are the tree heights between the fields and the homes? What are the tree heights versus the field light heights? How much light would penetrate through the tree canopy?

- Tree heights between the fields and adjacent homes range from 60' to 80'. Field light heights range from 70' to 80'. Lighting would not penetrate through the tree canopy. Light screens would be used, and lights would only be turned on when needed. Field lighting can have a negative effect on habitat for nocturnal birds and bats. That said, the bog itself shouldn't be affected due to the protective nature of the buffer. Additional information related to field lighting is discussed on slide 42 of the June 11, 2019 PowerPoint presentation.

B-2. Is there capacity at Klahanie Park to be used as a community park that serves the City, versus a neighborhood park?

- The Parks, Recreation and Open Space Plan (PRO Plan) designates Klahanie Park as a community park. At 64 acres, it is the second largest community park in the City. Additional information on the different amenities provided in a community park and neighborhood park is identified on slide 8 of the June 11, 2019 PowerPoint presentation.

B-3. What kind of stewardship opportunities are there for students?

- Once a preferred master plan is developed, the City can work with adjoining schools to identify potential stewardship opportunities.

B-4. When was the pond last cleaned? Are there sand filters?

Memorandum

801 228th Avenue SE ▪ Sammamish, WA 98075 ▪ phone: 425-295-0500 ▪ fax: 425-295-0600 ▪ web: www.sammamish.us

- The City began maintaining and inspecting the stormwater facility within Klahanie Park in 2017, following the Klahanie annexation. The most recent inspection was completed July 27, 2018 and there were no noted maintenance needs.
- There does not appear to be a sand filter. The facility uses a wet pond, followed by a bioswale for its water quality treatment.

B-5. How much water is flowing to the bog and where is it coming from?

- Please refer to response A-2.

B-6. How can we restore the bog?

- It is challenging to restore a bog. Once its chemistry begins to change, there is little to be done outside of reducing the overall impact. Going in to remove plants and re-planting with bog species would be damaging. The best thing to do is to stop stormwater entering the bog, or ensure it is properly treated before entering the bog. Lastly, the buffer should be enhanced for further protection.

B-7. Can utility agencies that own property just north of Queen's Bog make any environmental improvements on their property or park property?

- City staff have reached out to both utility agencies to discuss potential improvements on their property and/or park property.

VISION & PROGRAMMING SURVEY

The vision and programming survey was available online and open to the public from 03/13/2019 through 04/19/2019 and worked in tandem with the feedback from Public Workshop #1 to kick-off the design process. This was not a statistically valid survey.

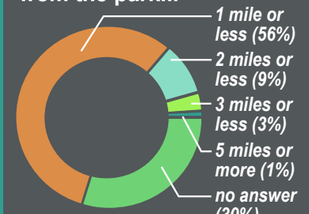
Some survey questions asked what the community likes and dislikes about the current park and a variety of answers were submitted. In general, the community enjoys the park's location and it's neighborhood park feel, the flexible open space, current activities including the sports fields, the natural spaces, and trails. The survey results also show that the current drainage/wet field conditions, the crowded fields and busy open spaces, current playground structure, restroom, the power lines, and the trails are what the community likes the least about the park. Some other comments received included:

- increased traffic and safety concerns
- impact on the environment
- concern with adding field lighting
- concern with using artificial turf
- keep the big boulder by the playground
- concern with the park becoming crowded with large groups / leagues using the park
- desire to keep the park as-is.

The survey asked what one word or phrase would you use to describe **your vision for the future of Klahanie Park** and here is what we heard. The larger the word, the more often it was mentioned in survey responses.

677
Survey Participants

Distance participants live from the park...



The majority of survey participants live a short distance from the park and visit weekly or more.

Average age of participants...

2% under 25 years
41% 26 - 45 years
46% 46 - 65 years
11% over 65 years

Vision & Mission
Conservation of natural resources:
86%
agreed or strongly agreed

Vision & Mission
Opportunities to improve health and wellness:
70%
agreed or strongly agreed

Vision & Mission
Create social equity in access to parks and recreation:
45%
agreed or strongly agreed

Above is the % of survey participants who agreed that Klahanie Park should support the City's mission to create a legacy of diverse and quality parks, exceptional recreation programs, and protected natural resources.

Top Perfect Fit Features...

#1 Restrooms
#2 Natural surface trails
#3 Playgrounds / natural play elements

Other perfect fit features included boardwalks, flexible space, picnic areas, and multi-purpose fields.

Top Non-Suitable Park Features...

#1. Skate park / skate features
#2. Frisbee golf course
#3. Amphitheater / stage
#4. Art murals & sculptures
#5. Single purpose sport fields

Other less desired features: zipline, climbing walls, parkour, sports courts, off-leash dog area, spray park.

Top Guiding Principles...

#1 Sustainable design
#2 Ecological restoration / enhancement
#3 Efficiency / ease of maintenance

Other guiding principles for the park design included connections to trails, schools, and residences.

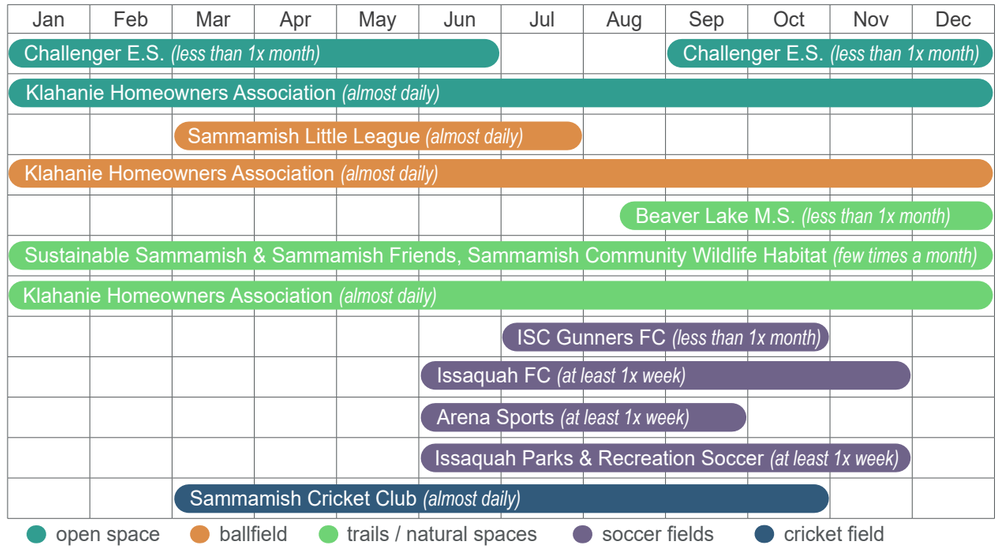
FOCUS GROUP MEETING & SURVEY

The design process included a focus group meeting and online survey. The focus group included stakeholders using the park for active and passive recreation, the school district, and three utility companies that have easements through the park. The survey was conducted from 03/12/2019 through 03/20/2019 and the focus group meeting was held on 03/14/2019. 18 participants took the survey. The feedback received in both the survey and meeting was essential in creating an initial menu of programming options for review by the larger community in Public Workshop #1. All three utility companies provided feedback and guidance for ensuring the final master plan remains compatible with their access and maintenance requirements. However, they are excluded from the data shown here because they have no recreation demands or requests. This was not a statistically valid survey

FOCUS GROUP PARTICIPANTS

- Sammamish Little League
- Challenger Elementary School
- Beaver Lake Middle School
- Klahanie Homeowners Association
- Sustainable Sammamish
- Sammamish Friends
- Sammamish Community Wildlife Habitat
- ISC Gunners FC
- Issaquah FC
- Arena Sports
- City of Issaquah Parks & Recreation Soccer
- Sammamish Cricket Club
- Williams Gas Company
- Bonneville Power Administration
- Puget Sound Energy

Of the groups and individuals who currently use the park for active recreation, the following chart shows who uses the various areas of the park throughout the year and how frequently the areas are currently being used.



Estimated size of the groups using the park and their average annual growth...

Sammamish Little League
800 - 900 / ~5% annual growth

Challenger Elementary School
570 / 3% - 4% annual growth

Beaver Lake Middle School
1,000 / ~less than 1% growth

Klahanie Homeowners Association
12,000 / ~1% annual growth

Sustainable Sammamish
10 - 15 / growth unknown

Sammamish Friends
10 - 15 / growth unknown

Sammamish Community Wildlife Habitat
15 -20 / ~5% annual growth

Issaquah P&R Soccer
3,000+ / ~5% annual growth

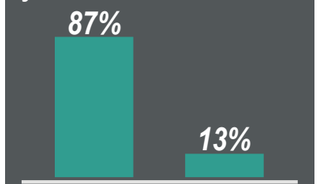
Arena Sports
150 / ~5%- 10% annual growth

ISC Gunners FC
2,000 / ~5% annual growth

Sammamish Cricket Club
300 / ~30% annual growth

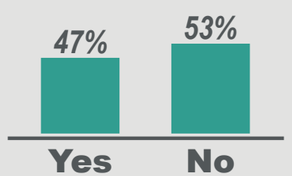
Issaquah FC
700 / ~5%-7% annual growth

Is the park sufficient for your current use?



The "No" responses are related to the ballfield and soccer fields.

Is the park sufficient for your desired / future use?



The "No" responses are related to all park areas (see right).

Wish List...

From the groups or individuals who's recreation needs are not met in the park, the following wish list of improvements was requested to meet their desired or future use:

Ballfield:
- Artificial turf
- Field lighting
- Picnic shelter / bbq pits
- Playground
- Covered dugouts
- Improved fencing / backstop
- Spectator seating
- Accessible, shorter path from parking to field
- 1 additional ballfield
- Serve all ages

Overall:
- Improved drainage in open space and fields
- Increase parking
- Improve safety near the roadways
- Synthetic turf & light pollution are a concern

Open Space:
- Outdoor classroom
- Accessible play area
- Zipline
- Access to restrooms
- Community kiosk
- Gathering space
- Covered picnic shelter
- Family friendly activities

Soccer Fields:
- Preserve 2 soccer fields
- Artificial turf
- Field lighting
- Adequate parking
- Playground

Cricket Field:
- All natural grass, mowed short
- 2 practice wickets
- Seating
- Maintain or expand field size
- Lighting

Trails / Natural Spaces:
- X-Country course
- Boardwalks
- Preserve nature & bog
- User-friendly paths
- Connect the loop trail
- Don't add trails
- Interpretive signage
- Bog viewing area
- Emergency access
- Clear noxious weeds
- Native plant & pollinator garden
- Celebrate & educate about the bog and natural spaces without negative impacts
- Stewardship opportunities

Agenda Bill

City Council Joint Meeting
June 11, 2019

SUBJECT:	Lake Washington School District - Athletic Field Scheduling by the City
DATE SUBMITTED:	June 04, 2019
DEPARTMENT:	Parks & Recreation
NEEDED FROM COUNCIL:	☐ Action ☑ Direction ☐ Informational
RECOMMENDATION:	Should the City accept the proposal by Lake Washington School District to schedule the district's athletic facilities within City limits?
EXHIBITS:	1. Exhibit 1 - LWSD - Athletic Scheduling
BUDGET:	
Total dollar amount	N/A
Fund(s)	N/A

☐ **Approved in budget**
☐ **Budget reallocation required**
☑ **No budgetary impact**

WORK PLAN FOCUS AREAS:

☐ Transportation	☐ Community Safety
☑ Communication & Engagement	☐ Community Livability
☐ High Performing Government	☑ Culture & Recreation
☐ Environmental Health & Protection	☐ Financial Sustainability

NEEDED FROM COUNCIL:

Should the City accept the proposal by Lake Washington School District to schedule the district's athletic facilities within City limits?

KEY FACTS AND INFORMATION SUMMARY:

Lake Washington School District (LWSD) approached the City of Sammamish (City) to begin scheduling the district's athletic fields at local the Elementary, Middle and High Schools for community use. LWSD is interested in standardizing procedures, where shared constituents go to reserve fields within the City in which they reside. The current process for leagues, organizations and individuals is that they need to contact each individual school to find out availability and to reserve the athletic fields.

The proposal is for the City to take over scheduling of 12 additional LWSD fields within in the City. The fields included are the Varsity and JV Softball field at Eastlake High School, three fields at Inglewood

Middle School, two fields at Blackwell Elementary, one field at Carson Elementary, two fields at McAuliffe Elementary, one field at Smith Elementary and one field at Mead Elementary. The field types consist of grass, dirt and/or sand, with the exception of the Softball Varsity field which has a synthetic turf infield and a grass outfield. LWSD will continue to provide all maintenance to these fields.

The City has a good and long standing relationship with LWSD. In 2006, in partnership with the Lake Washington School District (LWSD), the City converted an existing, underutilized 3-acre grass practice field on the Eastlake High School (EHS) campus into two multi-use sports fields known as Eastlake Community Fields 1 and 2. An Inter-local Agreement (ILA) with LWSD was developed to allow the City to maintain and schedule community use at these multi-use fields. Then in 2013, the City and LWSD partnered to renovate the High School baseball field to synthetic turf to add another field for community use scheduled and maintained by the City.

This proposal by LWSD is not new for the district and region. Currently, City of Redmond and City of Kirkland both schedule all LWSD fields except for High School stadiums within their City limits. The City of Redmond started scheduling LWSD fields in the Fall of 2018. They do not have an hourly charge for fields, but the City of Redmond charges a $10 processing/administrative fee per contract. LWSD does all the maintenance, but in a very limited capacity, because of their minimal staffing and resources. The transition appears to have been smooth for the City of Redmond. They will be able to provide us with more information at the end of the spring season. The City of Kirkland has been scheduling LWSD fields for a few years. In the case of Kirkland, the city provides maintenance for a handful of schools for which Kirkland and LWSD had partnered during the original construction or upgrade of the fields. Fields maintained by the City charge $7.00 an hour for residents and $8.50 for non-residents for use, collected by the City. Fields maintained by LWSD are charged $1.00 an hour for residents and $1.50 for non-residents. The relationship and partnership with LWSD has worked out successfully for the City of Kirkland, especially, with construction projects.

Currently, LWSD does not charge a fee for the use of Elementary or Middle school fields in Sammamish. With the City taking over the scheduling, LWSD will establish a rental fee for the Eastlake Varsity Softball field. Any rental fee charged for the Eastlake Varsity field and/or other fields would all be passed along to LWSD. Due to the Inter-local Agreement, the City can only establish a processing/administrative fee associated with scheduling the fields.
Launching of the PerfectMind facility software system in the earlier this year, allows for an easy transition and ability for the City to manage additional field scheduling. Additionally, it would be easier for the public to contact one source to schedule a majority of the athletic fields in the City, rather than inquiring into each school individually about the availability of their respective fields. Entering into this new working relationship with LWSD would only strengthen the current partnership and provide an opportunity in the future to improve the fields at some of these local schools to maximize their use and provide high quality facilities for the community. This model has been demonstrated by the City of Kirkland through the improvement of several school fields within their city limits and by the City of Sammamish through their existing partnership with LWSD on the Community Fields at Eastlake High School.

FINANCIAL IMPACT:

The financial impact would be a small amount of staff time, however, this can be partially recovered by imposing a processing fee for scheduling the fields through the city.

OTHER ALTERNATIVES CONSIDERED:

If not approved, each individual school in the Lake Washington School District would still schedule their own athletic fields.

RELATED CITY GOALS, POLICIES, AND MASTER PLANS:

2018 PRO Plan

Lake Washington School District: Athletic Field Scheduling

Joint Meeting
City Council and
Parks & Recreation Commission
June 11, 2019

Presentation Overview

- Proposal
- Background
- Athletic Facilities
- Pros and Cons
- Council Direction

Purpose: City Council's direction regarding…

Should the City accept the proposal by Lake Washington School District to schedule the District's athletic facilities within City limits?

Proposal

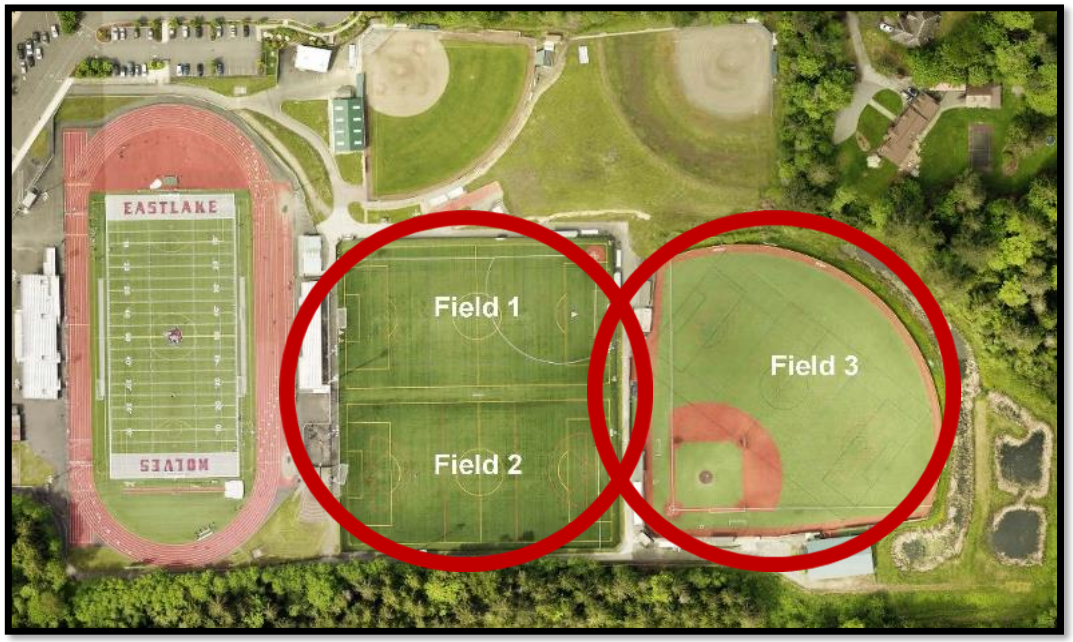
Schedule Community Use at LWSD Athletic Fields

- Schedule 12 athletic fields
  - 2 High School Fields
  - 3 Middle School Fields
  - 7 Elementary School Fields
- District responsible for maintenance
- City responsible for scheduling use by community groups
- Extension of current scheduling relationship (ELHS)

History

City of Sammamish partnership with LWSD

- Partnered to build two (2) Community Fields at Eastlake High School in 2006
- Inter-local Agreement (ILA) with LWSD to schedule community use at the Community Fields
- Partnered to renovated the High School baseball field in 2013
- City contracts to provides summer sports camps at LWSD facilities



History

City of Redmond and City of Kirkland partnership with LWSD

- Schedule all LWSD athletic fields within City limits except High School Stadiums

CityofRedmond
WASHINGTON

- Began scheduling LWSD fields of Fall 2018
- No hourly charge to fields
- Charges $10 processing fee per contract
- LWSD does all maintenance

CITY OF KIRKLAND
WASHINGTON

- Began scheduling LWSD fields in 2002
- City provides maintenance for fields that have City capital investments
- Fields maintained by LWSD are charged $1.00 an hour
- Fields maintained by City are charged $7.00 an hour

Eastlake High School

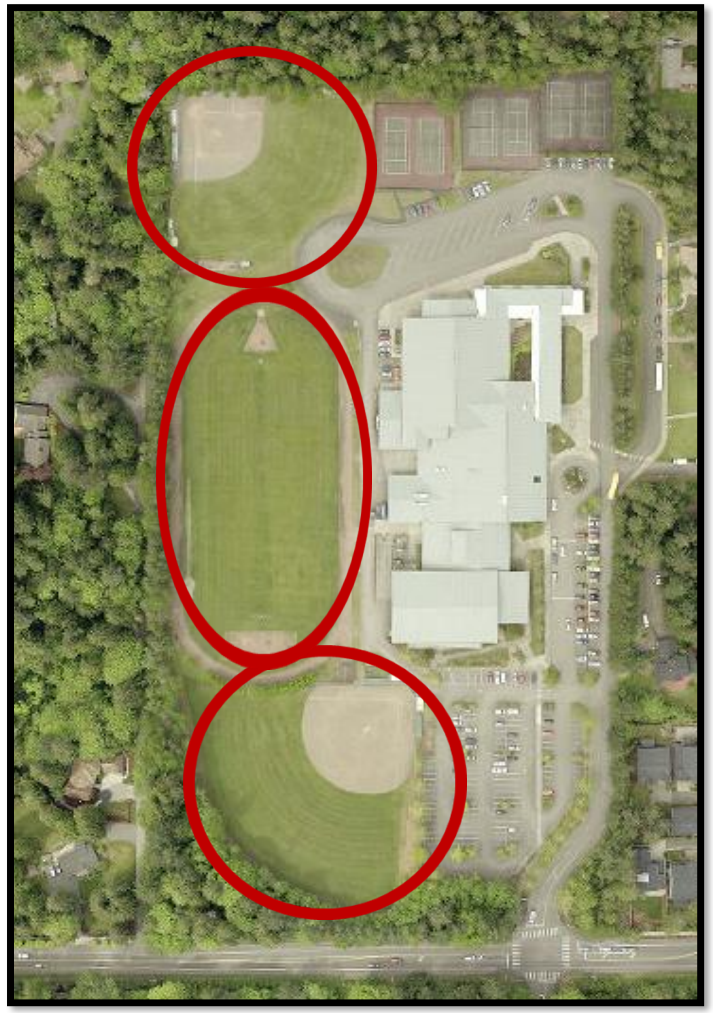
High Level of Usage

- Softball Varsity Field
  - Synthetic Turf infield
  - Grass Outfield
  - No Lights
- Softball Junior Varsity Field
  - Dirt Infield & Grass Outfield

Inglewood Middle School

Moderate Level of Usage

- Baseball Field
  - Dirt Infield & Grass Outfield
- Football Field
  - Grass with Cinder Track
- Softball Field
  - Dirt Infield & Grass Outfield
- Field upgrades identified as a priority in the Parks Capital Improvement Plan (CIP)



Elementary Schools

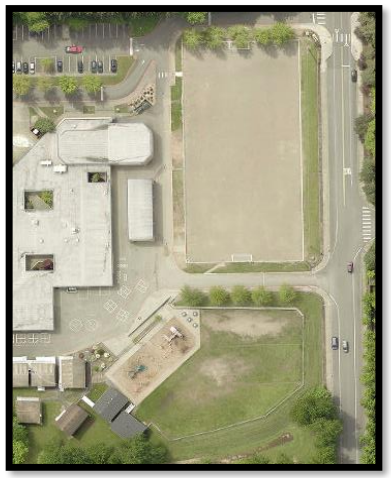
Mild Level of Usage

- Blackwell
  - All Purpose Field – Sand base
  - Baseball/Softball – Dirt Infield & Grass Outfield
- McAuliffe
  - All Purpose Field – Sand base
  - Baseball/Softball – Dirt Infield & Grass Outfield
- Samantha Smith
  - All Purpose Field – Sand base
- Rachel Carson
  - All Purpose Field – Sand base
- Margaret Mead
  - All Purpose Field – Sand base

Blackwell

McAuliffe

Samantha Smith



Rachel Carson

Margaret Mead

Potential & Scheduling Fee

Community Use as per ILA

- Softball Varsity Field
  - Fee established by LWSD
  - Fee goes directly to LWSD
  - City can charge a processing/administrative fee
- Junior Varsity, Middle and Elementary Schools Fields
  - No fee charged for use
  - City can charge a processing/administrative fee

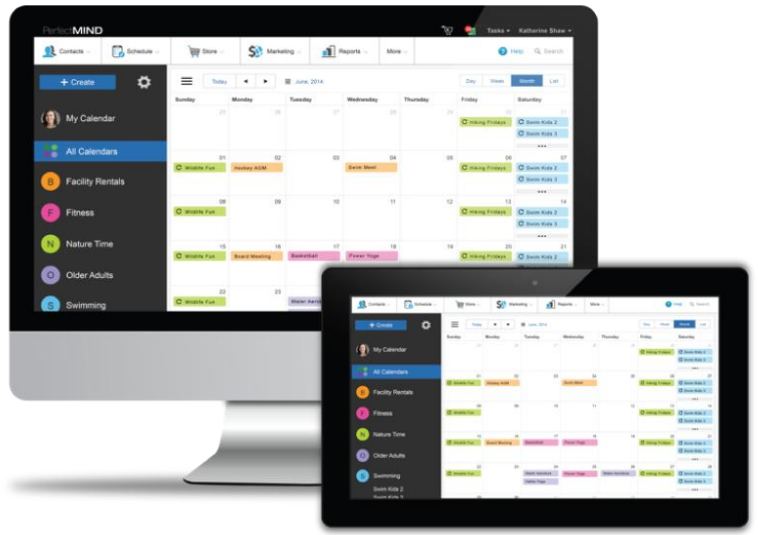
Pros and Cons with Proposal

Pros

- Single portal source to schedule majority of athletic fields in the City for community groups
- Public doesn't need to contact each school individually to reserve or check availability
- PerfectMind – New Facility Reservation Software
- Strengthen established relationship with LWSD providing opportunities for fields improvement partnerships

Cons

- City does not manage field and District's maintenance is a different level of service
- Some additional time for City Staff during Priority Scheduling process



Questions / Discussion

Should the City accept the proposal by Lake Washington School District to schedule the District's athletic facilities within City limits?

If yes, should the City charge a $10 processing fee?

Agenda Bill

City Council Joint Meeting
June 11, 2019

SUBJECT:	WSDOT's Draft SR 202 Corridor Study
DATE SUBMITTED:	June 06, 2019
DEPARTMENT:	Public Works
NEEDED FROM COUNCIL:	☐ Action ☐ Direction ☑ Informational
RECOMMENDATION:	Provide input on WSDOT's Draft SR 202 Corridor Study.
EXHIBITS:	1. Exhibit 1 - SR 202 Presentation 2. Exhibit 2 - SR202 Draft Corridor Study 3. Exhibit 3 - SR 202 Reviewer Comment Form

BUDGET:

Total dollar amount	$0
Fund(s)	N/A

☐ **Approved in budget**
☐ **Budget reallocation required**
☑ **No budgetary impact**

WORK PLAN FOCUS AREAS:

☑ Transportation
☐ Community Safety
☐ Communication & Engagement
☐ Community Livability
☐ High Performing Government
☐ Culture & Recreation
☐ Environmental Health & Protection
☐ Financial Sustainability

NEEDED FROM COUNCIL:

Shall Council provide input on WSDOT's Draft SR 202 Corridor Study?

KEY FACTS AND INFORMATION SUMMARY:

In 2017, the Washington State Legislature allocated $200,000 in a proviso that directed the WA State Department of Transportation (WSDOT) to conduct a traffic study of the SR 202 corridor. WSDOT staff provided a presentation (Exhibit 1) summarizing the draft study (Exhibit 2) at the June 4th meeting, and included information on how to submit comments. The draft study was provided to the City on Monday, June 3 and was immediately transmitted to the full Council to begin their review.

The limits of the SR 202 Corridor Study extends from East Lake Sammamish Parkway to the 244th Avenue NE intersection. The study's objectives are to address current and projected performance gaps related to mobility, travel time, access, and safety, and to determine future priorities for highway and/or transit and non-motorized needs. The draft study's outcome is a recommended package of practical, cost-effective concepts to help improve trip reliability and safety on the SR 202 corridor.

Council requested that staff return on June 11th to receive their comments on the report. Please note that WSDOT staff will not be in attendance. Comments are due to WSDOT by June 14th so staff requests that all comments be provided on the form (Exhibit 3) no later than Wednesday, June 12th so staff can consolidate them. The form was emailed to the Council on June 4th in Excel format which can be filled out electronically. The final report will be delivered to the state legislature by June 30, 2019.

FINANCIAL IMPACT:

There is no immediate financial impact for the City to review and comment on this study.

OTHER ALTERNATIVES CONSIDERED:

No other alternatives.

RELATED CITY GOALS, POLICIES, AND MASTER PLANS:

Transportation Comprehensive Plan Goals

Goal T.1 Supporting Growth Support the city's and region's growth strategy by focusing on moving people and goods within the city and beyond with a highly efficient multimodal transportation network.

Goal T.2 Greater Options and Mobility Invest in transportation systems that offer greater options, mobility, and access in support of the city's growth strategy.

Goal T.3 Operations, Maintenance, Management and Safety As a high priority, maintain, preserve, and operate the city's transportation system in a safe and functional state.

Goal T.4 Sustainability Design and manage the city's transportation system to minimize the negative impacts of transportation on the natural environment, to promote public health and safety, and to achieve optimum efficiency.

SR 202 Corridor Study Update

City of Sammamish – City Council

Thomas A. Noyes, Senior Transportation Planner
Maan Sidhu, Assistant Area Traffic Engineer – King Area Local Operations
Christina Strand, King Area Traffic Engineer

June 4, 2019

Tonight's Presentation

- Study Background: Purpose, Scope, and Funding
- Practical Solutions Approach
- Modeling & SR 202 Corridor Existing Conditions
- Evaluation Process and Analysis
- Addressing Regional Transit
- Recommendations
- Providing Feedback
- Next Steps

SR 202 Background: Purpose, Study Scope and Funding

- **Legislature**: Issued a proviso directing WSDOT to study the SR 202 Corridor on the eastside.
  - Practical Solutions approach
- **Budget**: $200,000; Modest budget - in-house WSDOT resources (no consultant support)
- **SR 202 Corridor Study limits:** From East Lake Sammamish Parkway to 244th Avenue NE intersection (approximately five miles)
- **Study objectives**: Address current and projected performance gaps related to mobility, travel-time, access, and safety, and determine future priorities for highway and/or transit and nonmotorized needs.
- **Study Outcomes:** A recommend package of practical, cost-effective concepts to help improve trip reliability and safety on the SR 202 corridor.

Practical Solutions Approach: What is it?

A path forward in a congested and resource-constrained world:

- Making “the right investment, in the right location, at the right time”
- Addressing congestion and other system needs within available resources
- Keeping the system in a state of good repair
- Being stewards of the transportation system rather than “just” delivering projects

Practical Solutions Approach: Cont.

- **Existing Conditions**: Evaluated current roadway performance (safety/congestion/travel-time), considered modal needs (transit/HOV/Active Transportation) (2018)
- **Future Analysis Years**: 2025 (Near-term) / 2045 (Long-Term)
- **Stakeholder Committee:** Redmond, Sammamish, King County Metro/Roads/Parks, Sound Transit, WSDOT – Stakeholder Committee meetings 4X during the course of this study
- **Improvement Options:** Packages of near/midterm & long-term improvement options at key intersections
- **Public Outreach**: Web survey, stakeholder meetings

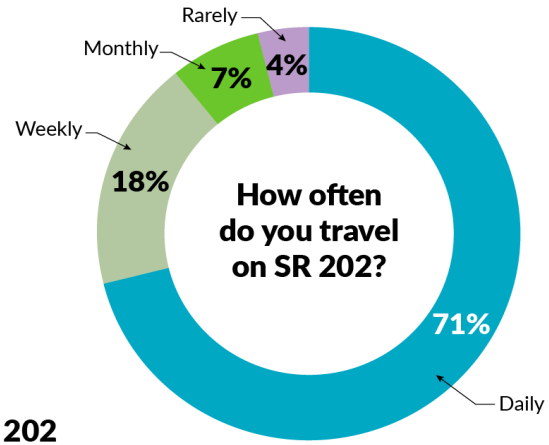
Practical Solutions: Web Survey

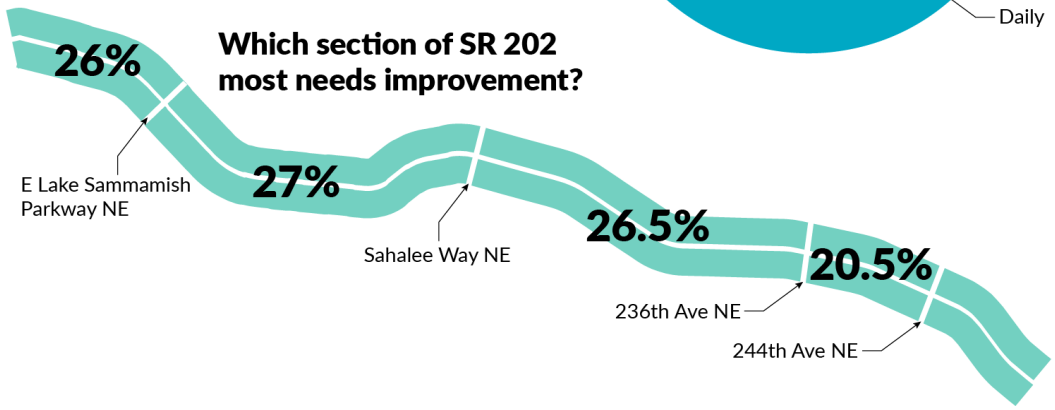
SR 202 Corridor Planning Study

SURVEY ADMINISTERED BETWEEN NOVEMBER 13 TO DECEMBER 7, 2018 - 2,929 RESPONDENTS

98% use private vehicles on SR 202

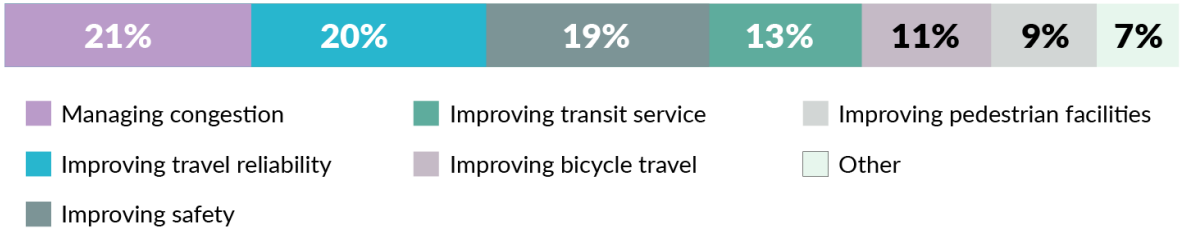
1.5% use public transit
4.5% bike/walk
3.7% use carpool/vanpool
*respondents able to select more than one mode





Practical Solutions: Web Survey

What priorities are important to users of SR 202?

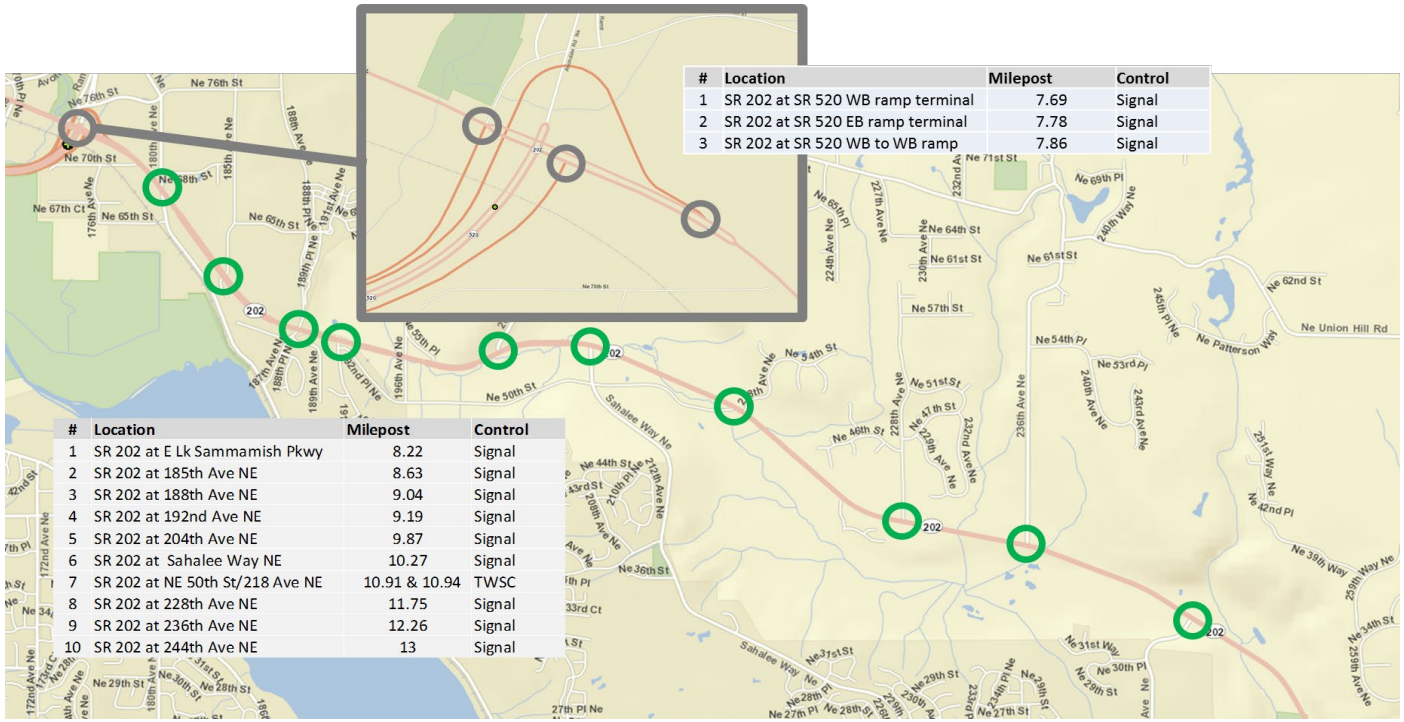


What improvements do SR 202 users want to see done?

https://www.surveymonkey.com/results/SM-5JT2LFQDV/

Modeling Performance Analysis

Model Focus - Intersections & Segments



#	Location	Milepost	Control
1	SR 202 at SR 520 WB ramp terminal	7.69	Signal
2	SR 202 at SR 520 EB ramp terminal	7.78	Signal
3	SR 202 at SR 520 WB to WB ramp	7.86	Signal

#	Location	Milepost	Control
1	SR 202 at E Lk Sammamish Pkwy	8.22	Signal
2	SR 202 at 185th Ave NE	8.63	Signal
3	SR 202 at 188th Ave NE	9.04	Signal
4	SR 202 at 192nd Ave NE	9.19	Signal
5	SR 202 at 204th Ave NE	9.87	Signal
6	SR 202 at Sahalee Way NE	10.27	Signal
7	SR 202 at NE 50th St/218 Ave NE	10.91 & 10.94	TWSC
8	SR 202 at 228th Ave NE	11.75	Signal
9	SR 202 at 236th Ave NE	12.26	Signal
10	SR 202 at 244th Ave NE	13	Signal

Corridor		From	To
SR 202	EB	NE 76th St	244th Ave NE
	WB	244th Ave NE	NE 76th St

Evaluation Process and Analysis

- **Development and Screening Process**
- **Performance Metrics**

Performance Measures and Metrics	
Category	**Metric**
Mobility	Level of Service, Queue lengths, Travel times, Bike/ped, Transit
Safety	Potential to Improve Safety
Feasibility	Cost

- **Performance Evaluation**
  - Near, Mid, and Long-term strategies

Evaluation Process, cont.

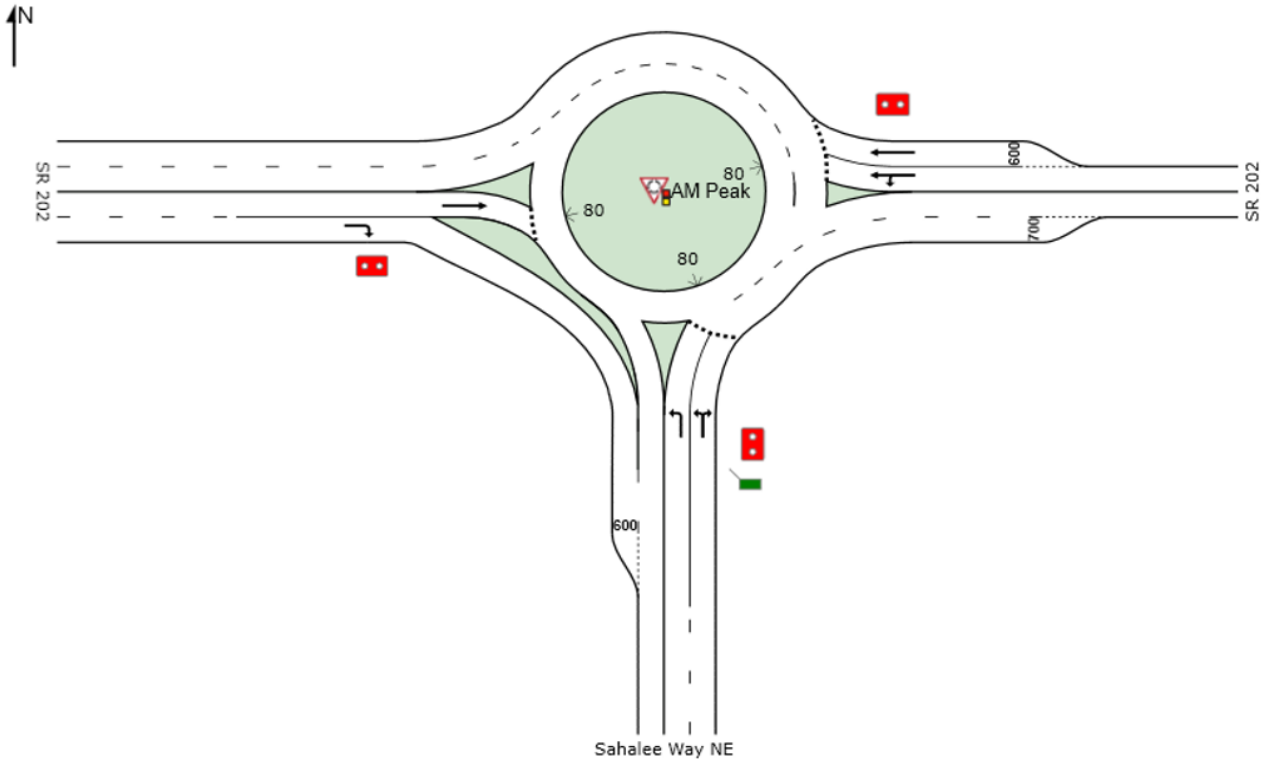
- Evaluation process utilized performance metrics related to mobility, safety, and feasibility
- A detailed quantitative evaluation was conducted for East Lake Sammamish Parkway & Sahalee Way near-mid-term strategies ("Yellow" on the matrix)
- Qualitative evaluation performed for other near/mid/long term alternatives where data was lacking or further analysis was required (beyond study scope & schedule) ("Gray" on the matrix)
- Transit/TDM alternatives are "TBD" as they are implementation responsibility of Metro/Sound Transit ("Green" on the matrix)
- Scoring Range: 0 -40 total possible points (1-5 point scoring range / criteria)
- Cost estimates provided are very preliminary "planning level" cost estimates and assume little or no design.

Regional Transit and SR 202

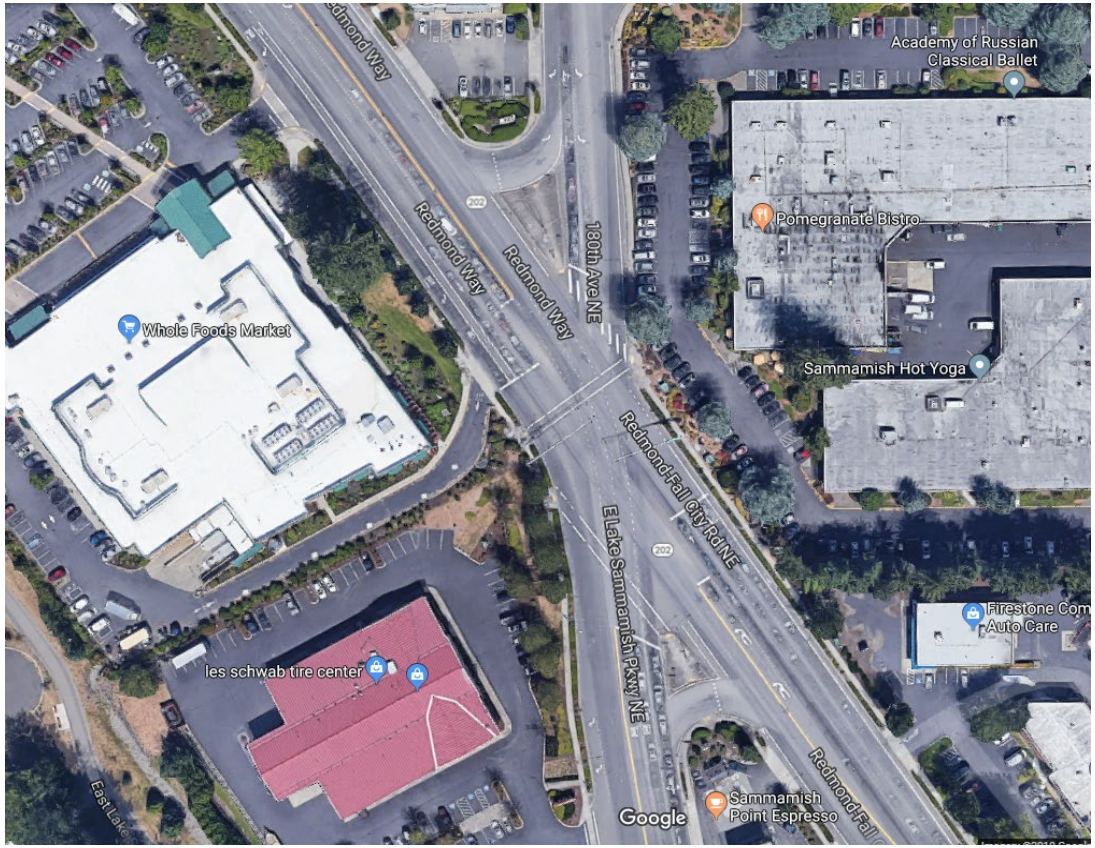
- Existing Metro Routes on SR 202 & the Sammamish Plateau: 216/219/268/269
- Metro and Sound Transit are study partners
- Improvement concepts/alternatives assessed benefits to transit as part of the quantitative/qualitative evaluation
- The near/mid-term package of TDM/Transit improvement options include transit-specific improvements
- Corridor-wide near-term transit improvements include Metro Community Connects, Ride2, Mobility-Hub and other related services
- Sound Transit Park & Ride lot project on Sahalee Way Corridor (2024)
- Evaluation of Metro Transit service re-routes.

Improvement Strategy - SR202 /Sahalee Way intersection: Roundabout

Sahalee Way NE: Roundabout Option “B”



Improvement Strategy - SR202 /E. LK. Sammamish Parkway: Current



Draft Report – Providing Feedback

SR 202 Corridor Study Report
COMMENT FORM

Return comments to: Thomas Noyes / WSDOT - noyest@wsdot.wa.gov
Comment due date: EOD, June 14th, 2019

Document title: SR 202 Corridor Study
Reviewer(s):

Page No.	Line No.	Comment	Commenter	WSDOT's Response to Comment

- We sent the draft report out for your review on **June 3rd** (Last night)
- We need your review comments by **June 14th**
- The Final Report is due to the legislature on **June 30th**

Next Steps

- Deliver final report to the Legislature: June 30, 2019
- Implementation Actions
    - Refine alternatives, additional analysis, scope potential projects
- Local Partner Actions
    - City of Sammamish – Sahalee Way / SR 202 intersection design analysis (2020-2025 TIP)
    - Redmond
    - King County Metro: Metro-Connects & Ride2 / Community Connections program/ possible future service re-routes
      Sound Transit: East LINK completion/opening – Sammamish P+R (2024)
- Funding opportunities

SR 202 Corridor Study Contacts

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SidhuM@wsdot.wa.gov

Christina Strand
King Area Traffic Engineer
StrandC@wsdot.wa.gov

SR 202 Corridor Study

East Lake Sammamish Parkway to 244th Ave NE

MP 8.22 to MP 8.13

Management of Mobility Division
Seattle, WA 98104

Title VI Notice to the Public

It is the Washington State Department of Transportation's (WSDOT) policy to ensure no person shall, on the grounds of race, color, national origin or sex, as provided by Title VI of the Civil Rights Act of 1964, be excluded from participation in, be denied the benefits of, or be otherwise discriminated against under any of its federally funded programs and activities. Any person who believes his/her Title VI protection has been violated, may file a complaint with WSDOT's Office of Equal Opportunity (OEO). For Title VI complaint forms and advice, please contact OEO's Title VI Coordinator at 360 705-7082.

Americans with Disabilities Act (ADA) Information

Materials can be made available in an alternate format by emailing the Office of Equal Opportunity at wsdotada@wsdot.wa.gov or by calling toll free, 855-362-4232. Persons who are deaf or hard of hearing may make a request by calling the Washington State Relay at 711.

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

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
NORTHWEST REGION

SR 202 Corridor Study East Lake Sammamish Parkway to 244th Ave NE

Approved by:

_____ _____
Mike Cotton Date
WSDOT Northwest Region Administrator

Concurrence:

_____ _____
Kerri Woehler Date
Director, Multimodal Planning

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APPENDICES

Executive Summary

Background and Context

The State Route 202 Corridor Study is a planning level effort to assess the current and future conditions along SR 202 between mileposts 8.22 at East Lake Sammamish Parkway and 13.00 at 244th Ave NE. The study uses a Practical Solutions approach to identify potential strategies to manage congestion, and improve travel time reliability and corridor operations.

Existing mobility concerns include traffic congestion along the corridor, particularly at the intersections of East Lake Sammamish Parkway, 188th Ave NE, and Sahalee Way NE. Congestion occurs during both morning and evening commutes, and it is more significant in the westbound direction during the morning peak and in the eastbound direction in the evening peak. The SR 202 corridor west of 188th Ave NE is "functionally complete" with access management, transit, pedestrian, and bike facilities. Capacity improvements in Redmond are constrained by right of way and the existing infrastructure. Active transportation facilities and transit service are limited throughout the corridor, especially on the eastern, more rural, portion of the corridor.

This study was funded by the Washington State Legislature to identify potential improvement strategies to address mobility concerns. Because this is a corridor study with limited funding and schedule and a focus on Practical Solutions, larger capital improvements would require further study for full consideration of the environmental and right of way constraints associated with larger strategies and solutions. No design or construction funds are currently available for implementation.

Purpose and Need

This study explores and documents current and future travel patterns and traffic volume trends to identify existing and future transportation needs and possible solutions to improve travel time, predictability, and operations along the corridor for all users. Potential solutions will be measured and evaluated in terms of their feasibility, potential to improve mobility, safety benefits, and environmental impacts. This study uses WSDOT's Practical Solutions approach to identify and rank potential improvement options.

The need for this study stems from rapidly increasing population and employment in the region, which has resulted in demand that exceeds capacity on SR 202, resulting in traffic congestion. Limited alternative routes, continuing development of Sound Transit's Eastside Link project, and future demand have driven the need for WSDOT and study partners to re-examine existing and future performance gaps along the corridor.

Study Process

The SR 202 Corridor Study identifies near-term and long-term strategies to meet operational, demand management, and capacity needs on the SR 202 corridor. As part of the Practical Solutions approach, WSDOT and study partners evaluated improvement strategies through an incremental approach, where lower cost, near-term operational and demand-management strategies are considered first before capacity expansion strategies because these can be implemented relatively quickly and cost-effectively.

The SR 202 study uses an interim planning year of 2025 to identify near-term solutions and year 2045 for long-range analysis. The improvement strategies for near-term and long-range analysis periods were developed in close consultation with SR 202 study partners. Practical Solutions evaluation criteria were used to establish priorities for near-term and long-term operational, demand management, and capacity strategies/solutions. This allows WSDOT and study partners to identify appropriate corridor investments when and where they are needed.

Major elements completed as part of this study include:

- Stakeholder and Community Engagement
- Existing and Future Conditions Traffic Analysis
- Strategy Development and Evaluation

Strategy Development and Evaluation

After gathering information from the existing conditions and future-year baseline analysis, local knowledge of traffic operations, and community outreach, the stakeholder team developed a list of strategies that could address mobility issues along the SR 202 corridor. This list was compiled using a Practical Solutions approach and contained near-term, cost-effective strategies as well as longer-term, higher-cost capital solutions. Strategies were gathered based on input from previous studies, stakeholders, the public, and analysis.

This list of strategies was then screened to identify those that met the purpose and need of the study. Then, the strategies were ranked using a qualitative assessment and evaluation. A select group of the most promising strategies were advanced into quantitative evaluation using the performance metrics described in section 7.2.

The individual scores for each performance metric were combined into a total performance score for each alternative. These scores range from 0 to 28, where 28 is the highest score received by an alternative. The alternatives were then grouped into strategies as recommended improvement strategies in the near-, mid-, and long-term.

Recommendations

The final screening process and list of recommended strategies was presented to the stakeholder group for their concurrence. These strategies align with WSDOT's Practical Solutions approach and were developed in partnership with study stakeholders and the public.

The following tables list the recommended improvement strategies for consideration in the near-, mid-, and long-term. Strategies highlighted in yellow have been analyzed quantitatively, while grey-highlighted strategies have been analyzed qualitatively. Green-highlighted strategies are transportation demand management strategies. All recommended strategies are subject to further planning and design analysis.

Transportation demand management strategies: These strategies reduce vehicle trips or shift trips to off-peak periods and include concepts like increased investment in transit service, park and ride lots, dedicated bicycle and pedestrian facilities, and employer shuttle services. TDM strategies could be applied to near-, mid-, and long-term horizons as funding becomes available or opportunities present themselves. TDM strategies require coordination between a variety of agencies and jurisdictions and may be implemented by agency partners.

Near-Term Strategies: These are low-cost strategies that have a high return on investment and can be delivered relatively quickly. These types of strategies include intelligent transportation systems investments, multimodal, and demand management strategies. These could be implemented by year 2025, and include the following strategies:

Near-Term Strategies (2025)						
Intersection/ Corridor	Alternatives	Total Score	Timeframe	Estimated Cost: Low Range	Estimated Cost: High Range	Partners & Resources
E Lake Samm Pkwy NE	Remove middle crosswalk and add it to the east leg (greater effectiveness when combined with mid-term strategy of added southbound through lane)	20.5	Near-term	450,000	600,000	WSDOT, King County
NE 50th St and 218th Ave NE	Close access or make 50th one-way towards the west	19.5	Near-term	90,000	120,000	WSDOT, King County
Corridor Wide	Expand KCM Community Connections, Ride2, Mobility Hub, Just One Trip, Safe Routes to School, and School	N/A	Near-term	N/A	N/A	King County Metro, Schools, Employers, WSDOT

	Pool programs in the Redmond and Sammamish area					
Corridor Wide	Evaluate potential to reroute or add KC Metro and Sound Transit service from Sammamish Plateau to Redmond area via Inglewood Hill Road and East Lake Sammamish Parkway	N/A	Near-term	N/A	N/A	King County Metro, Schools, Employers, WSDOT
Corridor Wide	Implement planned express KCM transit service along SR 202 by 2025 and 2045; Evaluate need for additional bus stops along SR 202.	N/A	Near-term	N/A	N/A	King County Metro
Corridor Wide	Evaluate potential to utilize church parking lots in Sammamish as park and rides during the work week	N/A	Near-term	N/A	N/A	King County Metro, WSDOT
E Lake Samm Pkwy NE	Consider extending bike markings through intersection	N/A	Near-term	N/A	N/A	WSDOT, Redmond
Corridor Wide	Consider installing additional ITS/ driver information signage	N/A	Near-term	N/A	N/A	WSDOT, Redmond, Sammamish, King County

Mid-Term Strategies: These strategies are moderate to higher cost improvements that could be implemented to further manage congestion along SR 202. These strategies include the installation of roundabouts at strategic locations, turn pockets, intersection improvements, and potential off-corridor improvements. Mid-term strategies could be implemented between years 2025-2045.

Mid-Term Strategies (2025-2045)						
Intersection/ Corridor	Alternatives	Total Score	Timeframe	Estimated Cost: Low Range	Estimated Cost: High Range	Partners & Resources

Sahalee Way NE	Option B Roundabout (Metered)	28	Mid/long term	8,100,000	10,800,000	WSDOT, King County
E Lake Samm Pkwy NE	Make a new southbound through lane in the western island: left, left/through, through, right turn slip lane	20	Mid/long term	1,890,000	2,520,000	WSDOT, King County
204th Pl NE	Extend turn lanes on 204th	20	Mid/long term	1,530,000	2,040,000	WSDOT, King County
NE 50th St and 218th Ave NE	Add a left turn pocket on EB SR 202 to 218th	18.5	Mid/long term	1,350,000	1,800,000	WSDOT, King County
Corridor Wide	Consider establishing a shuttle service on the Sammamish Plateau	N/A	Mid/long term	N/A	N/A	King County Metro, private sector
Corridor Wide	Evaluate installation of bike/pedestrian accommodations	N/A	Mid/long term	N/A	N/A	WSDOT, King County, Redmond, Sammamish
Sahalee Way NE	Evaluate potential for bus only lane connecting to park and rides	N/A	Mid/long term	N/A	N/A	WSDOT, King County, Redmond, Sammamish, King County Metro

Long term strategies: These strategies are the highest-cost options that could provide benefits corridor wide. These concepts include higher-cost roundabouts and additional intersection improvements that would likely be implemented after year 2045.

Long-Term Strategies (2045)						
Intersection/ Corridor	Alternatives	Total Score	Timeframe	Estimated Cost: Low Range	Estimated Cost: High Range	Partners & Resources
Corridor Wide	Road diet + corridor-wide roundabouts (188th to Sahalee Way)	18	Long-term	TBD	TBD	WSDOT, King County
Corridor Wide	Evaluate potential for dedicated HOV lane, queue jumps, slip lanes for buses at intersections	N/A	Long-term	N/A	N/A	WSDOT, King County, Redmond, Sammamish, King County Metro

Next Steps

The strategies identified in this study will allow WSDOT and other agencies to better manage congestion and improve reliability and operations along the SR 202 corridor between East Lake Sammamish Parkway and 244th Ave NE. Funding is not currently available for any of the recommended strategies included in this report. Because of limited funding availability, grants, partnerships or other sources will need to be pursued.

WSDOT will continue to work with stakeholders and agency partners to implement cost-effective operational and transportation demand management strategies, which can be considered for implementation in the near-term. For strategies that can be considered in the mid-, and long-term, WSDOT will also continue to work with interested partners to pursue strategies that will improve operation of the SR 202 corridor. Recommended solutions must be incorporated into state, regional, and local plans to ensure that they are considered for future funding and implementation.

1.0 Introduction and Background

State Route (SR) 202 runs 30 miles east to west between SR 522 and I-90. It is an important commuter and freight route for King County communities like Woodinville, Redmond, Sammamish, Fall City, and North Bend. This corridor study focuses on a 4.78 mile-long section that runs between East Lake Sammamish Parkway in Redmond and 244th Avenue Northeast in Sammamish. Near East Lake Sammamish Parkway, SR 202 passes through commercial and mixed-use zones. The eastern portion of the corridor becomes increasingly residential and serves suburban housing developments, schools, and commercial land uses.

Due to current and projected growth in commercial and residential activity in the cities of Redmond and Sammamish and along the corridor, traffic congestion along SR 202 has increased substantially, resulting in longer, less reliable travel times for commuters and freight. This study examines current and future corridor conditions and proposes strategies to reduce congestion and crash potential that can be implemented using WSDOT's Practical Solutions framework.

The SR 202 study was commissioned through an appropriation from the Washington State Motor Vehicle Account to conduct a planning-level assessment and inventory of the SR 202 corridor and to document future growth in demand. While the findings of this study will help prioritize future improvements to address travel impacts and safety concerns, funding for strategies identified in the study is not currently available.

1.1 Purpose and Need

This study explores and documents current and future travel patterns and traffic volume trends to identify existing and future transportation needs and possible solutions to maintain travel time, predictability, and operations along the corridor. Potential solutions will be measured and evaluated in terms of their feasibility, potential to improve mobility, safety benefits, and environmental impacts. This study uses WSDOT's Practical Solutions approach to identify and rank potential improvement options.

The need for this study stems from rapidly increasing population and employment in the region, which has resulted in demand that exceeds capacity on SR 202, resulting in traffic congestion. Limited alternative routes, continuing development of Sound Transit's Eastside Link project (and peripheral development associated with the light rail), and future demand have driven the need for WSDOT and study partners to re-examine existing and future performance gaps along the corridor.

1.2 Past studies

In 2009, WSDOT conducted a planning-level study along a portion of SR 202 from Sahalee Way NE to Duthie Hill Road/292nd Ave SE. This Route Development Plan evaluated existing

conditions, analyzed projected travel conditions to year 2030, and included public involvement and a stakeholder Corridor Working Group. The 2009 corridor study recommended a variety of improvements, such as lane and shoulder widening in select locations, repairing or replacing guardrails and drainage structures, replacing Evans Creek Bridge, and adding a signal at NE Ames Lake Road.

The current corridor study takes this previous work into account, particularly for the portion of the corridor that overlaps with the previous study effort.

1.3 Current and Future Projects

There are a number of current projects that are underway on or near SR 202 that are being considered as part of the SR 202 Corridor Study. These are listed in Table 1:

Agency	Project Name	Project region(s)	Current Stage	Completion year
Sound Transit	East Link Extension, Redmond Technology Station	Redmond	Construction	2023
Sound Transit	Downtown Redmond Extension	Redmond	Pre-Construction	2024
Sound Transit	North Sammamish Park and Ride Project	Sammamish	Planning, Environmental Review, and Preliminary Engineering	2024
WSDOT	SR 202/Evans Creek & Patterson Creek - Fish Passage	King County	Pre-Construction	2020
WSDOT	SR 202/Evans Creek Vic to Overflow Channel Bridge – Stormwater Retrofit	King County	Preliminary Engineering	2023
WSDOT	SR 202/Sahalee Way NE to Tolt Hill Rd Vic - Paving & ADA Compliance with Exceptions	King County	Project development, scoping	2028

Table 1: Current and planned projects near and along SR 202.

With the extension of Link Light Rail into downtown Redmond, transit and commuter usage along the SR 202 corridor could increase. These projects, as well as future residential and commercial development in Redmond and Sammamish, will likely change traffic demand and travel patterns along the corridor.

2.0 Study Process

The SR 202 Corridor Study identifies near-term and long-term strategies to meet operational, demand management, and capacity needs on the SR 202 corridor. As part of the Practical Solutions approach, WSDOT and study partners evaluated strategies through an incremental approach, where lower cost, near-term operational and demand-management strategies are considered first before capacity expansion strategies because these can be implemented relatively quickly and cost-effectively. Capacity expansion is considered only after all other options have been exhausted.

The SR 202 study uses an interim planning year of 2025 to identify near-term solutions and year 2045 for long-range analysis. The strategies for near-term and long-range analysis periods were developed in close consultation with SR 202 study partners. Practical Solutions evaluation criteria were used to establish priorities for near-term and long-term operational, demand management, and capacity strategies/solutions. This allows WSDOT and study partners to identify appropriate corridor investments when and where they are needed.

Major elements completed as part of this study include:

- Stakeholder and Community Engagement
- Existing and Future Conditions Traffic Analysis
- Strategy Development and Evaluation

The WSDOT study team was led by staff from the Management of Mobility Division and included additional staff from the Traffic Operations and Regional Transit Coordination Divisions.

3.0 Study Area

The study area extends along SR 202 between East Lake Sammamish Parkway in Redmond and 244th Avenue Northeast in Sammamish. The corridor intersects commercial and residential development at its western end in Redmond and becomes increasingly rural as it approaches 244th Avenue Northeast. The corridor is primarily a bi-directional, four-lane facility from East Lake Sammamish Parkway until Sahalee Way NE, where it narrows to two lanes for the rest of the study area. The study corridor includes 11 intersections, 9 of which are signalized. The extents of the study area are shown in Figure 1 below:

Figure 1: SR 202 Study Limits

To assess the corridor's operational performance, the following intersections were included in the traffic analysis:

ID	Intersection Name	Control Type	Analysis Tool	
			Synchro/SimTraffic	SIDRA
1	SR 202/East Lake Sammamish Pkwy	Signalized	X	
2	SR 202/185th Ave NE	Signalized	X	
3	SR 202/188th Ave NE	Signalized	X	
4	SR 202/192nd Ave NE	Signalized	X	
5	SR 202/204th Pl NE	Signalized	X	
6	SR 202/Sahalee Way SE	Signalized	X	X
7	SR 202/NE 50th St	Two-Way Stop	X	X
8	SR 202/218th Ave NE	Two-Way Stop	X	
9	SR 202/228th Ave NE	Signalized	X	
10	SR 202/236th Ave NE	Signalized	X	
11	SR 202/244th Ave NE	Signalized	X	

Table 2: SR 202 study intersections

4.0 Community Engagement

The community engagement process for this study included outreach to the public as well as agencies and jurisdictions with interest in the corridor. These stakeholders shared their experiences, identified their concerns and potential solutions, and provided feedback throughout the corridor study process. The public outreach strategy included stakeholder meetings and an online public survey. Feedback from the public survey and the stakeholder group was used to develop the full list of strategies that were considered as part of the alternatives evaluation process.

4.1 Stakeholder Meetings

A Stakeholder group was developed to provide feedback on each stage of the corridor study process. Stakeholders were instrumental in developing the purpose and need statement, brainstorming potential corridor improvements, sharing background data and related documents, and providing feedback on technical data, modeling results, and strategies. Members of the stakeholder committee included representatives from the City of Sammamish, the City of Redmond, King County Parks Division, King County Metro, Sound Transit, tribes, and WSDOT. A complete list of stakeholders and summaries of each stakeholder meeting are included in Appendix A.

4.2 Public Survey

As part of this study, WSDOT administered an online survey to gather input from the users of SR 202. Nearly three-thousand people participated in the survey, including local residents, businesses, and emergency service providers who shared information about their current use of the corridor, which sections need the most improvement, their priorities, and what kinds of strategies and solutions they thought might improve operations along the corridor. More than 70% of respondents said they travel on SR 202 daily, while 18% said they use it weekly. 7% reported using the corridor monthly.

Figure 2 shows the most common method by which respondents said they travel along SR 202. The vast majority of respondents said they used a private vehicle, while almost 10% of respondents walk, bike, carpool/vanpool, or use transit from time to time. Respondents were able to select more than one mode of transportation.

Figure 2: Survey – Modal split

Survey respondents were almost evenly split when it came to determining which section of the corridor they believed most needed improvement. As shown in Figure 3 below, the sections of SR 202 between East Lake Sammamish Parkway and 236th Avenue Northeast were of greatest concern.

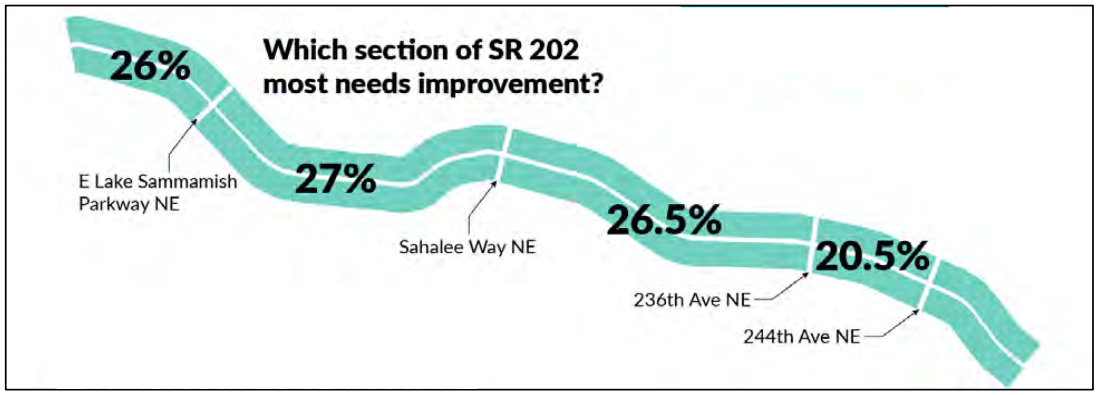


Figure 3: Survey – Improvement locations

The top three priorities for respondents were managing congestion, improving travel reliability, and improving safety (see Figure 4). Improved transit service and improved bicycle and pedestrian facilities was a priority for over a third of respondents.

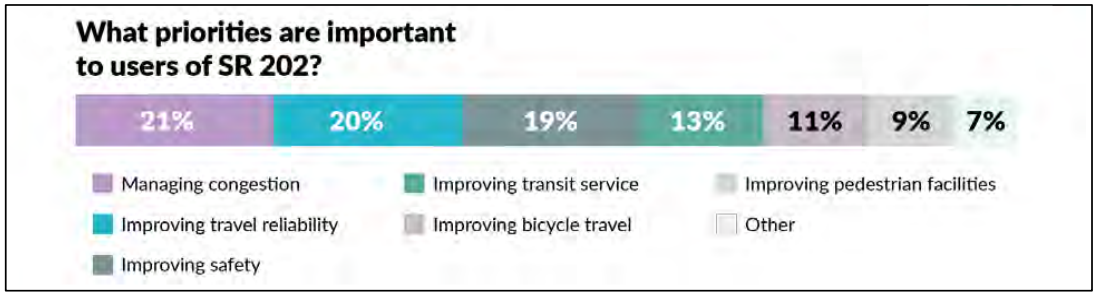


Figure 4: Survey – Improvement priorities

When asked what future work they would most like to see done on SR 202, more than three-quarters of respondents said they want WSDOT to add more lanes (Figure 5). Nearly 60% also said they were interested in seeing operational adjustments on the corridor, such as changes to signal timing at key intersections or improved signs for travelers. 43% said they would appreciate wider shoulders for reduced crash potential on SR 202, and 25% wanted to see more alternative transportation options – like transit and King County Metro – along SR 202. Respondents were able to select multiple preferences, so these percentages exceed 100%.

558 respondents also wrote in other suggestions for future work. Of those respondents, 20% wanted WSDOT to install more turn lanes along SR 202, while 8% wanted WSDOT to build more roundabouts and 4% wanted lower speed limits.

Figure 5: Survey – Suggested Improvements

5.0 Existing Conditions

SR 202 is classified under FHWA's functional classification system as an Urban Minor Arterial from the SR 202 / East Lake Sammamish Parkway intersection in Redmond to the SR 202 / 244th Avenue NE intersection.

The corridor has two through travel-lanes in each direction of travel from the East Lake Sammamish Parkway intersection in Redmond to the Sahalee Way Intersection, immediately north of Sammamish. The corridor also includes turning lanes and turn pockets at several key intersections. East of the SR 202 / Sahalee Way intersection, SR 202 narrows down to one though travel-lane in each direction with some intersection channelization (turn pockets/turn lanes) at key intersections.

The right-of-way (ROW) width varies 90 feet on the urban sections in Redmond to approximately 30-35 feet on the more rural sections of SR 202 east of the Sahalee Way intersection. The posted speed limits are 35 miles-per hour (MPH) on the urban portion through Redmond up to 55 MPH on the more rural segment of the SR 202 / 188th intersection.

5.1 Corridor Traffic Volumes

The existing conditions traffic analysis for the corridor established a baseline year for analysis as 2018. The future forecast years for this study are 2025 (near-term/interim) and 2045 (long-term). SR 202 between Redmond and Sammamish has very pronounced directional peak travel movements in the morning and evening peaks. In the morning peak period, is heaviest in the westbound direction and during the afternoon/evening peak period, travel is heaviest in the eastbound direction.

The following figures summarize the existing AM and PM peak hour traffic volumes along the study corridor.

Figure 6: Existing 2018 AM Peak Hour Volumes

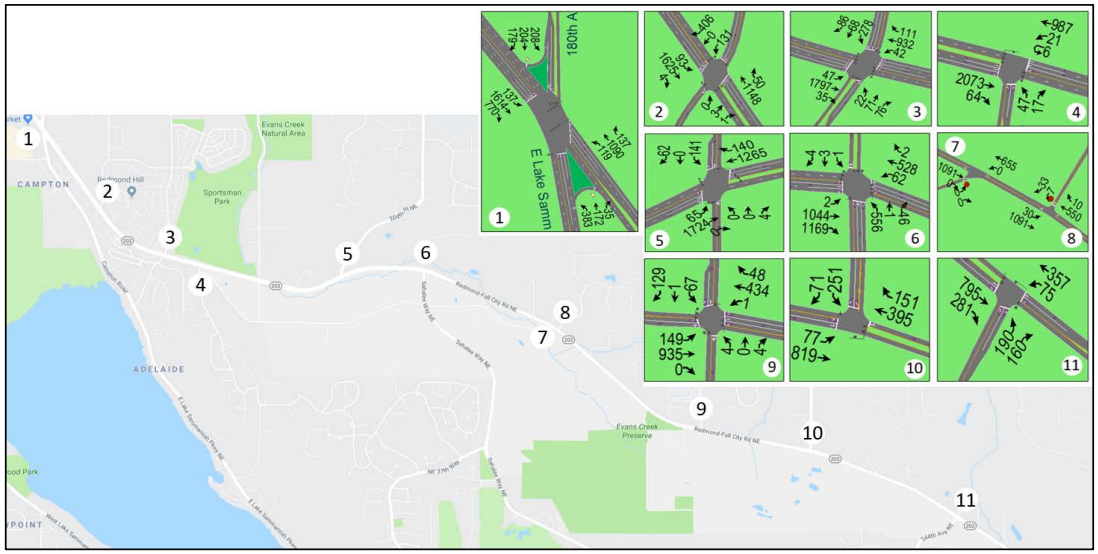


Figure 7: Existing 2018 PM Peak Hour Volumes

5.2 Intersection and Corridor Operations

Currently, the majority of the corridor's intersections are operating at a level of service "D" or better. Congestion in the AM and PM peaks is concentrated between E Lake Sammamish Parkway and Sahalee Way NE, and the intersections of SR 202 and 218th Ave/NE 50th St were identified in the basic-level safety analysis as locations that needs further evaluation. Active

transportation facilities are limited throughout the corridor, especially on the eastern part of the corridor where speeds are higher.

Existing Conditions

AM Peak

With morning commuters heading west toward Redmond, congestion during the morning commute is pronounced at the intersections of Sahalee Way and E Lake Sammamish Pkwy. At Sahalee Way, the longest queues are observed in the northbound direction. The northbound queue on Sahalee Way fluctuates in length, longer than the Synchro/SimTraffic model results, depending on the time of the morning commute and conditions of the day. At E Lake Sammamish Pkwy, backups in the westbound direction extend east through the corridor up to 204th Pl NE as the two lanes of traffic progress through the coordinated system of signalized intersections.

The SR 202/East Lake Sammamish Parkway intersection is the only intersection that shows a "failing" condition (LOS "F") based upon total intersection delay exceeding 130 seconds and an intersection queue length in excess of 2,450 feet in the westbound direction. The SR 202 / 185th Avenue NE and SR 202/188th Avenue NE intersections have westbound (SR 202) approach legs that also operate at LOS F; however, the cumulative intersection performance for these two intersections is LOS E. All remaining intersections east of these three intersections on SR 202 perform at LOS D or better.

During the AM peak period from 6:00 – 9:00AM, westbound commuters concentrate at the signalized intersection between E Lake Sammamish Parkway and Sahalee Way NE. This bottleneck causes congestion and queues in the westbound direction. There is high demand in the northbound direction at Sahalee Way NE from the City of Sammamish headed westbound to SR 202. This demand causes long northbound queues. The average travel time is 16.4 minutes in the westbound direction and 8.02 minutes in the eastbound direction. Travel times were generated using SimTraffic. In Figure 8 below, intersections shaded in black or red have failing levels of service for vehicular traffic.

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.6	370	F	130.5	2425	F	346.7	478	D	45.5	380
SR 202/185th Ave NE	Signal	E	B	17.7	196	F	1005.5	1209	D	45	37	B	16.3	169
SR 202/188th Ave NE	Signal	E	D	38.1	272	F	84.3	986	E	55.5	125	D	51.3	161
SR 202/192nd Ave NE	Signal	D	A	3.2	74	E	66.2	1863	E	60.3	101	-	-	-
SR 202/204th Pl NE	Signal	C	B	13.5	164	D	38.2	760	-	-	-	D	50.7	287
SR 202/Sahalee Way SE	Signal	D	C	29.3	333	D	38.7	358	D	52.2	939	A	0	11
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.7	5	A	0	0	-	-	-	D	18	26.2
SR 202/228th Ave NE	Signal	D	D	49.7	236	D	47.2	545	-	-	-	C	34.9	213
SR 202/236th Ave NE	Signal	C	B	14.9	100	C	24.5	396	-	-	-	D	40	191
SR 202/ 244th Ave NE	Signal	C	B	13.9	125	C	20.7	193	D	35.8	206	-	-	-

Figure 8: AM Peak Intersection Operations

PM Peak

As evening commuters return east, congestion is most pronounced eastbound from E Lake Sammamish Pkwy westward on the SR 520 off-ramp, with queues extending onto SR 520 mainline. At Sahalee Way, the right lane becomes an exclusive right-turn lane for drivers heading back to southbound Sahalee Way. The right lane can have an extended queue as drivers are processed through the intersection.

The SR 202/188th Avenue NE and SR 202/Sahalee Way SE intersections show a “failing” cumulative condition (LOS “F”) based upon total intersection delay exceeding 130 seconds. The SR 202/East Lake Sammamish Parkway intersection is performing at a cumulative LOS of “E” during the PM peak hour, with northbound and southbound approaches to this intersection failing (LOS F) based upon total average approach delay per vehicle. All remaining intersections east of these three intersections on SR 202 perform at LOS D or better.

During the PM peak period from 3:00 – 6:00PM, eastbound commuters concentrate at the signalized intersection between E Lake Sammamish Parkway and Sahalee Way NE. Similar to the AM peak, this bottleneck causes congestion and queues in the eastbound direction. There is high demand in the eastbound direction from SR 202 to Sahalee Way headed in the southbound direction to the City of Sammamish. Additionally, there is substantial demand for eastbound SR 202 causing queues on SR 520. Average travel time is 8.8 minutes in the westbound direction and 15.6 minutes in the eastbound direction. Existing mobility issues include long pedestrian crossings at the intersection of E Lake Sammamish Parkway and SR 202. Figure 9 below shows the intersection levels of service for vehicular traffic.

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	E	E	57.7	670	D	49.6	310	F	167.5	563	F	138.5	568
SR 202/185th Ave NE	Signal	D	D	36.3	332	C	25.1	540	D	48.8	14	E	71.5	371
SR 202/188th Ave NE	Signal	F	F	93	646	D	51.1	425	F	109.3	153	F	500.4	226
SR 202/192nd Ave NE	Signal	D	E	75.2	447	A	8.2	137	E	60.1	103	-	-	-
SR 202/204th Pl NE	Signal	B	A	8.7	151	C	24.5	214	-	-	-	D	52.5	149
SR 202/Sahalee Way SE	Signal	F	F	105.6	1142	C	21.8	145	E	63.3	359	D	47.5	40
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.5	3	A	0	0	-	-	-	D	26.8	23
SR 202/228th Ave NE	Signal	C	C	29.2	275	C	23.1	194	-	-	-	D	37	91
SR 202/236th Ave NE	Signal	C	C	23.7	239	C	27.3	283	-	-	-	C	29.6	199
SR 202/ 244th Ave NE	Signal	C	C	24	262	B	19.1	131	D	52.3	264	-	-	-

Figure 9: PM Peak Intersection Operations

5.3 Travel Times and Corridor Speeds

Existing Conditions, AM and PM Peaks

A travel time survey was conducted to determine existing corridor travel times for both AM and PM peak travel times in the westbound and eastbound direction. The model shows higher levels of congestion heading westbound in the AM peak, with an average travel time of 16.4 minutes to travel the 5.5 miles between 244th Ave NE and E Lake Sammamish Parkway NE. This is likely due to the high demand generated by westbound morning commuters. Travel times in the eastbound direction average to 8.02 minutes. Figure 10 below displays the average travel times and speeds for the AM peak.

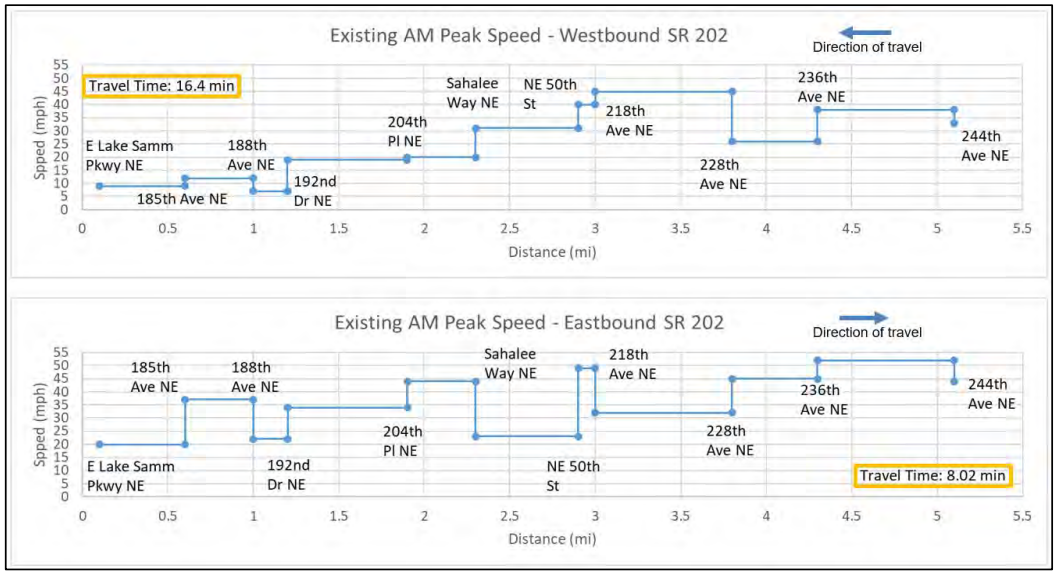


Figure 10: Existing (2018) AM peak speeds and travel times.

For the PM peak travel times and speeds, congestion is worse in the eastbound direction, with travel times averaging 25.6 minutes between E Lake Sammamish Parkway NE and 244th Ave NE. Westbound travel times average 8.72 minutes. Figure 11 below displays the average travel times and speeds for the PM peak.

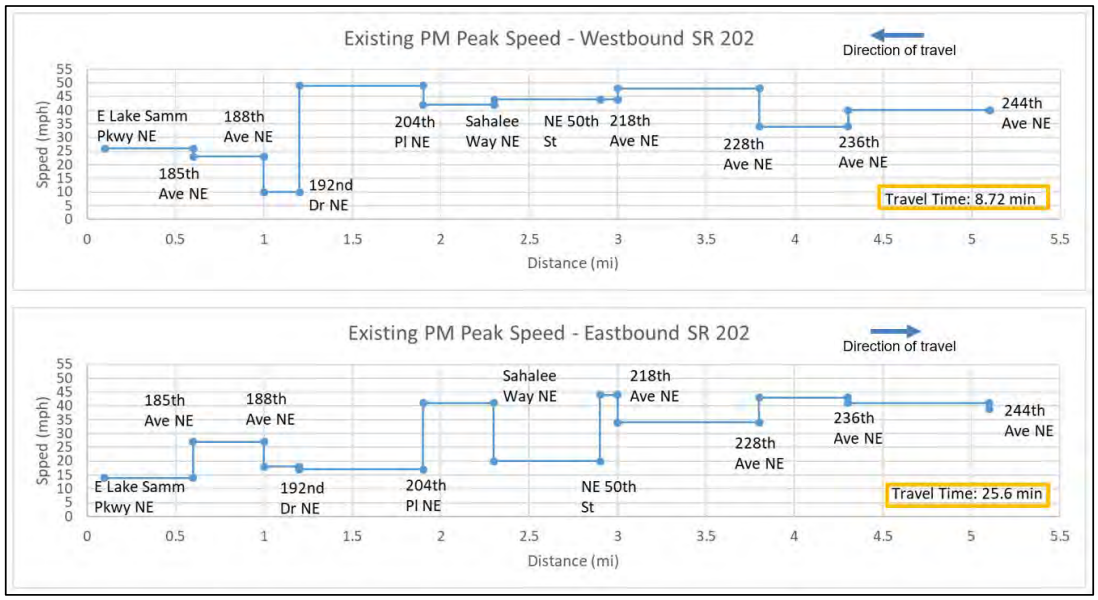


Figure 11: Existing (2018) PM peak speeds and travel times.

5.4 Crash History

The study team conducted a basic-level safety analysis for this corridor study. This process included performing an assessment on the corridor's current performance, summarizing recent crash history, and reporting any contributing factors to fatal and serious injury crashes. This analysis reviews the crash history for the corridor from January 1, 2014 to December 31, 2018.

Between January 1, 2014 and December 31, 2018, the SR 202 corridor between E Lake Sammamish Parkway NE and 244th Ave NE had a total of 554 reported crashes. The majority of these crashes resulted in no injuries, but there was one fatality on the corridor (see Table 3).

SEVERITY OF CRASH - BY CRASH TYPE (FULL CORRIDOR)

Crash Type	No Apparent Injury	Possible Injury	Suspected Minor Injury	Suspected Serious Injury	Unknown	Fatality	Total
Rear-end	209	85	17	2	1	0	314
Fixed object	39	10	4	1	4	0	58
Sideswipe	53	4	1	0	0	0	58
Entering at angle	39	7	4	3	0	0	53
Opposite Direction	9	5	0	0	0	0	14
Other	11	0	0	0	0	0	11
Same direction - other	10	0	0	0	0	0	10
Opposite direction	3	4	0	2	0	1	10
Ped-bike	1	2	4	2	0	0	9
From same direction - all others	8	1	0	0	0	0	9
Overturned	1	2	4	1	0	0	8
Total	**383**	**120**	**34**	**11**	**5**	**1**	**554**

Table 3: Severity of Crash – by Crash Type (Full Corridor), (2014-2018)

Of the 554 crashes that were reported on the corridor, 390 of them occurred at intersections. The majority of these crashes resulted in no apparent injury, and there were no fatal crashes at the study intersections.

Table 4 below summaries the type of each crash by intersection. Rear-end crashes were by far the most common, followed by entering at angle crashes, sideswipe crashes, and fixed object crashes.

TYPE OF CRASH BY INTERSECTION (2014-2018)

INTERSECTIONS	MP	Fixed Object	Rear-End	Over-turned	Opp. Dir.	Other	Side-swipe	Entering at Angle	Same Direction - Other	Involving Ped/-Bicycle	Total
E LAKE SAMM	8.22	7	60	1	5	0	23	17	9	3	125
185TH AVE NE	8.65	3	25	0	2	0	1	4	1	0	36
188TH AVE NE	9.04	2	24	1	0	1	2	6	0	0	36
192ND DR NE	9.19	0	21	0	0	0	4	0	1	0	26
204TH PL NE	9.87	6	9	0	1	0	2	0	2	0	20
SAHALEE WAY NE	10.27	3	16	2	1	0	6	12	1	0	41
218TH AVE NE	10.94	6	18	1	2	1	1	3	3	0	35
228TH AVE NE	11.75	2	20	0	0	0	0	2	0	0	24
236TH AVE NE	12.26	1	18	0	3	2	3	2	0	0	29
244TH AVE NE	13	6	5	3	2	1	1	0	0	0	18
	Total	36	216	8	16	5	43	46	17	3	390

Table 4: Type of Crash by Intersection (2014-2018)

Congestion is the primary contributor to recorded crashes in this corridor. A majority of the crashes occurred during hours of congestion, and the predominant type of collision was rear end crashes. The intersection of E Lake Sammamish Parkway is one the most congested portions of the corridor, and it has the most number of recorded crashes. Safety analysis highlighted the intersection of SR 202 and 218th Ave NE/NE 50th St as a location that warrants further evaluation. There is an existing flashing beacon system that is activated when turning traffic is present at this intersection.

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

5.5 Demographics

The following equity and demographic analysis is composed of a half-mile buffer around the SR 202 study corridor. This buffer contains all or part of 8 census tracts. These data were gathered from the EPA's Environmental Justice Screening and Mapping Tool, EJScreen, and the U.S. Census Bureau's American Community Survey.

The 2012-2016 ACS data show that, for the SR 202 project area, approximately 57% of the study area's population self-identifies as a racial minority, which is defined as those individuals having origins in any of the following racial groups: Black, Hispanic, Asian, American Indian or

Alaskan Native, Native Hawaiian or other Pacific Islander, or Other. The study area has larger Asian and Hispanic populations than King County as a whole, but populations of individuals self-identifying as Black or African American or Native Hawaiian and other Pacific Islander are less than those found in the rest of King County. Table 5 provides a summary of minority populations and income for the study area.

	King County		Study Area	
Total population	2,079,550		6,203	
Total households	831,995		2,210	
Minority population	785,191	38%	3,544	57%
Black or African American	127,902	6%	67	1%
American Indian and Alaska Native	14,581	0.7%	15	.002%
Asian	332,246	16%	2,450	39%
Native Hawaiian and other Pacific Islander	16,215	0.8%	0	0%
Other race	65,354	3%	84	1%
Two or more Races	125,816	5.8%	114	2%
Hispanic or Latino Only	98,446	4.7%	899	14%
Household income greater than $75,000	432,654	52%	1,398	63%

Table 5: Demographic Information. Source: EPA EJSCREEN, U.S. Census Bureau, 2012-2016 American Community Survey (ACS) Summary Report.

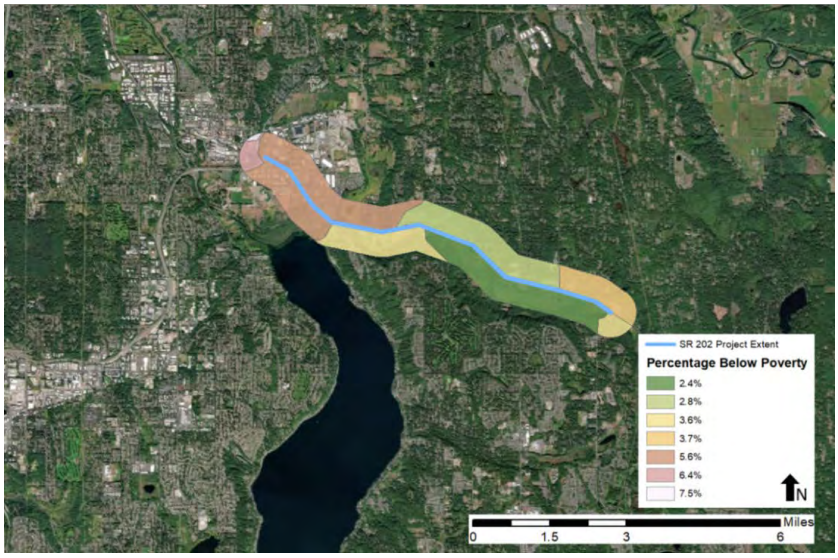


Figure 12: Percentage below poverty by census tract

The above map displays the percentage of the population below poverty by census tract within a half-mile of the SR 202 project area. (Data source: U.S. Census Bureau, 2012-2017 American Community Survey)

The below map displays the distribution of minority populations by census tract within a half-mile of the SR 202 project area. (Data source: Minority distribution - U.S. Census Bureau, 2012-2017 American Community Survey)

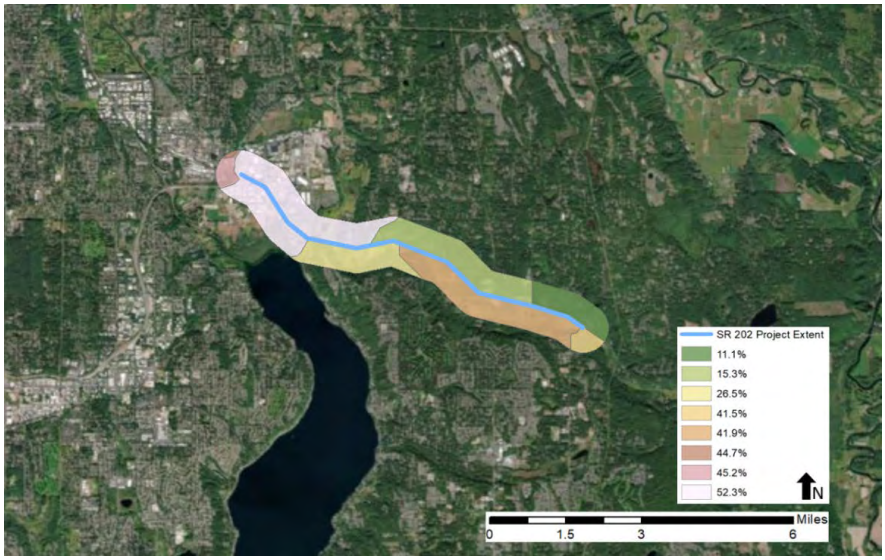


Figure 13: Percentage minority population by census tract

5.6 Pedestrian and Bicycle Facilities

East of 188th Ave NE in Redmond, there are limited pedestrian and bicycle facilities along the study corridor. Unprotected marked and signed bike lanes are present on both sides of SR 202 from SR 520 until 192nd Drive Northeast, when the bike lane dissolves into an unmarked shoulder that varies in width. Bike lane markings are limited through intersections. Sidewalks are present on the south side of SR 202 from SR 520 until 192nd Drive Northeast, at which point the sidewalk dissolves into an unmarked shoulder. Curb ramps are present at all intersections. Sidewalks are present on the north side of SR 202 from SR 520 until they disappear at the intersection of 188th Ave NE. These existing facilities are mapped in Figure 14, below.

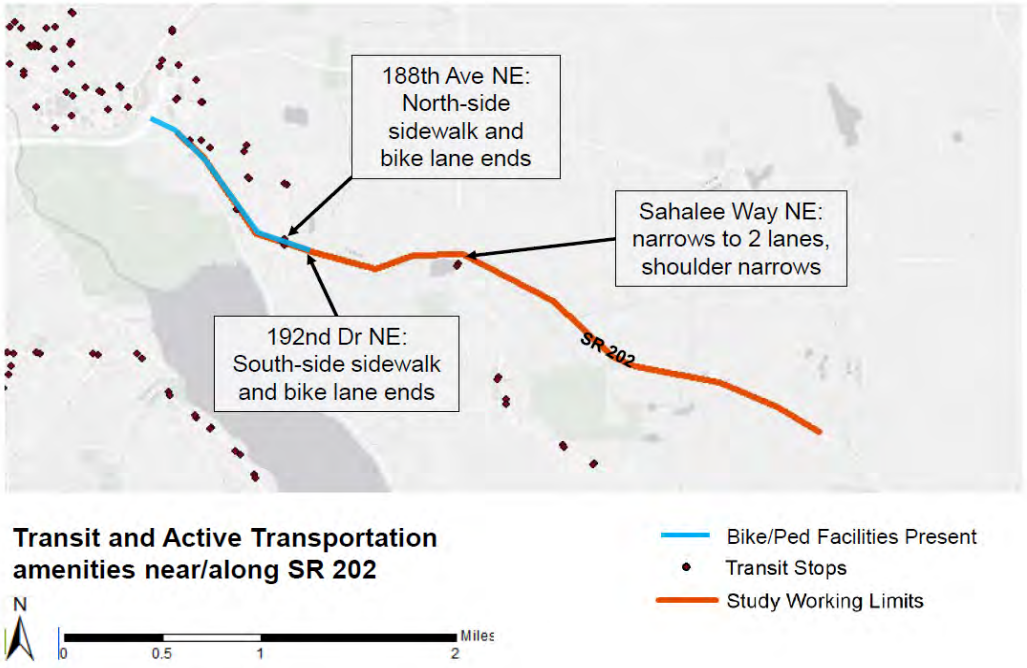


Figure 14: Transit and active transportation facilities

In the surrounding area, there are a number of facilities for people walking and biking to use. The East Lake Sammamish Trail runs parallel to SR 202 between NE 70th St and 187th Ave NE (where there are access points from local roads), at which point the separated path continues south along Lake Sammamish, while SR 202 curves to the east. A small portion of an unmarked nonmotorized path is present on the north side of SR 202 between NE 70th St and NE 76th St, near the SR 520 ramps. West of the study area, the Redmond Central Connector runs through downtown Redmond and connects to the Bear Creek Trail near SR 520. Continuing west of Redmond, the Central Connector rejoins the Sammamish River Trail.

Potential improvements to the pedestrian and bicycle facilities could help reach goals included in the King County Open Space Plan, by providing access to a Wildlife Network parallel to SR 202 just north of Sammamish and by improving access for people walking and riding bikes between downtown Redmond and Soaring Eagle Regional Park, east of Sammamish.

5.7 Public Transit

Transit options are limited along or near SR 202. King County Metro Routes 2016, 2019, 268, and 269 run from Redmond along SR 202 at the western edge of the corridor, at which point they turn south along Sahalee Way NE. These routes provide peak only service between Redmond and Sammamish in the morning and afternoon.

Figure 15 shows current transit routes along and near SR 202, and Table 6 summarizes average weekday daily ridership for the King County Metro routes that serve SR 202.

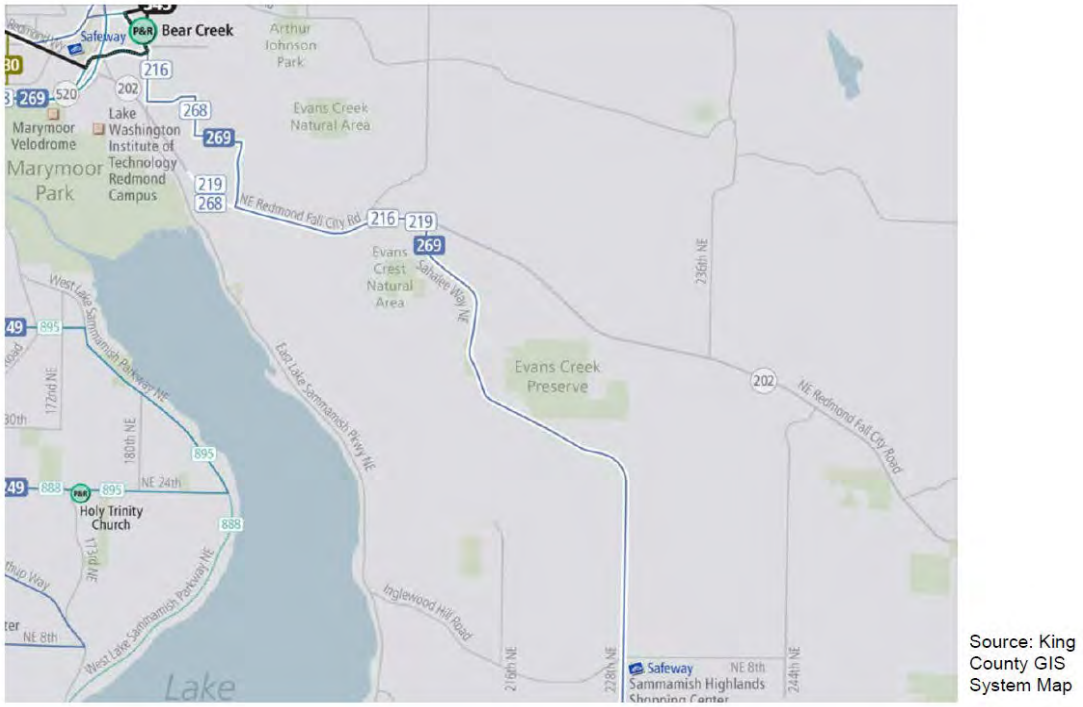


Figure 15: Transit routes along SR 202

Route	Average Daily Rides
216	908
219	839
268	558
269	939

Table 6: Average Weekday Daily Ridership

5.8 Freight Mobility

SR 202 is classified as a T-2 freight corridor between SR 520 to Sahalee Way, with an estimated annual tonnage over 3,400,000 in 2019. Approximately 3.2% of this volume is trucks, and the average annual daily truck volume is 1,200. Between Sahalee Way and 244th Ave NE, SR 202 is classified as a T-3 freight corridor with an estimated annual tonnage over 2,900,000 in 2019. Approximately 7.3% of this volume is trucks, and the average annual daily truck volume is 850.

5.9 Environmental

Key environmental features of the corridor include wetlands, flood zones, fish passage barriers, and the corridor's climate risk assessment. The following summary information was accessed from WSDOT's GIS Data Workbench and other WSDOT databases.

The project study area lies north of Lake Sammamish and passes through sections of freshwater forested/shrub wetland as well as freshwater emergent wetland. SR 202 crosses Evans Creek and its tributaries in a number of locations, and there is one partially blocked fish passage at Evans Creek/Patterson Creek that will be corrected by 2020. The middle portion of the corridor lies within the 100-year flood zone, and the entire study area has a medium climate change vulnerability rating, according to WSDOT's statewide climate impacts vulnerability assessment. The corridor may experience increased risk of erosion in the future.

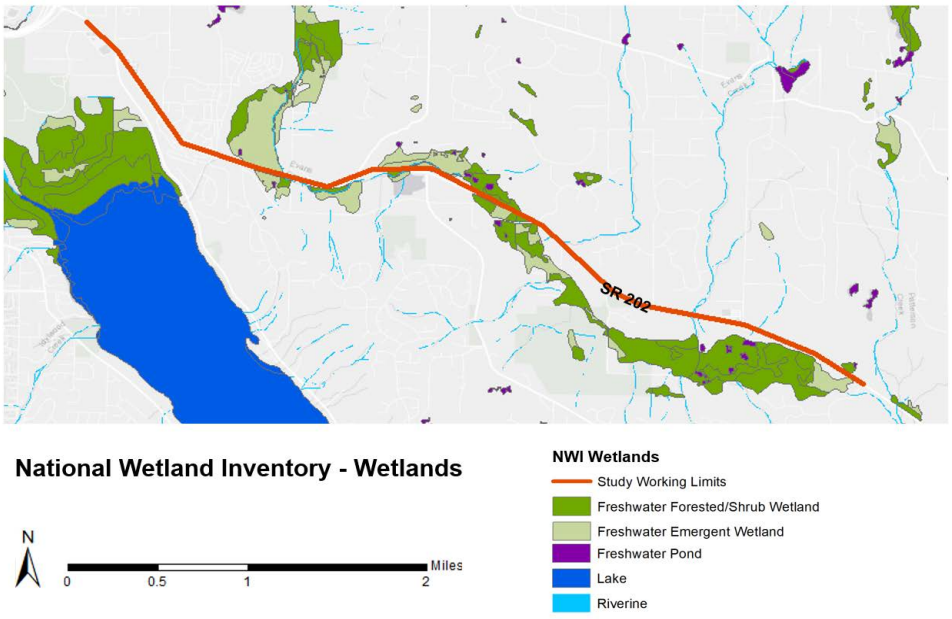


Figure 16: National Wetland Inventory – Wetlands

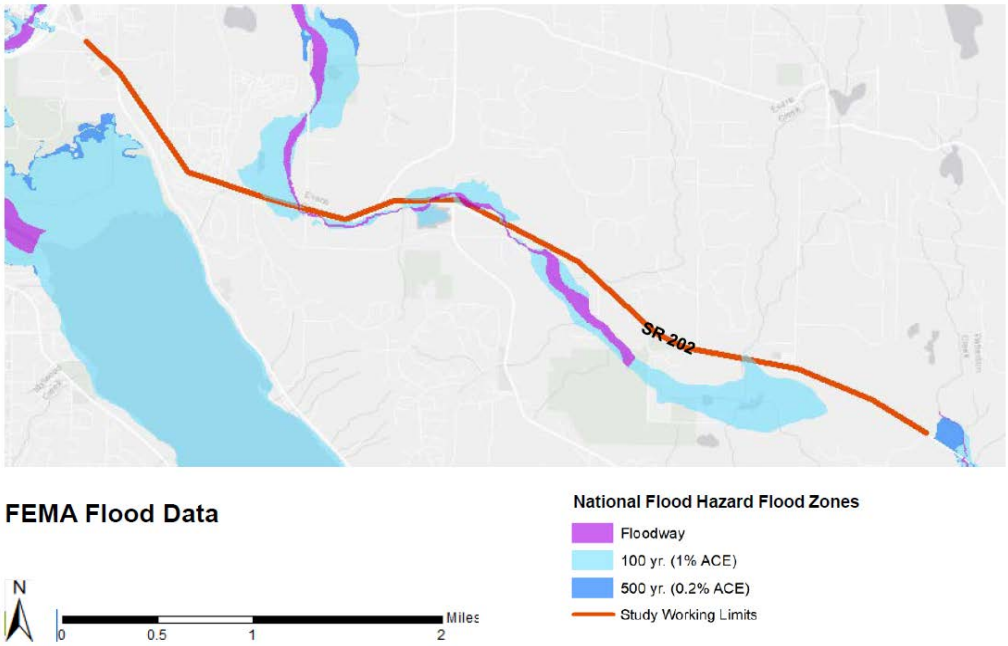
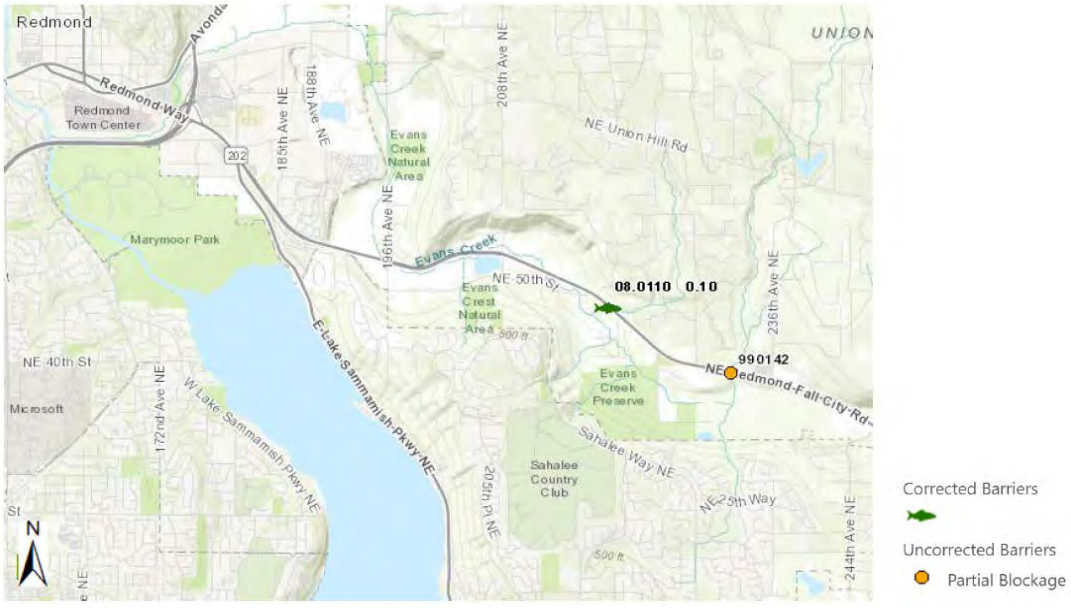


Figure 17: FEMA Flood Data



Source: WSDOT Fish Passage Inventory

Figure 18: Fish Passage Inventory

5.9.1 Climate Vulnerability Impacts

WSDOT relies on the University of Washington Climate Impacts Group as its primary source for climate information. The UW's Washington Climate Change Impacts Assessment provides sufficient information to enable planning-level considerations of Washington's forecasted climate impacts. WSDOT's Climate Impacts Vulnerability Assessment (CIVA) is a qualitative assessment of risks to the state's transportation infrastructure from climate change. The agency's assessment of climate impacts in this study area found it to be an area of moderate vulnerability (see Figure 19, below). The assessment notes that the area may see increased flooding in the lowlands. In areas with steep slopes, extreme rain may exacerbate landslide and washout risks.

Figure 19: State routes climate impacts vulnerability. Source: 2011 WSDOT Climate Impacts Vulnerability Assessment.

5.9.2 Habitat Connectivity Priorities

The SR 202 corridor, based on 5-year accumulations of deer-vehicle collision data, is entirely Medium or Low priority for investing in improvements to reduce collisions with wildlife (Table 7 and Figures 20 – 22, below). Highway improvement or fish barrier correction projects may be able to incorporate elements such as barrier fencing or improved deer crossing opportunities to reduce these collisions.

Begin ARM	End ARM	Number of deer carcass removals[1]	Number of deer-vehicle collisions[2]	Safety Rank[3]
7.6	8.5	1	0	Low
8.6	9.5	4	1	Low

9.6	10.5	6	4	Medium
10.6	11.5	7	2	Medium
11.6	12.5	3	1	Low

Table 7: Summary of deer carcass removal and deer-vehicle collision data for the SR 202 corridor

[1] Deer carcass removals are mostly records from WSDOT Maintenance, most recently, from the Highway Activities Tracking System. Starting July 1, 2017, records of animals salvaged by citizens and reported via the Washington Department of Fish and Wildlife permit system, have been incorporated in this database.
[2] Deer-vehicle collisions are a subset of records extracted from WSDOT's Collision Data, managed by the Collision Data & Analysis Branch.
[3] See Appendix H for Wildlife Safety Ranking criteria.

Figure 20: Habitat Connectivity Investment Priority Wildlife-related Safety Ranks for one mile highway segments within the corridor. Medium (orange) and Low (blue) and ranks.

Figure 21: Map image showing locations of deer-vehicle crashes, 2012-2016, based on officer collision reports.

Figure 22: Map image showing locations of deer carcass removals, 2012-2016, based on WSDOT HATS data and WDFW Citizen Salvage reports.

The entire Washington State highway system has been ranked, by half mile segment, for pollinator habitat enhancement potential. This corridor on State Route 202 was entirely in a Low investment priority rank for pollinators. As an Urban Gateway area, when roadside pollinator enhancements might benefit residential and urban gardens and increase roadside aesthetics, the entire corridor was a Medium priority rank.

6.0 Future Conditions

In the future 2025 and 2045 no-build conditions, the existing levels of congestion and failing intersection level-of-service are estimated to be the same or worse at several key corridor intersections on SR 202 between Redmond and Sammamish. In particular, SR 202 at the East Lake Sammamish Parkway intersection continues to operate at LOS F during the morning peak period, with the westbound SR 202 and the northbound East Lake Sammamish Parkway approaches performing at LOS F. Total delay for these two failing approaches is substantial. SR 202 at the 185th Avenue NE intersection also performs at LOS F during the morning peak period, with the westbound approach also operating at LOS F with average delay in excess of 100 seconds per vehicle.

6.1 Traffic Volumes

The future year traffic analysis for the SR 202 corridor analyzed traffic volumes for year 2025 (near-term/interim) and 2045 (long-term). This analysis shows that the SR 202 corridor will continue to experience pronounced directional peak travel movements in the morning and evening peaks. As in the existing conditions, in the morning peak period, travel on the corridor is heaviest in the westbound direction and during the afternoon/evening peak period, travel is heaviest in the eastbound direction.

The following figures summarize the forecast AM peak hour traffic volumes along the study corridor in 2025 and 2045.

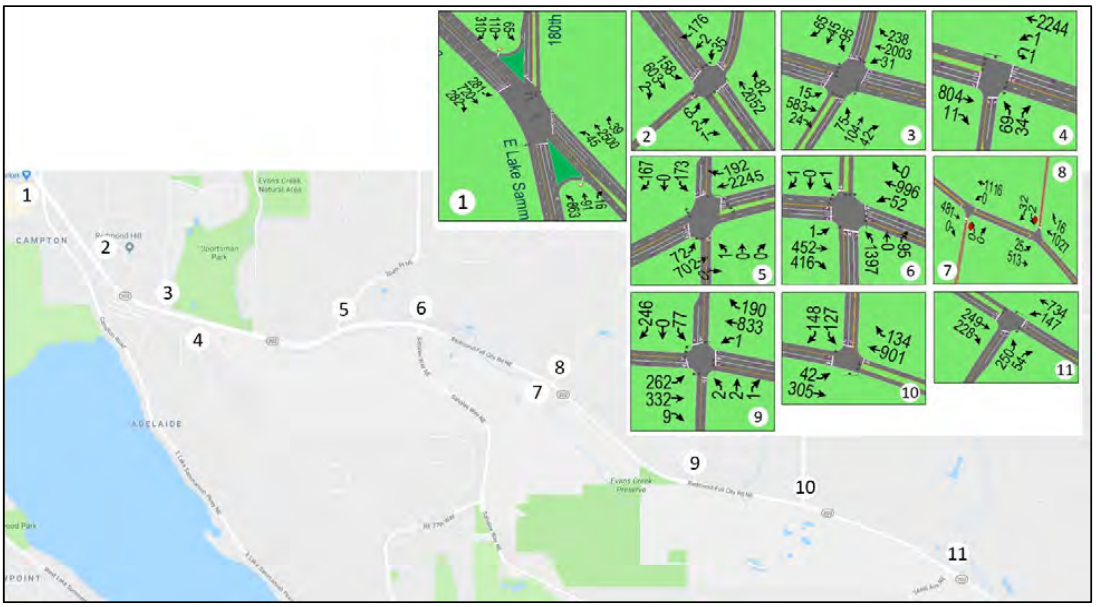


Figure 23: 2025 Future year AM Peak estimated volumes

Figure 24: 2045 Future year AM Peak estimated volumes

The following figures summarize the PM peak hour traffic volumes along the study corridor in 2025 and 2045.

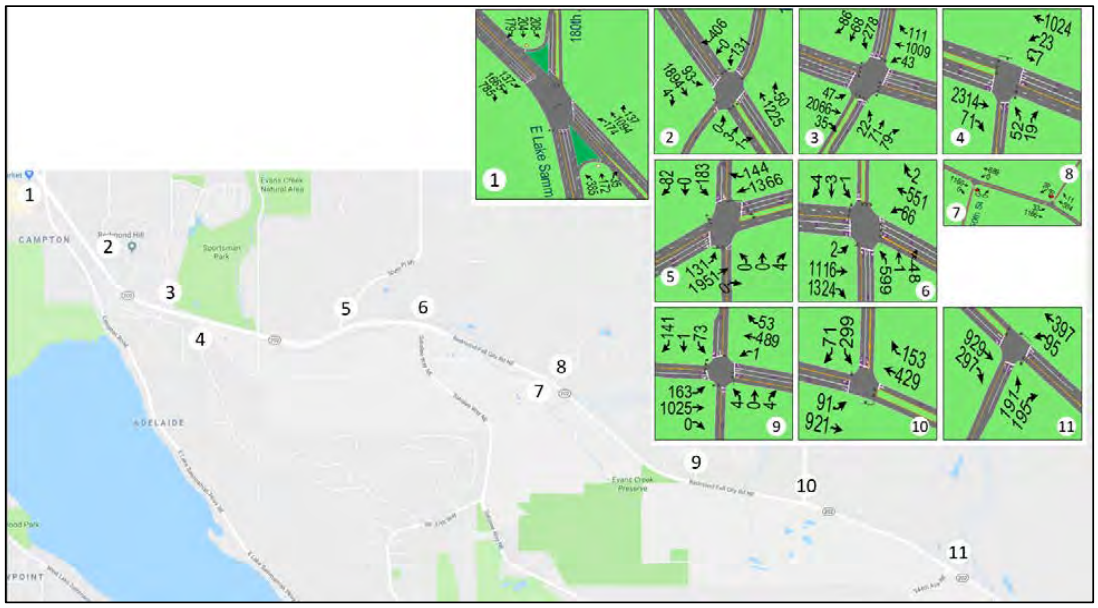


Figure 25: 2025 Future year PM Peak estimated volumes

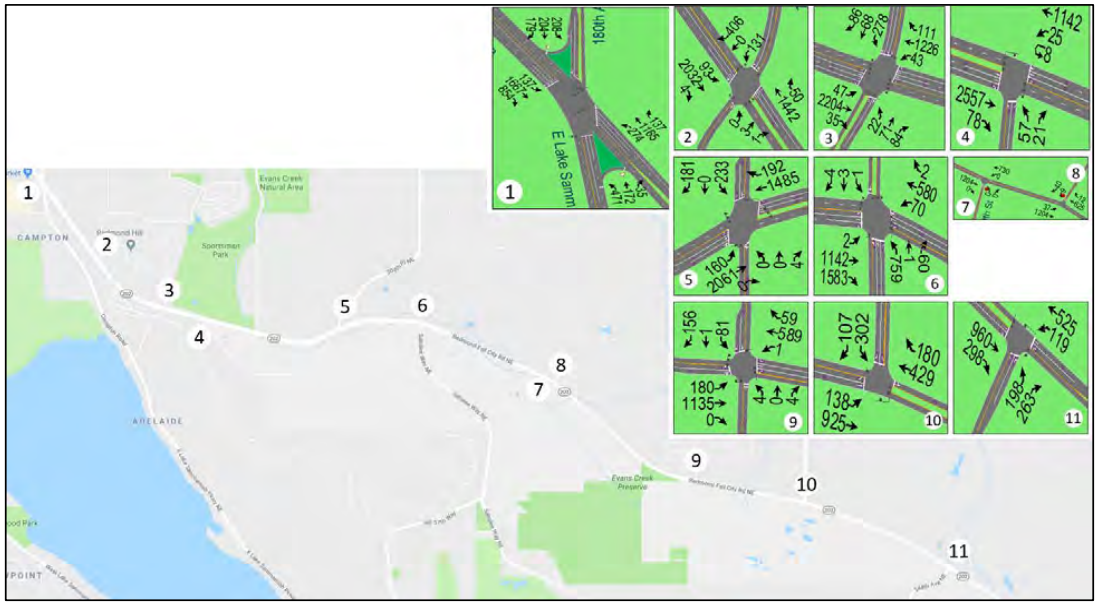


Figure 26: 2045 Future year PM Peak estimated volumes

6.2 Intersection Operations

If none of the proposed strategies are implemented, it is expected that the performance of the intersections in years 2025 and 2045 will continue to degrade or remain unchanged. Figures 27

through 30 below display the estimated future intersection levels of service, which show that congestion in the AM and PM peaks will still be concentrated between E Lake Sammamish Parkway and Sahalee Way NE.

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.6	278	F	132.6	1909	F	432.6	515	D	45.5	342
SR 202/185th Ave NE	Signal	F	B	17.6	93	F	136.2	1369	D	45	28	B	16.3	160
SR 202/188th Ave NE	Signal	F	D	40.1	229	F	117.1	959	E	55.3	145	D	51.3	133
SR 202/192nd Ave NE	Signal	D	A	3.6	84	E	71.2	1987	E	59.9	112	-	-	-
SR 202/204th Pl NE	Signal	E	B	15.6	194	E	71	1586	-	-	-	E	55.4	273
SR 202/Sahalee Way SE	Signal	D	C	31.7	378	D	39.7	344	E	66.2	927	A	0	17
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	18	A	0	11	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.9	176	A	0	49	-	-	-	D	28.2	20
SR 202/228th Ave NE	Signal	D	D	53.5	296	E	60.2	1420	-	-	-	D	40.4	249
SR 202/236th Ave NE	Signal	C	B	14.6	111	C	23.6	497	-	-	-	D	47.9	189
SR 202/ 244th Ave NE	Signal	C	B	15.6	155	C	25.6	229	D	42.2	222	-	-	-

Figure 27: 2025 Future year AM peak intersection operations

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.7	330	F	153.1	1632	F	438	508	D	45.5	383
SR 202/185th Ave NE	Signal	F	B	18.4	176	F	173.6	1309	D	45	30	B	16.3	162
SR 202/188th Ave NE	Signal	F	D	41.3	301	F	153.9	930	E	55.3	157	D	51.3	132
SR 202/192nd Ave NE	Signal	E	A	3.5	89	E	77	1136	E	59.8	116	-	-	-
SR 202/204th Pl NE	Signal	F	B	19.6	250	F	137.6	2184	-	-	-	D	54.6	389
SR 202/Sahalee Way SE	Signal	E	D	37.1	448	D	39.9	357	F	98.9	878	A	0	15
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	12	A	0	5	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	2.2	155	A	0	0	-	-	-	D	30.2	48
SR 202/228th Ave NE	Signal	E	E	65.6	335	E	66.3	2726	-	-	-	D	49.9	296
SR 202/236th Ave NE	Signal	C	A	8.5	129	C	22.4	530	-	-	-	D	50.6	215
SR 202/ 244th Ave NE	Signal	C	B	16.3	200	C	31.1	305	D	51.4	236	-	-	-

Figure 28: 2045 Future year peak intersection operations

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	E	75.8	744	D	49.9	296	F	168.1	552	F	138.5	589
SR 202/185th Ave NE	Signal	D	D	43	407	C	26.3	563	D	48.8	23	E	75.4	424
SR 202/188th Ave NE	Signal	F	F	161.6	855	D	53.5	540	F	110.8	177	F	500.4	286
SR 202/192nd Ave NE	Signal	E	E	78.5	548	A	7	127	E	60	91	-	-	-
SR 202/204th Pl NE	Signal	C	B	15.8	257	D	37.7	395	-	-	-	D	52.1	267
SR 202/Sahalee Way SE	Signal	F	F	160.3	1424	C	22.3	122	E	66.2	386	D	47.5	30
SR 202/ NE 50th St[1]	Two-Way Stop	C	A	0	10	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	F	A	2	128	A	0	0	-	-	-	D	32.6	53
SR 202/228th Ave NE	Signal	C	C	34.8	235	C	27.6	271	-	-	-	D	37.2	85
SR 202/236th Ave NE	Signal	C	C	30.7	283	C	31.5	288	-	-	-	D	37.6	271
SR 202/ 244th Ave NE	Signal	D	C	31.2	417	C	22.9	146	E	60.8	273	-	-	-

[1]Stop controlled intersections were analyzed separately

Figure 29: 2025 Future year PM peak intersection operations

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	F	122.4	721	D	49.5	280	F	205.5	557	F	138.5	644
SR 202/185th Ave NE	Signal	D	D	42.1	365	C	30.5	622	D	48.8	16	F	82.4	454
SR 202/188th Ave NE	Signal	F	F	198.4	704	D	50.8	576	F	112.7	160	F	500.4	242
SR 202/192nd Ave NE	Signal	E	F	82.2	551	A	5.9	108	E	59.9	98	-	-	-
SR 202/204th Pl NE	Signal	C	B	18.4	269	D	49.1	558	-	-	-	D	49.5	337
SR 202/Sahalee Way SE	Signal	F	F	227.7	1986	C	22.9	151	F	97.1	716	D	47.5	32
SR 202/ NE 50th St[1]	Two-Way Stop	C	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	F	A	2.6	96	A	0	0	-	-	-	E	42.7	51
SR 202/228th Ave NE	Signal	D	D	52.1	274	D	35.6	300	-	-	-	D	44.5	114
SR 202/236th Ave NE	Signal	C	C	30.7	282	D	37.6	335	-	-	-	D	37.3	288
SR 202/ 244th Ave NE	Signal	D	D	35.1	482	C	24.8	207	E	67.7	344	-	-	-

[1]Stop controlled intersections were analyzed separately

Figure 30: 2045 Future year PM peak intersection operations

6.3 Future Travel Times and Corridor Speeds

If none of the proposed strategies are implemented, the corridor will continue to experience very pronounced directional peak travel congestion in the morning and evening peaks. Eastbound congestion in the PM peak is expected to be significantly worse in 2045, with an estimated average travel time of 30.2 minutes. These data are displayed in Table 8 below.

SR 202 Travel Times between E Lake Sammamish Pkwy NE and 244th Ave NE				
Peak Hour	Direction	2018 Existing (mins)	2025 Near-term (mins)	2045 Long-term (mins)
AM	EB	8.02	8.13	8.6
	WB	16.4	16.8	17.98
PM	EB	15.6	19.3	30.2
	WB	8.72	9.05	9.05

Table 8: Existing (2018) and future (2025, and 2045) corridor travel times

6.4 Pedestrian and Bicycle Facilities

For future planned non-motorized facilities along SR 202, the City of Redmond's Transportation Master Plan (TMP) does not list SR 202 as a current bicycle or pedestrian priority corridor, but it does list a portion of SR 202 as a pedestrian priority zone. These areas are prioritized as "urban walking environments" with wide and comfortable sidewalks on both sides of the street.

There are a number of non-motorized facilities and future needs planned near SR 202. The City of Redmond's TMP lists the East Lake Sammamish Trail as one of the city's "Bicycle Modal Corridors", which will feature safe, comfortable corridors and intersection crossings for people walking or bicycling along the trail. Additional proposed bike lanes and cycle tracks are included in the Bicycle System Plan, and the unfunded buildout plan includes sidewalk improvements, a pedestrian bridge over Bear Creek, improving the ITS system, crosswalk modifications, and pedestrian refuges.

King County's Open Space Plan lists a variety of objectives to improve connections between trails and transit centers. These objectives include investing in trail connections that improve nonmotorized mobility, especially connections to transit centers and improving the regional trails network to provide access to important regional destinations such as urban centers, civic and commercial centers, regional transit, and important points of interest throughout King County. Specifically, the plan calls for addressing missing trail connections, such as developing more segments of the East Lake Sammamish Trail, to further meet the growing need for alternative transportation options.

The City of Sammamish's Transportation Master Plan lists a variety of policy goals to support people walking and biking in the future. These goals include siting and designing transit facilities with easy access for pedestrian and bicycle users, encouraging local street connections to provide an efficient network of routes for people walking and biking, and addressing multimodal transportation needs. Additional policy goals include prioritizing investments in transportation facilities that support compact, pedestrian- and transit-oriented development, investing in demand management strategies, developing partnerships with local transit service providers, and exploring options for expanding intracity and intercity transit options.

6.5 Public Transit

With the opening of Sound Transit's East Link project in 2023, SR 202 may experience increased demand for commuters wishing to access the new light rail station in downtown Redmond. Increased transit service may meet some of this additional demand. King County Metro's 2025 Service Network plan includes additional express bus service between Redmond and Sammamish by 2025, with additional service between Redmond to North Bend and Snoqualmie and from Redmond to Sammamish by 2040.

In June 2019, King County Metro will be launching a two-year pilot of the Sammamish Community Ride (Route 641), which will be operated by Hopelink. This service will be reservation-based, with no fixed routing, set stops, or schedule, and the service will be available weekdays 7:00am-6:00pm and Saturdays, 9:00am-6:00pm. With a service area within the Sammamish city limits, this route will not directly access SR 202, but if successful, could be implemented in additional areas along the SR 202 corridor.

Some demand may be further met transferring some commuters to Sound Transit's North Sammamish Park-and-Ride lot, which should be open to the public by 2024. This lot will provide up to 200 parking spaces and will primarily service City of Sammamish. Five sites adjacent to or near 228th Ave NE are currently under screening review, and a preferred site will be identified by the end of 2019.

As part of King County Metro's integration with Sound Transit's East Link, service restructuring is planned for 2023. King County's Metro Connects plan identifies both the 2025 and 2040 networks to have express transit service along the SR 202 corridor from I-90 to Redmond. Because this is a visioning document, there are no specific transit service plans yet identified.

Potential strategies the transit agencies could consider to encourage transit usage could include the following:

- Renting church parking lots as mini-park and ride lots
- Implement a local circulation shuttle – possibly linking to future developments near Sammamish City Hall
- Providing incentives such as free or reduced-cost bus passes, reduced fares for vanpooling, or mode specific gear like bike lights, reflective gear for walking, emergency lights for carpools
- Community-business partnerships, including culturally-relevant media, neighborhood-specific outreach, customized multi-modal trip plans
- Work with employers to establish Home Free Guarantee programs
- Expanded Safe Routes to School programs, developing ride-matching networks for schools, encouraging participation in the SchoolPool program, which encourages families to choose non-car modes for the school commute

King County's Metro Connects plan assigns the area around SR 202 as a "transit access zone" with scores of 3 and 4, meaning that lower density areas would have moderate emphasis on

improved bicycle and pedestrian facilities with some parking investments. The lowest-density areas would have limited investment in bicycle and pedestrian facilities with an emphasis on increasing transit parking. Overall, the Metro Connects plan states the agency's continued support for improving access to transit, managing demand, transit oriented development, ITS, a "green" fleet, and operations and system preservation.

7.0 Strategy Development and Evaluation Process

Using information from the analysis of the existing and future-year conditions, and local knowledge of traffic operations in the area, the stakeholder team developed strategies to improve mobility along the SR 202 corridor. This process of developing strategies employed WSDOT's Practical Solutions approach to develop near, mid, and long-term strategies.

7.1 Development and Screening Process

The first step in the concept development and screening process was to generate a full list of ideas that could potentially address the needs of the corridor. These ideas were generated by reviewing information and suggestions from previous studies, stakeholders, the public, and current analysis. The study team evaluated this list of strategies through a high-level screening process to identify which strategies meet WSDOT goals and policies, as well as the purpose and need of the study. This screening was based on planning-level and qualitative assessments of the proposed strategies. The full list of strategies, including those that were screened out, are included in Appendix E.

Those concepts that met the initial screening were then processed through a more detailed level of screening. The study team evaluated the strategies based on three performance categories, as discussed below in Section 7.2. Of the 36 strategies, 9 strategies were analyzed in detail using traffic analysis software tools as they showed promise. With a study focus on near to mid-term operational improvements, alternatives for analysis were prioritized that were achievable within the time and budget constraints of the study. The remaining improvement strategies were evaluated qualitatively and upon further consideration were moved forward to the recommendations list with the qualifier that they need further detailed analysis. 14 of the 36 remaining alternatives were Transportation Demand Management (TDM) strategies that were considered separately through a qualitative assessment.

The strategies were then ranked to identify concepts that could be carried forward for further consideration in the near-term, mid-term, and long-term. These results were reviewed and agreed upon by the stakeholder group.

7.2 Performance Metrics

The study team identified qualitative and quantitative performance measures and metrics that could be used to evaluate how different strategies met the needs of the corridor, which were to address current and projected performance gaps related to mobility, travel-time, access, and safety. These measures were used to analyze the impact of the various alternatives on specific intersections, as well as corridor-wide strategies.

The metrics were assigned a score from 1-5, where "1" signified that the alternative would create a situation that would be much worse than the present, "3" signified that it would match

existing conditions, and “5” signified that conditions would be much better. Table 9 below lists the metrics associated with each of the three categories: Mobility, Safety, and Feasibility.

Performance Measures and Metrics	
Category	Metric
Mobility	Level of Service, Queue lengths, Travel times, Bike/pedestrian effect, Transit effect
Safety	Potential to Reduce Crash Potential
Feasibility	Cost

Table 9: Performance Measures and Metrics

Mobility metrics:

- Level of Service (LOS): strategies that would result in a better level of service received a higher score than those that would have a minimal or negative effect.
- Queue lengths were evaluated for each strategy, where options that resulted in longer estimated queues received a lower score. Queue lengths were estimated using Synchro and SimTraffic.
- Travel times: Strategies that resulted in shorter travel times received higher scores than those with longer estimated travel times.
- Impact to bicycle/pedestrian users: Strategies that provided safe, improved routes for people walking and biking received a higher score than those that would negatively affect these facilities.
- Transit: Strategies that improved access to or performance of transit received higher scores than those that did not improve access.

Safety metric:

- The basic-level safety analysis conducted for this study represents 5-year crash data from 2014-2018 for the length of the corridor. Alternatives were reviewed based on these results, and those that were deemed to reduce serious or fatal crash potential ranked higher than those that did not have this effect.

Feasibility metric:

- Planning-level cost ranges were developed for each alternative. Lower-cost alternatives received higher scores than higher-cost ones.

7.3 Performance Evaluation

The individual scores for each performance metric were combined into a total performance score for each alternative. These scores range from 0 to 31.5, where 31.5 is the highest score received by an alternative. The top scoring alternatives were then further evaluated based on benefits and performance tradeoffs and were grouped into recommended improvement strategies in the near-, mid-, and long-term. Full analysis for strategies analyzed quantitatively can be found in Appendix E.

7.3.1 Near-Term Strategies: These are low-cost strategies that have a high return on investment and can be delivered relatively quickly. These types of strategies include intelligent

transportation systems investments, multimodal, and demand management strategies. These could be implemented by year 2025 and beyond, and include the following strategies:

- **SR 202/East Lake Sammamish Parkway: Remove middle crosswalk and add it to the east leg.**

  While the existing crosswalk is at the shortest crossing distance across the skewed intersection, the pedestrian crossing is exclusive and none of the signalized movements (through or left-turn) can be served simultaneously with the pedestrian crossing. This strategy suggests relocating and restriping the crosswalk to the east leg and running the walk signal with the northbound movement.

  This may require rebuilding the island in the southeast corner of the intersection to stage pedestrians, and would necessitate building ADA-compliant curb ramps, push buttons, and pedestrian signal displays on both sides of the crossing. The westbound stop bar and vehicular detection may need to be relocated. Relocating the crosswalk would allow for simultaneous service of a vehicle phase, such as the northbound through and left-turn. One trade-off of relocating the crosswalk is requiring pedestrians to make an additional crossing if they need to go between the northeast and southwest corners. This can be offset by utilizing the existing pedestrian crossing at the intersection of SR 202 and NE 70th St.

  From the quantitative analysis, relocating the middle crosswalk, combined with adding a southbound through lane, decreased the cycle length from 180 to 145 seconds. Additional changes included adding 5 seconds to the eastbound/westbound signal to account for the loss of the eastbound/westbound signal phase when pedestrians would cross middle crosswalk, and adding 7.4 seconds to the northbound phase to account for added pedestrian crosswalk phase length. Modeled improvement for the 2025 PM Peak showed that the northbound queue delay decreased by 89 seconds and queuing decreased by 200ft and the southbound delay improved by 39 seconds while queuing remained about the same. For the modeled 2025 PM Peak eastbound, delay worsened by 30 seconds but queuing reduced by 76ft, and for the westbound, delay and queue remained about the same. Overall, the intersection LOS remained the same.

- **SR 202/NE 50th St and 218th Ave NE: Close access or make one-way westbound**.

  This intersection has an identified safety performance gap with history of rear-end and angle crashes. Restricting access or making 50th one-way would direct drivers to access the area from the signalized intersection of Sahalee Way, approximately 3000 feet to the west. This strategy allows the potential to eliminate conflicting vehicle movements on a high-speed roadway at an intersection located within a horizontal curve.

7.3.2 Mid-Term Strategies: These strategies are moderate to higher cost improvements that could be implemented to further manage congestion along SR 202. These strategies include the installation of roundabouts at strategic locations, turn pockets, intersection improvements, and

potential off-corridor improvements. Mid-term strategies could be implemented between years 2025-2045.

- **SR 202/Sahalee Way NE: Convert intersection into a metered roundabout.**

  Heavy traffic demand northbound on Sahalee Way during the AM peak period results in long queues and delays for northbound drivers at the signalized intersection. A roundabout would improve delay and queues for the northbound to westbound movement. Safety performance would also be improved as roundabouts have a track record for a reduction in fatal and serious injury crashes.

  This roundabout would include two lanes for the heavy northbound to westbound movement in the AM peak, two lanes for the westbound through movement, one lane for the eastbound through movement, and an eastbound lane drop to a right-turn bypass to Sahalee Way. The eastbound legs would be metered to maintain northbound mobility in the AM peak. The remaining legs of the roundabout would be metered to manage traffic input into the system if the roundabout over performs. The roundabout may entail some right of way and environmental impacts, but it may be possible to fit the roundabout into the existing intersection footprint.

  From the quantitative analysis, queue lengths and travel time are similar to or better than the 2025 AM and PM Peak no-build metrics. Since the eastbound approach has less demand and volume in the AM Peak, the eastbound approach would be metered and may experience longer queues than the no build alternative. In the AM Peak, pushing more traffic onto westbound SR 202 may affect the signalized intersections to the west and their LOS and queues. Adding meters on all three major legs of the roundabout will help manage traffic input into the system if the roundabout over performs. The meters would be turned off in the PM Peak since there is more volume and higher demand in the eastbound direction.

- **SR 202/East Lake Sammamish Parkway: Add an additional southbound through lane.**

  Existing traffic demand southbound on 180th Ave NE can result in delays and queues during the PM peak. The southbound, single-lane approach can reduce efficiency of processing vehicles during the southbound signal phase.

  The addition of a through lane would increase the number of vehicles processed during the southbound signal phase. Increased vehicle processing may allow recovery of some signal cycle length that could be allocated to vehicle phases on SR 202. This strategy would require rebuilding the traffic island in the northwest quadrant to add a through lane, and may entail some right of way impacts.

  From the quantitative analysis, the 2025 PM Peak southbound delay is estimated to improve by 61 seconds with a decrease in queue length of 187ft. No significant change

was shown for delay or queue in the eastbound, westbound, or northbound directions. Overall, the intersection LOS remained at F.

- **Extend turn lanes on 204th Place NE.**

  Existing traffic demand southbound on 204th Pl NE can result in delays and queues during the PM peak. The southbound, single-lane approach can reduce efficiency of processing vehicles during the southbound signal phase.

  This strategy suggests extending the storage of the right and left-turn lanes on southbound 204th Pl NE. This work may entail some right of way and environmental impacts. The additional storage may increase the number of vehicles processed during the southbound signal phase. Increased vehicle processing may allow recovery of some signal cycle length that could be allocated to vehicle phases on SR 202.

- **Add a left turn pocket on eastbound SR 202 to 218th Ave NE.**

  The intersection of 50th and 218th has an existing crash history. The intersection is located within a horizontal curve, and a dynamic beacon warning system is in place to warn drivers when there is turning traffic at the intersection. Adding a left turn pocket would require widening of SR 202 as well as revising the channelization for a left turn lane and receiving lane. This widening would likely entail environmental or right of way impacts.

  This strategy would mitigate rear end crash risk by removing eastbound stopped traffic from the through stream. Left turning traffic from 218th would have a dedicated receiving lane on SR 202, mitigating angle crash risk.

7.3.4 Long-Term Strategies: These strategies are the highest-cost projects that could provide benefits corridor wide. These concepts include higher-cost roundabouts and additional intersection improvements that would likely be implemented after year 2045.

- **Road diet and corridor-wide roundabouts.**

  There is a lack of dedicated transit or non-motorized facilities on SR 202 from 188th Ave NE to Sahalee Way. Converting signalized intersections to roundabouts starting from 188th or 192nd to Sahalee Way may maintain mobility at intersections and enable a reduction in the number of lanes needed between the intersections. Reducing the number of lanes between intersections would allow existing pavement to be recovered for transit or non-motorized facilities.

7.3.5 Transportation Demand Management (TDM): These strategies reduce vehicle trips or shift trips to off-peak periods and include concepts like increased investment in transit service, park and ride lots, dedicated bicycle and pedestrian facilities, and employer shuttle services. TDM strategies could be applied to near-, mid-, and long-term horizons as funding becomes available

or opportunities present themselves. TDM strategies require coordination between a variety of agencies and jurisdictions and may be implemented by agency partners. These strategies were analyzed qualitatively and include the following concepts:

- Expand KCM Community Connections, Ride2, Mobility Hub, Just One Trip, Safe Routes to School, and School Pool programs in the Redmond and Sammamish area.
- Evaluate potential to reroute or add KC Metro and Sound Transit service from Sammamish Plateau to Redmond area via Inglewood Hill Road and East Lake Sammamish Parkway, if doing so improves travel times and ridership.
- Implement planned express KCM transit service along SR 202 by 2025 and 2045 and evaluate the need for additional bus stops along SR 202.
- Evaluate potential to utilize church parking lots in Sammamish as park and rides during the work week.
- Consider extending bike markings through the intersection at East Lake Sammamish Parkway for increased visibility.
- Consider installing ITS/driver information signage where appropriate corridor-wide.
- Consider establishing a shuttle service on the Sammamish Plateau.
- Evaluate installation of bike/pedestrian accommodations along the full corridor.
- Evaluate potential for bus only lane connecting to park and ride lots.
- Evaluate potential for dedicated HOV lane, queue jumps, slip lanes for buses at intersections.

8.0 Recommended Improvement Strategies

The final screening process and list of recommended strategies was presented to the stakeholder group for their concurrence. The following tables list the recommended improvement strategies for consideration in the near-, mid-, and long-term. Strategies highlighted in yellow have been analyzed quantitatively, while grey-highlighted strategies have been analyzed qualitatively. Green-highlighted strategies are transportation demand management strategies.

These strategies align with WSDOT's Practical Solutions approach and were developed in partnership with study stakeholders and the public. All recommended strategies are subject to further planning and design analysis.

8.1 Near-term Strategies (2025):

These are low-cost strategies that have a high return on investment and can be delivered relatively quickly. These types of strategies include intelligent transportation systems investments, multimodal, and demand management strategies. These could be implemented by year 2025, and include the following strategies:

Near-Term Strategies						
Intersection/ Corridor	Alternatives	Total Score	Timeframe	Estimated Cost: Low Range	Estimated Cost: High Range	Partners & Resources
E Lake Samm Pkwy NE	Remove middle crosswalk and add it to the east leg (greater effectiveness when combined with mid-term strategy of added southbound through lane)	20.5	Near-term	450,000	600,000	WSDOT, King County
NE 50th St and 218th Ave NE	Close access or make 50th one-way towards the west	19.5	Near-term	90,000	120,000	WSDOT, King County
Corridor Wide	Expand KCM Community Connections, Ride2, Mobility Hub, Just One Trip, Safe Routes to School, and School Pool programs in the Redmond and Sammamish area	N/A	Near-term	N/A	N/A	King County Metro, Schools, Employers, WSDOT
Corridor Wide	Evaluate potential to reroute or add	N/A	Near-term	N/A	N/A	King County Metro,

	KC Metro and Sound Transit service from Sammamish Plateau to Redmond area via Inglewood Hill Road and East Lake Sammamish Parkway					Schools, Employers, WSDOT
Corridor Wide	Implement planned express KCM transit service along SR 202 by 2025 and 2045; Evaluate need for additional bus stops along SR 202.	N/A	Near-term	N/A	N/A	King County Metro
Corridor Wide	Evaluate potential to utilize church parking lots in Sammamish as park and rides during the work week	N/A	Near-term	N/A	N/A	King County Metro, WSDOT
E Lake Samm Pkwy NE	Consider extending bike markings through intersection	N/A	Near-term	N/A	N/A	WSDOT, Redmond
Corridor Wide	Consider installing additional ITS/ driver information signage	N/A	Near-term	N/A	N/A	WSDOT, Redmond, Sammamish, King County

Table 10: Near-Term (2025) Strategies

8.2 Mid-term Strategies (2025-2045)

These strategies are moderate to higher cost improvements that could be implemented to further manage congestion along SR 202. These strategies include the installation of roundabouts at strategic locations, turn pockets, intersection improvements, and potential off-corridor improvements. Mid-term strategies could be implemented between years 2025-2045.

Mid-Term Strategies						
Intersection/ Corridor	Alternatives	Total Score	Timeframe	Estimated Cost: Low Range	Estimated Cost: High Range	Partners & Resources
Sahalee Way NE	Option B Roundabout (Metered)	28	Mid/long term	8,100,000	10,800,000	WSDOT, King County
E Lake Samm Pkwy NE	Make a new southbound through lane in the	20	Mid/long term	1,890,000	2,520,000	WSDOT, King County

	western island: left, left/through, through, right turn slip lane					
204th Pl NE	Extend turn lanes on 204th	20	Mid/long term	1,530,000	2,040,000	WSDOT, King County
NE 50th St and 218th Ave NE	Add a left turn pocket on EB SR 202 to 218th	18.5	Mid/long term	1,350,000	1,800,000	WSDOT, King County
Corridor Wide	Consider establishing a shuttle service on the Sammamish Plateau	N/A	Mid/long term	N/A	N/A	King County Metro, private sector
Corridor Wide	Evaluate installation of bike/pedestrian accommodations	N/A	Mid/long term	N/A	N/A	WSDOT, King County, Redmond, Sammamish
Sahalee Way NE	Evaluate potential for bus only lane connecting to park and rides	N/A	Mid/long term	N/A	N/A	WSDOT, King County, Redmond, Sammamish, King County Metro

Table 11: Mid-Term (2025-2045) Strategies

8.3 Long-term Strategies (2045)

These strategies are the highest-cost options that could provide benefits corridor wide. These concepts include higher-cost roundabouts and additional intersection improvements that would likely be implemented after year 2045.

Long-Term Strategies						
Intersection/ Corridor	Alternatives	Total Score	Timeframe	Estimated Cost: Low Range	Estimated Cost: High Range	Partners & Resources
Corridor Wide	Road diet + corridor-wide roundabouts (188th to Sahalee Way)	18	Long-term	TBD	TBD	WSDOT, King County
Corridor Wide	Evaluate potential for dedicated HOV lane, queue jumps, slip lanes for buses at intersections	N/A	Long-term	N/A	N/A	WSDOT, King County, Redmond, Sammamish, King County Metro

Table 12: Long-Term (2045) Strategies

9.0 Next Steps

The strategies identified in this study will allow WSDOT and other agencies to better manage congestion and improve reliability and operations along the SR 202 corridor between East Lake Sammamish Parkway and 244th Ave NE. Funding is not currently available for any of the recommended strategies included in this report. Because of limited funding availability, grants, partnerships or other sources will need to be pursued.

WSDOT will continue to work with stakeholders and agency partners to implement cost-effective operational and transportation demand management strategies, which can be considered for implementation in the near-term. For strategies that can be considered in the mid-, and long-term, WSDOT will also continue to work with interested partners to pursue strategies that will improve operation of the SR 202 corridor. Recommended solutions must be incorporated into state, regional, and local plans to ensure that they are considered for future funding and implementation.

Appendix A: Stakeholder Meeting Summaries

Appendix A: Stakeholder Meeting Summaries

Study Kickoff Meeting #1

June 12, 2018

Meeting Attendees

Thomas Noyes – WSDOT; Ming-Bang Shyu – WSDOT; Zack Howard – WSDOT; Philip Harris – WSDOT; Steve Leniszewski – Sammamish; Steven Chen – Sammamish; Paul Cho – Redmond; Maan Sidhu – WSDOT; Robin Mayhew – WSDOT; Mike Villmer – King County Parks; Jim Ishimaru – King County Parks; Christian Asuncion – WSDOT; Raveena John – WSDOT; Sean Ardussi – WSDOT; Steven Abernathy – WSDOT

Meeting Purpose and Introduction/Study Background

After round-the-table introductions, Thomas Noyes of WSDOT provided a review of today's meeting agenda and purpose. The purpose of today's meeting is to formally initiate the SR 202 Corridor Study in East King County.

The Washington State Legislature allocated $200,000 in a proviso that directs the Department of Transportation to conduct a study of SR 202 in East King County. The proviso was not very specific on details for this study nor its geographic study area, other than it should be completed during the 2017-2019 biennium and the final report will be delivered to the legislature by June 30, 2019.

After initial WSDOT discussions with study partners: King County, Redmond, Sammamish, and Sound Transit, there was general consensus that the defined study area for this study should start at the SR 520 / SR 202 interchange at Marymoor, with the SE 244 / SR 202 intersection being on the eastern limit of the study area. The length of this section of SR 202 to be studied is slightly over eight miles in length.

The future Sound Transit East Link LRT line that will develop a major ST Link station and Park and Ride at SR 520 / SR 202 at Marymoor, due to open in late 2023 and this will be a major regional draw for future commute trips. Although there are recognized benefits to this new Sound Transit Link station at SR 520 / Marymoor, there is also concern and recognition by the city of Sammamish and others that this facility will be a major draw for regional trips and that many of these trips could use the SR 202 corridor, adding to future expected congestion.

The SR 202 Corridor Study will be undertaken employing the WSDOT Practical Solutions approach, whereby low-cost strategies, solutions, and improvements are considered first. Low-cost strategies that could be considered in this study could include a variety of Transportation System Management (TSM), Transportation Demand Management (TDM), incremental transit service enhancements, relatively low-cost traffic operations improvements and similar other low-cost elements.

Initial Outreach – What We have heard

Thomas Noyes briefly reviewed key themes and issues we heard during our initial outreach to study partners. We wanted to confirm that we have heard all key issues and concerns from our partners.

Traffic/Travel-Demand

- Sound Transit-3 / East Link at Marymoor will be a key driver of future transportation demand on the SR 202 corridor when East Link opens at Marymoor in 2024.
- Signal timings/operations and traffic impacts at the SR 520 / SR 202 interchange at Marymoor is a critical need as the gateway to the SR 202 corridor to the southeast.
- Need to evaluate and consider optimizing signal timings along SR 202 proximate to Redmond/Marymoor and in the Sammamish area (see SR 202 corridor map)
- Improvements to signal timing/phasing along SR 202 in Redmond area/Marymoor and elsewhere are of interest to Redmond.
- The intersection of SR 202 and Sahalee Way in Sammamish is critical need for the city of Sammamish. Despite the recent signalization of this intersection, the near-term and future levels of operations and congestion at this intersection are problematic. Possible need to consider long-term, high-cost intersection improvements (grade-separated I/S?)
- The SR 202 intersections at 228th and 236th Avenue SE are also critical for transportation circulation/function within and to the city of Sammamish. Also likely candidates for long-term, high cost capital improvements (?)
- SR 202 at Marymoor serves as a 'barrier' to nonmotorized access to Marymoor Park. This is an issue going forward as ST-3 / East Link opens in 2024 (short-term non-motorized access need to address?)

Transit:

- Metro Transit only has limited fixed-route service on the north-end of the SR 202 corridor (#219 / #268 routes?). However 'Metro Connects' / Community Connection demand-responsive services are being considered/developed for east King County and could serve part of future transit demand along the SR 202 corridor.
- Opportunities to evaluate/implement transit-signal-priority (TSP) on the SR 202 corridor are of considerable interest to Metro. TSP should be considered as part of the "Practical Solutions" approach in this study.
- **Sound Transit Marymoor P&R Lot**: Sound Transit recognizes the East Link 1,400 stall-parking garage will be a major regional draw of regional trips throughout the corridor and is committed to working with the cities of Redmond and Sammamish in addressing these impacts.

Non-motorized:

- East-West nonmotorized access across Sammamish and to/from the East Lake Sammamish off the SR 202 facility is a key interest and need for King County and Sammamish.

- With over three million+ annual visitors to Marymoor and an increasing number of them arriving on ST East Link when it opens in 2024, improved nonmotorized access across the SR 202 corridor at Marymoor is a key need.
- The city of Sammamish has invested over $1.5M in improvements to their nonmotorized network. The short-term Practical Solutions study options should build upon this investment.

Land-Use / Modeling

- **Sammamish:** The horizon year for the Sammamish Comprehensive Plan is 2035.
- **Redmond:** The horizon-year for Redmond's comprehensive plan is currently 2030. Their comp. plan update will extend to year 2035 and beyond
- **Study Horizon Year:** 2035 per discussions with King County, Redmond, Sammamish, and Sound Transit. An interim (7-10 year) analysis horizon year of 2025 appears to be reasonable and preferred among partners.
- **Travel-Demand Model:** In order to focus on the subarea level of modeling analysis needed for the SR 202 Corridor Study, the Bellevue-Kirkland-Redmond (BKR) subarea model is the most appropriate forecasting tool for this study. The PSRC Travel Demand model will be consulted for confirming consistent land-use assumptions on the SR 202 corridor.
- Development and growth along the Sammamish plateau is driving growth in travel-demand along the SR 202 corridor as well as growing employment growth in Redmond (Microsoft), Redmond Town-center development as well as growth outside of the immediate SR 202 corridor study area (Bellevue, Issaquah, SE King County, etc.)

Community Engagement

- The city of Sammamish indicated interest in "up front" community engagement and outreach. The limited study budget of $200,000 will limit the amount of outreach possible in this study
- The Sound Transit East Link project has conducted a fair amount of community engagement and outreach, though this effort has been focused on ST East Link related issues, it could be helpful input for the SR 202 Corridor Study in identifying community issues and concerns related to the current and future function of SR 202.
- WSDOT has communications staff and resources available to develop a study website, community survey, ongoing communications, etc.
- Though WSDOT does not expect to host a public open house for this study, it is possible WSDOT and the study team could participate in community fairs or related public outreach efforts in order to provide the public information regarding the SR 202 Corridor Study and seek public input.
- Agency briefings to elected officials regarding the SR 202 Corridor Study will likely occur at appropriate study milestones to communicate key study issues and findings.

There was some discussion about key themes and issues summarized during this discussion item, but there was no mention of any key issues or concerns being missed during our initial outreach to study partners.

Study Approach / Traffic Modeling – Analysis and Further Community Outreach

There was some discussion regarding the approach to modeling for the SR 202 corridor, namely which regional /sub regional modeling tool would be most appropriate. The city of Bellevue has a DTA Meso-model but it is not clear if their meso-model extends out as far as the SR 202 corridor and the Sammamish / Redmond-Marymoor area. WSDOT has also developed a project model for the I-90 / Front Street Intersection Justification Report (IJR) analysis in downtown Issaquah. There is also some question about the geographic extent and relevance of the I-90 / Front Street IJR model for this study.

The WSDOT Traffic / Technical modeling staff will follow-up with local city staff and the city of Bellevue regarding unresolved modeling tool questions. There was consensus among all of the study partners present today that 2018 will be the study base year, 2025 will serve as an interim (near-term) horizon year and 2035 will serve as the long-range (20-year) horizon year for the study.

There was also some discussion among the local study partners about the need to engage some of the bicycle and nonmotorized advocacy groups. It was suggested that WSDOT reach out to the Cascade Bicycle Club and Feet-First to solicit their needs and ideas for the SR 202 corridor in Redmond and Sammamish. The city of Sammamish provided contact information for Microsoft's Transportation / CTR Coordinator, Jim Stanton, and WSDOT staff will reach out to Jim to solicit Microsoft's interest in this study and potential to participate in it. The WSDOT project team staff will also reach out to the Cascade Bicycle Alliance, Feet First and any other bicycle/non-motorized interests that might have interest in this study.

There are a number of primary / K-12 schools along the identified section of the SR 202 corridor in the Redmond and Sammamish area. These schools include:

- East Lake Catholic Junior / Senior High School
- Bear Creek School / unincorporated King County
- Montessori School (at NE 50th)

WSDOT study team staff will reach out to these schools and to the Lake Washington and Snoqualmie Valley School districts to gauge their interest in transportation / traffic issues on and adjacent to the SR 202 corridor as well as to get a better understanding of their transportation needs, particularly related to school bus operations on and along the SR 202 Corridor.

There was also some discussion about private, shuttle transit operations on and along the SR 202 corridor who should also be consulted. Several partners suggested the Microsoft Connector shuttle service could operate among some sections of the SR 202 corridor. Hope link is a non-profit service provider that is understood to operate a number of demand-responsive shuttle services on the eastside, including (possibly) the SR 202 corridor in and around Sammamish.

There are also several private firms such as Google, Amazon and others who might operate private shuttle services for their employees on and along the SR 202 corridor. T-Mobile operates a shuttle service from Issaquah / North Bend to Eastgate, but it is understood that this service does not operate on or proximate to the SR 202 corridor. WSDOT staff will follow-up with Microsoft to engage their transportation coordinator, learn more about their transportation needs as well as follow-up, and research other potential transportation service providers on and along the SR 202 corridor in the Redmond / Sammamish area.

There was some discussion regarding the city of Sammamish / WSDOT ITS project on SR 202. WSDOT supported the city of Sammamish in their May 2016 ITS application for grant funding for ITS applications on SR 202 in and proximate to Sammamish. This ITS grant award is funding camera and signal system ITS amenities at three (3) intersections along SR 202 (228th, 236th, and 244th Avenue NE). There is also CMAQ (?) funding available for several intersection signal improvements / ITS interconnects as well. The short-term (0-6 year) traffic analysis should consider incremental operational performance improvements that could result or be tied to this ITS project on SR 202.

Practical Solutions Overview and Approach

Thomas Noyes provided a short recap about WSDOT's Practical Solutions and reminded the participants that our study will be undertaken using the Practical Solutions approach. The concept of Practical Solutions is to focus on appropriate, cost-effective transportation investments at the right place and time for the lowest possible cost. Practical Solutions is focused on being "stewards" of the transportation system, not merely about "delivering projects" as the outcome of the planning and programming process. An increased focus on transportation system performance is key for Practical Solutions.

It is important to note that another key consideration for the Practical Solutions approach is the nature of a proposed strategy or investment and where it could be located. Sometimes the appropriate strategy for a given deficiency will not going to be on the state facility itself. It might end up being an improvement on a local arterial, an investment in transit, or a non-motorized facility improvement or strategy.

There will be good opportunities to identify and consider various "off-system" Practical Solutions options given there are a number of multimodal needs (roads, transit, and active-transportation) to consider both on and off the SR 202 facility. Multimodal access to the ST East Link Marymoor Transit facility will be a major component of the Practical Solutions approach and consideration in this study.

Definition of Study "Success" and Next Steps

The final discussion item today was about identifying Study "success" measures, namely how would we know if we are "successful" in delivering study outcomes and expectations among study partners. Thomas briefly discussed this and our desire to understand and incorporate partner expectations and ensure a successful study outcome:

The identified success factors during this discussion item included the following:

- The north end of the SR 202 corridor study area (Redmond) act as a "funnel" with the SR 202 / 520 interchange and Novelty Hill Road serving as inputs into this funnel into Redmond CBD. Multimodal and safety considerations are critical for this "funnel" section of SR 202.
- "Managing Congestion" and recognizing that we are not going to "solve" congestion as a study expectation and outcome is a critical study consideration.
- Defining goals, objectives, and performance measures for active transportation (bike and pedestrian) are critical for this study.
- Though there is minimal transit service on this section of SR 202, consideration of expanded transit service in this study is an important consideration and transit performance/opportunities in the future is an important outcome.
- Adaptive signal controls and/or further ITS amenities for peak-direction travel S/B considered.
- Channelization and/or spot intersection improvements for consideration as part of the Practical Solutions approach and outcomes in the study.
- Clearly define study goals to confirm what it is in terms of the study problem definition.
- Taking care to manage the study outcomes in terms of public expectations. Make sure they understand this study is not about "solving" congestion on the SR 202 corridor.
- Understand the downstream/upstream system impacts of proposed strategies/solutions/projects that come out of this study. Understand how these improvements will affect other parts of the regional system that are off the SR 202 corridor itself.
- Private transit services: Can they fill in as surrogate to existing and/or future public transit on the SR 202 corridor? Future opportunities for these private transit services/providers as a Practical Solutions option and opportunity?
- Opportunities within this study and its findings to improve mass transit on and along the SR 202 corridor?
- The study should emphasize person mobility, not just vehicle mobility along the SR 202 corridor and within the study area.
- Origin-Destinations (O-D) within the SR 202 study area and trade-offs for various options: What (modal?) options might users have relative to these various O/Ds?
- Congestion managements vs. people-movement: WSDOT projects/strategies are starting to consider people movement (versus just vehicle mobility) and this should certainly be the focus in this study.
- Ensure development of a robust package of 20-year multimodal improvements as a study outcome. Identify a primary and secondary priority level for these proposed investments.
- Regional plan coordination/consistency: Recommendations from this study should feed into the King County 20-year needs update and the PSRC T-2040 Regional Plan update.

- The study outcome and recommendations should identify grant-funding opportunities for specific improvement strategies and projects (?) recommended out of this study.
- Set and define clear expectations for recommended active-transportation/nonmotorized improvements as a study outcome.
- Recommended improvements/strategies should leverage ST and other regional investments where possible.
- Regional context of investments off the SR 202 corridor that could affect/influence the SR 202 corridor.
- PSRC is supportive of WSDOT's Practical Solutions approach and encourages the incorporation of a multimodal set of strategies/solutions.
- Community involvement/engagement is important as a study component, but be careful to manage public expectations regarding study outcomes.

Stakeholder Committee Meeting #2

Sammamish City Hall
December 10, 2018

Meeting Attendees
Thomas Noyes, WSDOT MOM Planning
Ming-Bang Shyu, WSDOT - MMPD
Phillip Harris, WSDOT – Regional Transit Coordination
Steven Chen, City of Sammamish Public Works Traffic Operations
Andrew Zagars, City of Sammamish City Engineer
Jed Ireland, City of Sammamish Senior Project Engineer
Steve Leniszewski. City of Sammamish Public Works Director
Christina Asuncion, WSDOT NW Region Traffic
Sujata Goel, King County Parks Division
Nazmul Alam, WSDOT MOM Planning
Paul Cho, City of Redmond Public Works Department

Recap of SR 202 Corridor Study Kickoff Meeting and Status
The Washington State Legislature issued a proviso during the 2017 session, directing WSDOT to conduct a study of the SR 202 corridor in East King County. The legislative proviso directed the Department to employ a Practical Solutions approach in this study. There were no other specific directives in the proviso, other than the final report must be delivered to the legislature by June 30, 2019. The legislature funded this study for $200,000. The limited budget only allows use of WSDOT resources to complete the study.

The focus of today's Stakeholder Committee meeting is on the review of existing conditions and performance of the SR 202 corridor between Redmond and Sammamish.

SR 202 Corridor Study Travel Demand Model: Methods and Assumptions

Ming-Bang Shyu, WSDOT provided a brief update on the methods and assumptions (M&A) behind the development of the travel-demand model for the SR 202 Corridor Study.

The WSDOT Traffic modeling team will be using the I-405 Corridor model as the base model for future SR 202 corridor modeling scenarios. The I-405 Corridor model is based upon the Puget Sound Regional Council's (PSRC) Regional Travel Demand Model. There was initial consideration of employing the Bellevue-Redmond-Kirkland (BKR) model given its geographic proximity to the SR 202 corridor study area, however the BKR model does not included the geographic area of SE Sammamish and rural King County within our study area and so the BKR model would not cover the entire SR 202 corridor study area.

SR 202 Corridor Study Traffic Operations (simulation) modeling and Existing Traffic Conditions Analysis

The base-years for the SR 202 Corridor Study Travel Demand model will be 2017/2018 and the future model horizon years will be 2025 (interim) and 2045 (long-range). There will be both an AM and PM peak period analyses with 6:00 to 9:00 in the AM and 3:00 to 6:00 for the afternoon peak period. The SR 202 Corridor Travel Demand Model is broken down into eight distinct segments broken up by four cordon screenlines.

For the SR 202 corridor traffic operational analysis, WSDOT NW Region Traffic will be employing the Synchro / SimTraffic Tool for the intersection level operations analysis. The Synchro / SimTraffic program is based upon the Highway Capacity Manual (HCM) 2010 methodology. This Synchro operational analysis will have a base-year of 2015 and similar to the SR 202 Travel-Demand model; will have mid-term interim horizon year of 2025 and a long-term horizon year of 2045. The key focus of the traffic operations analysis using Synchro / SimTraffic is intersections and short corridor segments. WSDOT Region Traffic has identified ten key intersections for traffic analysis along with the SR 520 / West Lake Sammamish Parkway freeway interchange ramps.

There was a question about inclusion of the NE 70th intersection in this analysis, where the Sound Transit LINK LRT station will be located. Sound Transit is about to complete 30-percent design at this station location and WSDOT and the City of Redmond are coordinating with ST on this design process. This intersection is complex for operations analysis and potential solutions due to the skew angles of several intersection leg approaches. Despite the geometric complexities of this intersection (NE 70th / MP 8.02), it is included for traffic analysis in the SR 202 Corridor Study.

Maan Sidhu briefly reviewed the overall daily traffic volume counts on the SR 20 corridor from Redmond – Marymoor to Sammamish (slide #9). Daily traffic volumes are heaviest on the west-end of the corridor proximate to the SR 520 / West Lake Sammamish Parkway interchange ramps and the NE 70th intersection, whereas daily volumes drop further east on the corridor near Sammamish and beyond.

There was a question about the approach volumes shown on Sahalee Way to SR 202 (NB-to-WB) and how the displayed volumes appear to be low. The approach volumes on Sahalee Way NB and SB outside of this intersection are not shown as part of this intersection summary on the presentation. There was a request to include a summary graphic showing the Delta for this intersection (with Sahalee Way NB/SB approach volumes) as well as the SR 202 intersections at SE 204th, 228th, and 244th, which also apparently did not include arterial approach volumes to these intersections.

There was a comment from the City of Redmond regarding traffic that exits off SR 202 onto East Lake Sammamish Parkway and diverting off SR 202 as well as north-south movements on West Lake Sammamish Parkway and Sahalee Parkway and adding traffic to the SR 202 corridor. Development up in King County on the hillside to the east (?) of the SR 202 corridor is also driving traffic demand growth on and proximate to the SR 202 corridor.

Maan briefly reviewed the overall corridor performance summary during the AM peak (Slide #10). This performance summary includes approach LOS delay and queue length as well as total intersection LOS. As shown in slide ten of the presentation, SR 202 at East Lake Sammamish Parkway has an intersection LOS performance level of 'F', with major NB and WB delays. The SR 202 intersections at 185th Avenue NE and 118th Avenue NE have AM peak period intersection LOS of 'E', with intersections further east on the SR 202 corridor performing at LOS C or D during the AM peak period.

The remainder of this discussion focused on an intersection-by-intersection level performance summary:

1) East Lake Sammamish Parkway NE & SR 202 (Slide #10)

Maan spoke about the intersection volumes at this intersection were adjusted upward in existing conditions operations analysis to reflect the difference between actual and observed queue lengths and discrepancies in available volume counts. Determining lane utilization at this intersection is also challenging due to the geometry of the different approach lanes and driver behavior. The existing conditions analysis here included evaluation of saturation flows and calculated versus actual lane volume totals.

This intersection is challenging in both the AM and PM peak periods with it being a skew intersection with long pedestrian crossings across this intersection. There are high demands on the curb lane and WB right-turn lane demand.

2) SR 202 / 192nd Intersection (Slide #11)

The WB AM peak queue here is 1,863 feet in the length. The key takeaway is that this intersection, along with SR 202 at 185th Avenue NE and 188th Avenue NE are the most congested intersections WB during the AM peak with the longest queue lengths.

3) SR 202 / 185th Avenue NE Intersection (Slide #12)

There is a slightly different AM demand peak-period at this intersection, from 8:30 – 9:30am. There is a question as to whether or not the queues form the East Lake Sammamish Parkway intersection start backing up into this intersection (WB) during the AM peak period. Maan explained that the SimTraffic analysis would be able to capture this impact if it is in fact occurring.

4) SR 202 / 188th Intersection (Slide #13)

The westbound morning peak period (8:30-9:30am) has predictable queue delays.

5) SR 202 / 192nd Intersection (Slide #14)

The morning (AM) peak-period is from 6:45 to 7:45 and queue length in the westbound direction is in excess of 1,800'. The 196th intersection, which is just east of this intersection, was not included in the traffic analysis owing to the fact that it is a "right-in / right-out" controlled intersection.

6) SR 202 / 204th Place NE (Slide #15)

No issues /comments.

7) SR 202 / Sahalee Way Intersection (Slide #16)

The big issue at this intersection is the queue length WB) at this intersection. The actual queue length was calculated in Synchro at 939 feet. The future conditions analysis will need to incorporate the lengthening of the northbound queue off Sahalee Way to SR 202 WB.

8) SR 202 / 218th Avenue NE / NE 50th Intersection (Slide #17)

This is a challenging intersection due it being a stop controlled intersection on a horizontal curve. There are safety related performance concerns at this intersection.

9) SR 202 / 236th Avenue SE (Slide #19)

The AM peak at this intersection occurs from 7:45 to 8:45. There is a shopping center proximate to this intersection (access management concerns?)

10) SR 202 / 244th Avenue SE (Slide #20)

The City of Sammamish asked if WB queue length shown here actually should be longer than shown on the graphic. Based upon the city's expertise and understanding, this queue should be longer. The traffic analysis shows the AM peak period being from 6:45 to 7:45 at this intersection, but there was some question as to whether or not this matches the actual congestion peak period on SR 202 itself. The Synchro traffic analysis should address this concern.

SR 202 Corridor Intersection PM Peak Period Analysis

Maan explained that the intersections at the west end of the SR 202 corridor under study really serve as the "controlling" intersections for traffic flow eastbound during the PM peak period.

1) SR 202 at East Lake Sammamish Parkway NE

The PM peak period EB here is from 4:00 to 5:00pm. This intersection experiences similar operational issues during the PM peak period that it does during the AM peak period although in the opposite direction. There was some question about the high (1.090) volume in the WB direction here on SR 202 during the PM peak.

2) SR 202 at 185th Avenue NE

(No discussion, skipped to SR 202 / Sahalee Way I/S pm analysis)

3) SR 202 at Sahalee Way NE

Maan explained the SR 202 intersection with Sahalee Way has been the subject of ongoing focus by the WSDOT Traffic Signal Operations Group. In some respects, the operations and capacity of this intersection at Sahalee Way is really the impetus for studying this stretch of SR 202.

The eastbound PM peak-period directional approach will be the focus of the future modeling analysis and identification of baseline performance gaps. In addition, the eastbound right-turning movement off SR 202 to Sahalee Way is a key movement and need. City of Sammamish staff indicated that their consultant has (?) done some analysis of this critical movement and the suggested improvement could be a dual RT lane as a solution.

4) SR 202 at 218th/228th/236th Intersections

There were no observed PM delays or performance issue concerns at these intersections along the SE section of the SR 202 corridor.

5) SR 202 at SE 244th Intersection

No discussion and no observed delays or performance during the PM peak period. PM peak period is during 5:30 – 6:30pm.

SR 202 Corridor Travel-Time Analysis

Maan briefly described the summary of AM peak-period travel time analysis, with a comparison of the actual GPS travel time runs with drivers, versus observed travel-time results from the Synchro model results. Maan reported that for the AM peak period runs, the Synchro model results closely match the actual GPS travel-time runs performed.

However, the PM peak travel times calculated in Synchro for the SR 202 corridor were substantially longer than the actual observed results from GPS drive runs (23 minutes versus 11 minutes). This could be due to a number of different factors, including Synchro program calibration issues, model assumptions about queue lengths, gaps/delays per intersection, or other unrelated concerns.

Another question is the issue of the schools along this stretch of SR 202 in and proximate to Redmond and Sammamish and the peaking of traffic related to school day

end times (3:30 – 4:30). It does not appear that this school PM peak-period traffic flow unduly influences the overall PM peak periods, but it is unclear as to whether or not it is reflected in the Synchro model results either.

Paul Cho spoke of his experience as a long-term commuter on the SR 202 corridor through this section. During the early-to-mid 1990s, when traffic congestion and delay really began to appear on this stretch of SR 202 between Redmond and Sammamish, the average WB AM travel time was 17 minutes. The City of Redmond and WSDOT worked together to coordinate and optimize intersection signal timing plans and this average travel time was reduced to less than 12 minutes. Now, the average WB AM commute time is 13 minutes. The bottom-line is that although the public perception is that optimizing intersection signals is a panacea to growing congestion and delay, there is only so much performance to be gained in optimizing signal timing.

Safety

Maan briefly the crash history on this section of the SR 202 corridor (Redmond-Marymoor to SE 244th Intersection). WSDOT NW Region Traffic is collecting and compiling crash history on SR 202 for the most recent five-year period (2013-2018). The overall number of crashes peaked in 2016 with a slight reduction in year 2017. The crash summary statistics for the full year 2018 are not yet available.

There was one fatality on this section of the SR 202 corridor in August of 2014. It occurred on a Sunday and was an alcohol-involved crash. This fatality crash occurred at milepost 12.5, between the SE 236th Avenue and SE 244th intersections on the SR 202 corridor.

Closing / Next Steps.

There was some discussion about possibly holding a separate technical “workshop” with study partners to conduct an intersection-by-intersection level analysis of operational issues/needs and potential solutions. WSDOT will coordinate with the SR 202 Study partners to determine when this separate workshop could be scheduled and/or whether or not there would be an extended Stakeholder Committee meeting in lieu of this workshop. We expect this next meeting will be held sometime in late January or early February of next year (2019), depending upon completion of future (2025/2045) baseline model development.

Meeting adjourned at 4:20pm.

Stakeholder Committee Meeting #3

Redmond City Hall
March 21, 2019

Meeting Attendees:

Name	Organization
Daniel Heldring	CBRE, Microsoft
Isabel Diaz	City of Sammamish
Jed Ireland	City of Sammamish
Thomas Noyes	WSDOT
Hannah Plummer	WSDOT
Ally Barrera	WSDOT
Maan Sidhu	WSDOT
Christian Asuncion	WSDOT
Nazmul Alam	WSDOT
Phil Harris	WSDOT
Bruce Newman	City of Redmond

Intersection: SR 202 and Sahalee Way:

- Jed wants to see specific queue length approaching Sahalee for right hand turns
- Design/operations suggestions:
  - roundabouts/turbo roundabout [one NB, one WB lane to create two lanes WB, WB slip lane]
  - EB bridge widening might be required – right turns slowing down through traffic, would the turbo take away the need for widening?,
  - opportunity for corridor-wide roundabouts, from 188th to Sahalee?,
  - existing roads have potential to reduce flow off Sahalee (bypasses, effectively)
  - extend storage of 2nd WB through lane and NB turn lane, so more efficient after initial portion of green light
  - Park and ride potential from Sound Transit – this is one potential location for this. Would be part of the east link extension.
  - County will be expanding the turn lanes WB onto SR202, will be completed this summer?
  - Bike lane would add to the “emerald city” plan that the city has to support active modes.
  - Bus only lane to get from park and ride – to extend full corridor, or some kind of TSP?
- There is a current project that will extend NB left turn lane up to 50th

Intersection: SR 202 and East Lake Sammamish:

- Design/operations suggestions:
  - Redmond looking at a few options: EB 202 – right turn backs up, capacity could be improved with some channelization changes; another option to make a new thru lane in the western island, crosswalk works decently well now, looking at

moving the crosswalk to provide more direct connection; change triple left to double left with a through/right; 70th extension is still in development (likely in next 4 years).
    - Peanut roundabout (hard for peds)
    - extend bike markings thru intersection
    - Need to understand how long are ped crossings, light phases?
    - crashes are mostly congestion-related…congestion management would likely help with some of the rear end crashes
    - Flyover option? (not feasible)

Intersection: SR 202 and 50th and 218th:

- Design/operations suggestions:
    - roundabout near Montessori school
    - close access or make 50th one-way towards the west
    - left turn to get to 218th
    - restrict turning movements for people going in and out of 218th
    - realign 218th and 50th to make them 4-way intersection
    - wider EB shoulder to get around left turning traffic?
    - left turn lane

Intersection: SR 202 and 204th:

- Design/operations suggestions:
    - extend turn lanes up to 44th?
    - bike infra; ped crosswalk signal
    - roundabout
    - SB dual lefts to EB so green light is shorter

Intersection: SR 202 and 192nd:

- Design/operations suggestions:
    - bike lanes, sidewalk infra
    - high speeds might mean potential for road diet?
    - roundabout
    - extend bike lanes
    - can EB left turn change from protected to protected only?, like flashing yellow arrow

Intersection: SR 202 and 187th/188th:

- Design/operations suggestions:
    - Roundabouts
    - bike sidewalk infra
    - 202 weight-loss plan

Next stakeholder meeting – mid/late April; alternatives development, then screening. Final meeting mid/late May, results/alternatives screening. The report needs to be done by June 30th.

Stakeholder Committee Meeting #4

Sammamish City Hall
May 30, 2019 1-4PM

Meeting Attendees:

Name	Organization
Paul Cho	City of Redmond
Emily Durante	WSDOT
Nazmul Alam	WSDOT
Maan Sidhu	WSDOT
Christian Asuncion	WSDOT
Jed Ireland	City of Sammamish
Thomas Noyes	WSDOT
Andrew Zagars	City of Sammamish
Steven Chen	City of Sammamish
Debbie Jaksich	King County Metro

Alternatives Evaluation Process

- Development and Screening
- Performance Metrics
- Performance Evaluation

Maan provided a description of the process:

- The alternatives analysis focused more on near-term channelization at East Lake Samm
- Salahee way: there was an opportunity to think bigger and consider different levels of roundabouts
- At 50th/218 intersection: There was not really a mobility issue there, but rather a safety issue

Jed Ireland asked if Sound Transit and King County Metro have committed to exploring these options. Thomas Noyes responded that they have, but that they were not a part of development of the planning-level cost estimates. Jed further asked if Sammamish needs to initiate some of these concepts. Thomas Noyes responded that they should, and that this is something that will be called out in the SR 202 report as well as the Sammamish City Council Presentation.

Alternatives Analysis and Recommendations

- Maan noted that there is a real opportunity for a roundabout at Salahee, but that we don't know how that might affect the rest of the system
- Maan further described how operational changes at East Lake Samm might benefit vehicular flow
- Attendees noted that they are supportive of an expansion of King County Metro's SchoolPool program – They commented that it is the embodiment of Practical Solutions and they think it can make a different in Sammamish.
- An attendee noted that connectivity is an issue with connecting streets east-west in Sammamish – there are lots of cul-de-sacs
- An additional issue was raised about elevation challenges with cycling

- Paul Cho raised whether or not a “park and bike” facility might be beneficial
- An attendee noted that there is often debris on the shoulder on SR 202, and that it’s not attractive to bike at all
- Debbie Jaksich noted that King County Parks is planning to pave a 3 mile gap on the East Lake Sammamish trail
- Thomas Noyes noted that WSDOT’s statewide Active Transportation Plan will address local needs
- Debbie Jaksich noted that King County Parks is building a lot with restrooms at Inglewood and East Lake Samm

- Maan then discussed the scoring criteria
  - The larger list with all scores will be included in the full report. It will identify which ones were included for analysis
  - Steven Chan asked about modeling to clarify when modeling the near and mid-term, if year 2018 was used as the base model. Maan noted that the scores are based on 2025 model, but that all counts are based on 2018, and model takes it to 2025 and 2045.
  - East of Salahee when it narrows to two lanes, the modeling looked at widening. Traffic volumes were not high enough to warrant that (also ROW and environmental issues)

- Maan discussed using two modeling systems to examine local and synchronized roundabout configurations. The modeling team analyzed three different alternatives:
  - A single circulating ring. It failed, we need more capacity for NB-WB movement
  - Two full circulating lanes, with meter. Showed great mobility improvements but is very expensive
  - Compromise: two circulating lanes for NB-WB; single lane for EB through movement and metering the EB movement
  - Considering next steps: how does this affect the system?
    - Meter all three legs of the roundabout… will have a tool to manage system input onto 202
    - For another study, examine in microsimulation
    - Suggests including as a project in their TIP to do simulations for East Lake Samm and Salahee intersection
  - The report will show the baseline model outputs for the roundabout concepts.
  - In the EB PM peak: with no build, congestion is the worst
  - Salahee becomes one lane after 800 feet

- Paul Cho noted that at the Whole Foods corner, he wants a free right for traffic on SR202 turning eastbound. Maan noted that we considered this, but it causes issues with weaving. Raised channelization would be required to prevent collisions; may need to revise driveway access. Continue right turn lane would be needed all the way to the intersection, so we ruled it out.

Improvement Strategies: Near-, Mid-, and Long-term

- East Lake Sammamish - PM peak was used for the base analysis
  - Suggests moving crosswalk – would need to rebuild island
  - Did not have a huge change in intersection mobility
  - Pedestrian mobility: two stage crossing

- At attendee asked if it would be possible to consider a pedestrian bridge. Maan responded that this is outside the scope of this study
- The concept moves crosswalk out of the intersection and therefore increases throughput with mainline lanes
- SB traffic benefitted greatly
- Challenge to get AM peak down (WB)
- Jed Ireland noted that the Mayor has concerns about AM going down East Lake Samm. He suggests not mentioning LOS for council presentation.
- Maan noted that we don't have travel times for these improvements. We have travel times for no build in 2025 and 2045. Times almost doubled. A VISSIM model needed to look at the whole system and all chokepoints.
- Can you maintain mobility when you take away a lane for transit, by implementing roundabouts? Dieting the cars.
  - Maan noted that this would be good for livability, but Jed noted that the council may not support – their focus is on cars
- Debbie noted that on the SR 518 corridor, they have up to 500 trips a day on Ride2 going to light rail. Very successful.

- Sammamish noted that the roundabout at Salahee Way is preferred
  - Council will be more focused on Northbound
- PM Peak @ Salahee –
  - NB: if we have option B, its still an impact to traffic. Is there metering for intermittent relief for NB queue?
- An attendee noted that they want to see 2045 LOS tables
- An attendee asked if making a NB bypass on Salahee would be helpful
  - Maan noted that only 48 cars make a right turn, not a huge benefit.
- An attendee asked what the modeling team used for AM and PM times
  - Maan responded 7 to 8 am and 4-5 pm, but that they had to calibrate to match the queues in the video and travel time runs. We pushed more traffic into the model.
- Andrew noted for the ITS concept that there is an active grant where this is part of the scope. They're adding CCTV and fiber network throughout the corridor. WSDOT: this would be additional ITS - will add clarifying language
- For the installing bike/ped accommodations concept, Phil asked if there is an opportunity for a bike lane. Maan responded that we explored road diets in conjunction with roundabouts. We still want to explore that as a high-level concept, but we're focusing on near-term first. More to come.
- The road diet concept would need much more analysis and community engagement.
- Regarding the bus-only lane concept, Bear Creek Park and Ride was mentioned. Jed asked if this concept would that be on the existing road. There's currently four routes on SR 202, and Debbie noted that Metro won't start making decisions for 2040 until 2024, when Redmond light rail goes in.

Draft Report

The report suggests local efforts that can work together to make a larger improvement than individual actions alone.

Next steps and adjourn

- The project team will share the 202 web survey with the council

- An attendee asked once the report is approved and goes to the legislature, what does the council need to do from there?
- Debbie noted that there is SchoolPool funding until 2020. They should take advantage of "near-term" right now.
- Thomas suggested emphasizing that this is an initial study that will get the ball rolling

Appendix B: Public Survey Results Summary

Appendix B: Public Survey Results Summary

State Route 202 is an important east-west link for King County communities like Woodinville, Redmond, Sammamish, Fall City and North Bend. Due to growth and development in these communities and lack of adequate parallel routes, traffic on SR 202 has increased a lot in the last decade, contributing to congestion and longer travel times for commuters and freight. To address these concerns, WSDOT is conducting a corridor planning study on SR 202 from East Lake Sammamish Parkway in Redmond to 244th Avenue Northeast in Sammamish. The study will help:

- Determine priorities for future highway needs or transit service adjustments.
- Develop practical, cost-effective concepts and practices to help improve corridor performance, trip reliability, and safety.

As part of this study, WSDOT administered an online survey to gather input from the users of SR 202. Nearly three-thousand people participated in the survey, including local residents and businesses and emergency services.

Survey results and trends

In the survey, more than 98% of the 2929 respondents said they used a private vehicle when traveling on SR 202. Almost 5% said they also bike or walk along the highway, while nearly 4% said they ride in a carpool/vanpool from time to time. Respondents were able to select more than one mode of transportation.

More than 70% of respondents said they travel on SR 202 daily, while 18% said they use it weekly. 7% reported using the corridor monthly. Survey respondents were almost evenly split when it came to determining which section of SR 202 they believed most needed improvement. 27% of respondents thought the section of SR 202 between East Lake Sammamish Parkway and Sahalee Way most needed improvements. 26.5% said the section between Sahalee Way and 236th Avenue Northeast needed improvements, followed by 26% for intersection of SR 202 and East Lake Sammamish Parkway. Lastly, 20.5% thought the section between 236th and 244th Avenues Northeast most needed improvement.

Respondents had the opportunity to write their own suggestions of areas in need of improvement. Nearly half of 480 write-in answers mentioned the SR 520/SR 202 interchange, as well as the intersections of SR 202 at Ames Lake Road and Tolt Hill Road. However, all three locations are outside the study limits and scope of this planning study.

The online survey also asked which of the following priorities was most important to SR 202 users: Improving travel reliability, managing congestion, reducing crash potential, improving transit service, improving bicycle travel or improving pedestrian facilities. 21% considered managing congestion their top priority, followed by improving travel reliability and improving safety at 20% and 19%, respectively. 13% considered improving transit service a top priority.

11% gave top marks to improving bicycle travel, while 9% said improving pedestrian facilities was their top issue.

When asked what future work they would most like to see done on SR 202, more than three-quarters of respondents said they want WSDOT to add more lanes to the highway. Nearly 60% also said they were interested in seeing operational adjustments on the corridor, such as changes to signal timing at key intersections or improved signs for travelers. 43% said they would appreciate wider shoulders for reduced crash potential on SR 202, and 25% wanted to see more alternative transportation options – like transit and metro – along SR 202.

There were 558 respondents who also wrote in other suggestions for future work. Of those respondents, 20% wanted WSDOT to install more turn lanes along SR 202, while 8% wanted WSDOT to build more roundabouts and 4% wanted lower speed limits on SR 202.

Appendix C: Existing and Future Conditions Technical Memo

State Route 202 Corridor Study
Existing Traffic Conditions Tech Memo

Introduction

State Route (SR) 202 is a 30-mile long corridor that runs roughly east to west between SR 522 and I-90. It is an important commuter and freight corridor for King County communities like Woodinville, Redmond, Sammamish, Fall City, and North Bend. This corridor study focuses on an approximately five-mile section of SR 202 that runs between East Lake Sammamish Parkway in Redmond and 244th Avenue Northeast in Sammamish (MP 8.22 to 13.00). Near East Lake Sammamish Parkway, SR 202 passes through commercial and mixed-use zones. The eastern portion of the corridor becomes increasingly low-density residential and serves suburban housing developments, schools, and commercial land uses.

Due to current and projected growth in commercial and residential activity in the cities of Redmond and Sammamish and along the corridor, vehicular congestion along SR 202 has increased substantially, resulting in longer, less reliable travel times for commuters and freight. This study examines current and future corridor conditions and develops potential congestion management strategies and safety improvements that can be implemented using WSDOT's Practical Solutions framework.

Purpose of This Technical Memorandum

This Technical Memorandum documents the existing traffic operating conditions on the section of SR 202 under study, i.e. from Redmond – Marymoor immediately to the southeast of the SR 520 / SR 202 interchange in Redmond at the intersection with East Lake Sammamish Parkway (MP **8.22**) to the SR 202 /244th Avenue SE intersection (MP **13.00**).

SR 202 – Redmond-To-Sammamish Roadway Corridor Characteristics

SR 202 is classified under WSDOT's Route Classification system as a U2 Urban Minor Arterial from the SR 202 / East Lake Sammamish Parkway intersection in Redmond to the SR 202 / 244th Avenue NE intersection.

SR 202 has two through travel-lanes in each direction of travel from the East Lake Sammamish Parkway intersection in Redmond to the Sahalee Way Intersection, immediately north of Sammamish. This stretch of SR 202 also includes turning lanes and turn pockets at several key intersections. East of the SR 202 / Sahalee Way intersection, SR 202 narrows down to one through travel-lane in each direction with some intersection channelization (turn pockets/turn lanes) at key intersections.

The right-of-way (ROW) width varies 90 feet on the urban sections of SR 202 in Redmond to approximately 30-35 feet on the more rural sections of SR 202 east of the Sahalee Way intersection. The posted speed limits on SR 202 are 35 miles-per hour (MPH) on the urban portion of SR 202 through Redmond up to 55 MPH on the more rural segment of SR 202 SE of the SR 202 / 188th intersection.

Intersections Analyzed on this section of SR 202

This section of SR 202 from Redmond – Marymoor to SE Sammamish / 244th Avenue SE includes eleven (11) key intersections in our defined study area. The following table summarizes the 11 intersections in the study area:

Intersection -	Traffic Control	Jurisdiction	Milepost
1) SR 202/ East Lake Sammamish Parkway	Traffic Signal	Redmond	**8.22**
2) SR 202 / NE 185th Avenue NE	Traffic Signal	Redmond	**8.63**
3) SR 202 / 188th Avenue NE	Traffic Signal	Redmond	**9.02**
4) SR 202 / SE 192nd Avenue NE	Traffic Signal	Sammamish	**9.17**
5) SR 202 / 204th Place NE	Traffic Signal	King County	**9.85**
6) SR 202 / Sahalee Way SE	Traffic Signal	King County	**10.22**
7) SR 202 / NE 50th Street	Two-Way Stop	King County	**10.89**
8) SR 202 / 218th Avenue NE	Two-Way Stop	King County	**10.92**
9) SR 202 / 228th Avenue NE	Traffic Signal	King County	**11.73**

10) SR 202 / 236th Avenue NE	Traffic Signal	King County	**12.24**
11) SR 202 / 244th Avenue NE	Traffic Signal	King County	**13.00**

SR 202 Corridor: Baseline Existing Conditions Traffic Analysis (AM/PM Peak-periods, Daily Traffic Volume)

The existing conditions traffic analysis for the SR 202 corridor established a baseline (current) year for analysis of 2018. The future forecast years for this study are 2025 (near-term/interim) and 2045 (long-term). This section of the SR 202 corridor has very pronounced directional peak travel movements in the morning and evening peaks. In the morning peak period, travel on SR 202 is heaviest in the westbound direction and during the afternoon/evening peak period, travel on SR 202 is heaviest in the eastbound direction.

For the morning and evening peak travel-analysis periods, the AM peak period is during 6:00 to 9:00am and the PM peak period is from 3:00 to 6:00pm. The highest actual AM/PM peak-hour for the 11 intersections analyzed in this study varied slightly, but typically, the highest intersection peak-hour occurred between 6:45am to 9:30am during the morning peak and from 3:15pm to 5:30pm during the evening peak.

The existing morning and evening peak hour intersection operational analysis was conducted using the Synchro Traffic modeling program, which utilizes input data including traffic volumes, vehicle approach speed, average operating speed, intersection geometrics (number of lanes, width of lanes, etc.) as well as signal timing/phasing plans to generate performance output on specific, signalized intersections (highest average approach delay per vehicle, average/longest queue lengths, etc.) for these existing conditions.

The Sim-Traffic program is a Microsimulation traffic analysis program that conducts intersection level (micro-scale) performance analysis. It employs data inputs in the form of existing traffic volumes, signal phase timing, etc. to simulate real-world traffic conditions.

A description of the specific intersections and their peak volumes and peak-period characteristics follows here.

SR 202 Corridor Intersection Traffic Operations AM Peak Hour Analysis

A summary of the 11 key intersections for the SR 202 corridor study area between Redmond and Sammamish for the morning peak hour analysis is shown in the below summary table.

In terms of performance and intersection level-of-service (LOS), the SR 202/East Lake Sammamish Parkway intersection is the only intersection that shows a “failing” cumulative condition (LOS “F”) based upon total intersection delay exceeding 130 seconds and an intersection queue length in excess of 2,450 feet.

The SR 202 / 185th Avenue NE and SR 202/188th Avenue NE intersections have westbound (SR 202) approach legs that also operate at LOS F; however, the cumulative intersection performance for these two intersections is LOS E.

All remaining intersections east of these three intersections on SR 202 perform at LOS D or better.

SR 202 Corridor Summary
AM Peak

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.6	370	C	251	2831	F	346.7	478	D	45.5	380
SR 202/185th Ave NE	Signal	E	B	17.7	196	F	1005.5	1209	D	45	37	B	16.3	169
SR 202/188th Ave NE	Signal	E	D	38.1	272	F	84.3	986	E	55.5	125	D	51.3	161
SR 202/192nd Ave NE	Signal	D	A	3.2	74	E	66.2	1863	E	60.3	101	-	-	-
SR 202/204th Pl NE	Signal	C	B	13.5	164	D	38.2	760	-	-	-	D	50.7	287
SR 202/Sahalee Way SE	Signal	D	C	29.3	333	D	38.7	358	D	52.2	939	A	0	11
SR 202/ NE 50th St[2]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[2]	Two-Way Stop	C	A	1.7	5	A	0	0	-	-	-	D	18	26.2
SR 202/288th Ave NE	Signal	D	D	49.7	236	D	47.2	545	-	-	-	C	34.9	213
SR 202/236th Ave NE	Signal	C	B	14.9	100	C	24.5	396	-	-	-	D	40	191
SR 202/ 244th Ave NE	Signal	C	B	13.9	125	C	20.7	193	D	35.8	206	-	-	-

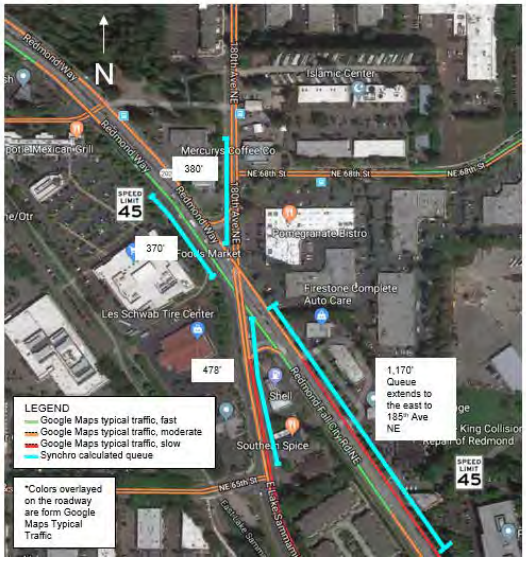
[1]Approach was calibrated to match existing and observed conditions. Existing conditions are LOS F, 130.5 sec delay, and 2425 ft queue.
[2]Stop controlled intersections were analyzed separately

SR 202 / East Lake Sammamish Parkway NE

For SR 202 at the East Lake Sammamish Parkway intersection, the morning peak hour occurs from 8:00 to 9:00am, based upon volumes. The SR 202 through volumes total almost 2,000 vehicles (1,979) in the westbound direction at East Lake Sammamish intersection. There are also high volumes turning off East Lake Sammamish Parkway NE onto SR 202 WB, with 757 vehicles total during the morning peak-hour. There is a substantial queue backup in the westbound direction of travel of SR 202 approaching the East Lake Sammamish Parkway intersection, with a total queue of 1,170 feet.

The slide below provides further specific information on total AM peak hour volumes and queue lengths at the SR 202 / East Lake Sammamish Parkway NE intersection.

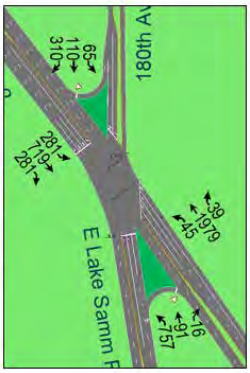
SR 202/E Lake Sammamish Pkwy NE
AM Peak – 8:00AM-9:00AM



	EB	WB	NB	SB
LOS	C	Synchro: C Calibrated: F	F	D
Delay (sec)	32.6	Synchro: 25.0 Calibrated: 130.5	346.7	45.5
95th Queue (ft)	370	Synchro: 283 Calibrated: 2425	478	380

- The original turning movement/traffic count is shown above
- The synchro WB through movement was increased from 1979 vehicles to 2479 vehicles to calibrate and match the observed queue

Turning Movement – 6/5/2018



SR 202/ 185th Avenue NE

The SR 202 / 185th Avenue NE intersection peak hour occurs from 8:30 to 9:30am, based upon highest hourly volumes. The highest AM peak hour volume is in the westbound direction on SR 202, with 1,905 WB vehicles passing through this intersection on SR 202. The approach and turning volumes on 185th Avenue NE are relatively modest, with the highest turning volume on 185th Avenue NB, being 185 vehicles turning right on 185th Avenue NE SB to WB SR 202. Delay for vehicles passing through this intersection is highest in the WB direction, with an average delay in excess of 100 seconds per vehicle. The westbound AM queue length on SR 202 exceeds 1,200 feet.

	EB	WB	NB	SB
LOS	B	F	D	B
Delay (sec)	17.7	100.5	45.0	16.3
95th Queue (ft)	196	1209	37	169

SR 202/188th Avenue NE Intersection

The SR 202 intersection at 192nd Avenue NE experiences its morning peak hour from 6:45 to 7:45am. The highest AM peak hour volume is in the westbound direction of travel on SR 202 with 1,856 vehicles passing through WB during the AM peak hour. The highest approach delay to this intersection is also in the westbound direction on SR 202, with an average vehicle delay of almost 85 seconds. The westbound SR 202 queue length is also significant, with a queue length of 986 feet. Northbound through volumes on 187th Avenue NE (skewing into the SR 202 intersection from the south) are also high, at 564 vehicles during the morning peak.

	EB	WB	NB	SB
LOS	D	F	E	D
Delay (sec)	38.1	84.3	55.5	51.3
95th Queue (ft)	272	986	125	161

SR 202 / 192nd Avenue NE Intersection

State Route 202 at 192nd Avenue NE also experiences its morning peak hour of highest traffic volumes from 6:45 to 7:45am. The highest AM peak hour volume is in the westbound direction of travel on SR 202 with 2,118 vehicles passing through this intersection during the AM peak. The highest delay is experienced for WB SR 202 travel with an average delay of over one-minute (66.2 seconds) per vehicle at this intersection. The westbound SR 202 queue at this intersection is substantial at 1,863 feet. Northbound traffic volumes off 192nd Avenue NE are modest during the morning peak hour, with 65 vehicles turning westbound onto SR 202 and 32 vehicles turning right at this intersection and heading eastbound on SR 202.

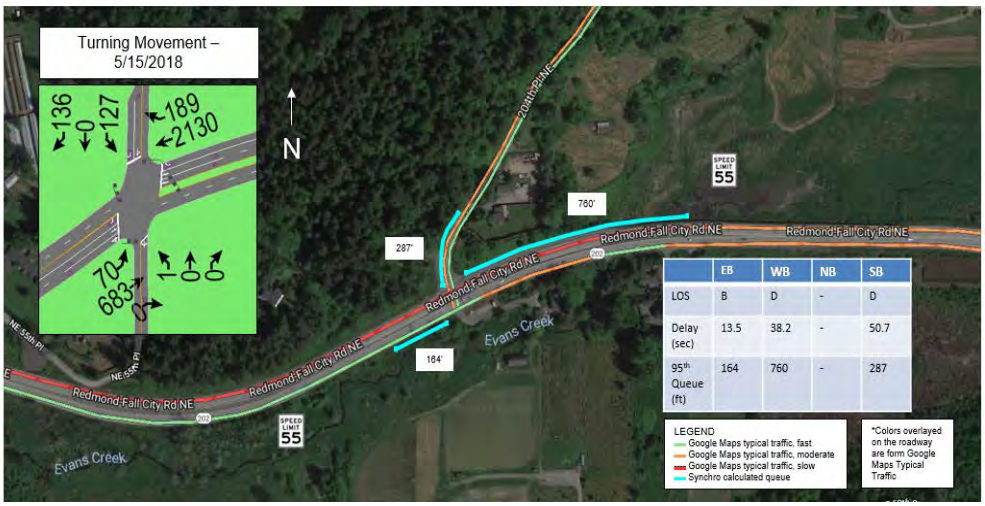
SR 202/192nd Ave NE
AM Peak – 6:45AM-7:45AM

	EB	WB	NB	SB
LOS	A	E	E	-
Delay (sec)	3.2	66.2	60.3	-
95th Queue (ft)	74	1863	101	-

SR 202/204th Place NE

The SR 202/ 204th Place NE intersection experiences its highest morning peak-hour volumes from 7:00 to 8:00am. Similar to intersections to the west, the highest morning peak hour volume at SR 202/204th place NE intersection is the westbound SR 202 volumes of 2,130 vehicles in the westbound direction of travel. The highest traveler delay experienced at this intersection is the southbound morning peak traffic on 204th place entering this intersection with an average delay of over 50 seconds per vehicle. The westbound delay on SR 202 entering this intersection averages slightly under 40 seconds per vehicle. The westbound queue is approximately 760 feet in length.

SR 202/204th PI NE
AM Peak – 7:00AM-8:00AM



	EB	WB	NB	SB
LOS	B	D	-	D
Delay (sec)	13.5	38.2	-	50.7
95th Queue (ft)	164	760	-	287

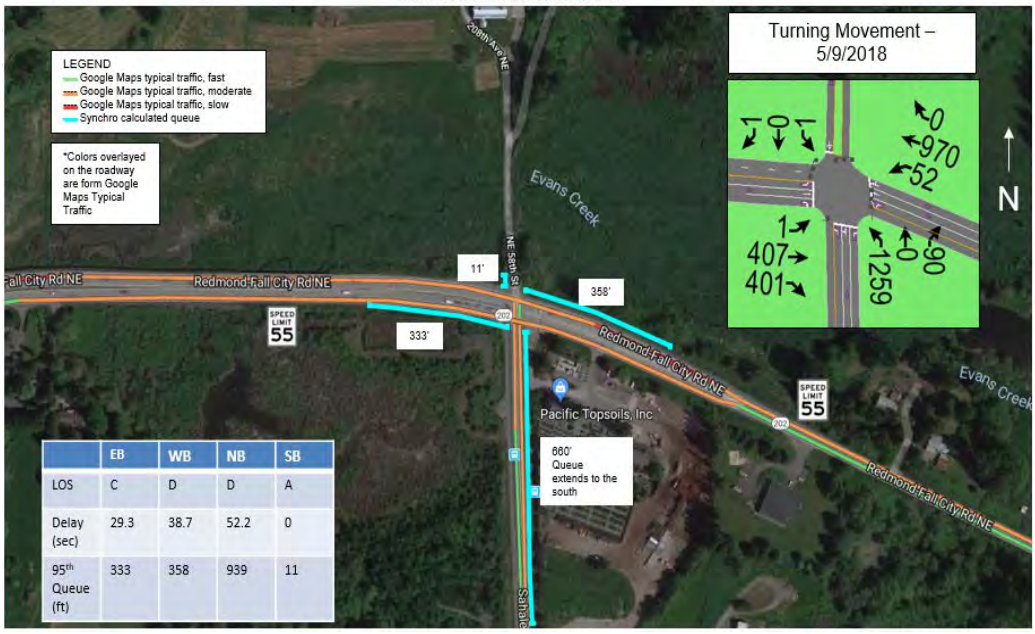
SR 202/Sahalee Way SE Intersection

The morning peak hour at the SR 202/Sahalee Way intersection occurs between 7:00 and 8:00am. The highest morning volumes are actually northbound volumes on Sahalee Way SE coming into this intersection, with 1,259 vehicles entering the intersection and turning westbound onto SR 202. The highest delay during the morning peak is experienced by the northbound traffic on Sahalee Way, with an average northbound vehicle delay in excess of 52 seconds. This reflects the considerable amount of morning peak traffic coming off of the Sammamish Plateau and the City of Sammamish that is coming northbound on Sahalee Way SE to head west on SR 202 towards Redmond. There is also a considerable queue for northbound travel on Sahalee Way SE at 660 feet to the south of this intersection.

The westbound volumes on SR 202 entering this intersection are lower, with 970 vehicles travelling westbound during the morning peak hour.

SR 202/Sahalee Way SE

AM Peak – 7:00AM-8:00AM



SR 202/NE 50th Street and SE 218th Avenue Intersection

The intersection of SR 202 and NE50th Street and SE 218th Avenue is a somewhat challenging intersection with NE 50th Street approaching this intersection at a skew-angle and SE 218th approaching SR 202 from the north slightly to the east of the skew approach of NE 50th Street. The westbound volumes on SR 202 approaching SE 218th Avenue are 1,000 vehicles during the morning peak and SR 202 westbound volumes passing through the NE 50th Street intersection segment is 1,089 vehicles in the morning peak. There is little vehicle delay through this intersection, with the highest delay being in the southbound direction of travel on SE 218th Avenue, with an average of 18 seconds of delay per vehicle and an average queue length of approximately 26 feet on SE 218th Avenue.

SR 202/228th Avenue NE

The morning peak-hour at the SR 202/228th Avenue NE intersection occurs between 6:45 and 7:45am. The highest peak hour volume is in the westbound direction of travel on SR 202, with 773 vehicles approaching this intersection on SR 202. The average delay in westbound direction of travel on SR 202 approaching this intersection is slightly over 47 seconds per vehicle. The queue length on SR 202 westbound approaching this intersection is 545 feet. The highest approach delay at the SR 202/228th Avenue NE intersection is actually in the eastbound direction of travel on SR 202 with almost 50 seconds of average delay per vehicle. This is likely due to queue backup from the eastbound left-turn volumes to 228th Avenue NE.

SR 202/236th Avenue NE Intersection

The morning peak hour at the SR 202/236th Avenue NE intersection occurs from 7:45 to 8:45am. The highest volumes are on SR 202 in the westbound direction of travel approaching this intersection, with 848 vehicles during the morning peak hour. The average delay per vehicle for westbound traffic on SR 202 during the morning peak hour is almost 25 seconds with a queue length of almost 400 feet.

The highest average approach delay is actually for southbound traffic on 236th Avenue NE as it approaches this intersection, with an average delay of 40 seconds per vehicle. The southbound queue on 236th Avenue NE is slightly under 200 feet (191 feet).

SR 202/236th Ave NE

AM Peak – 7:45AM-8:45AM

	EB	WB	NB	SB
LOS	B	C	-	D
Delay (sec)	14.9	24.5	-	40.0
95th Queue (ft)	100	396	-	191

SR 202/244th Avenue NE Intersection

The morning peak hour at SR 202/SE 244th Avenue NE intersection occurs between 6:45 and 7:45am. The highest intersection approach volumes are on SR 202 westbound, with 633 vehicles during the morning peak hour. The highest delay is actually on northbound 244th NE Avenue approaching this intersection, with an average delay of almost 36 seconds per vehicle. The northbound queue on 244th Avenue NE is also the longest, at 206 feet. This delay and queue on northbound 244th Avenue NE reflect the relatively high volume of traffic turning left from 244th Avenue NE going onto westbound SR 202.

SR 202 Corridor Intersection Traffic Operations PM Peak Hour Analysis

A summary of the 11 key intersections for the SR 202 corridor study area between Redmond and Sammamish for the afternoon peak hour analysis is shown in the below summary table.

In terms of performance and intersection level-of-service (LOS), the SR 202/188th Avenue NE and SR 202/Sahalee Way SE intersections are the two intersections that show a "failing" cumulative condition (LOS "F") based upon total intersection delay exceeding 130 seconds. The SR 202/East Lake Sammamish Parkway intersection is performing at a cumulative LOS of "E" during the afternoon peak hour, with northbound and southbound approaches to this intersection failing (LOS F) based upon total average approach delay per vehicle.

All remaining intersections east of these three intersections on SR 202 perform at LOS D or better.

SR 202 Corridor summary
PM Peak

PM Peak

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	E	E	57.7	670	D	48.6	310	F	167.5	563	F	138.5	568
SR 202/187th Ave NE	Signal	D	D	36.3	332	C	25.1	540	D	48.2	14	E	71.5	371
SR 202/188th Ave NE	Signal	F	F	93	646	D	51.1	425	F	109.3	158	F	500.4	226
SR 202/192nd Ave NE	Signal	D	E	75.2	447	A	8.2	137	E	60.1	108	-	-	-
SR 202/204th Pl NE	Signal	B	A	8.7	151	C	24.5	214	-	-	-	D	52.5	148
SR 202/Sahalee Way SE	Signal	F	F	105.6	1142	C	21.8	145	E	63.3	359	D	47.5	40
SR 202/ NE 90th St[1]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.5	3	A	0	0	-	-	-	D	26.2	23
SR 202/228th Ave NE	Signal	C	C	29.2	275	C	28.1	194	-	-	-	D	37	91
SR 202/236th Ave NE	Signal	C	C	28.7	239	C	27.3	283	-	-	-	C	29.6	199
SR 202/ 244th Ave NE	Signal	C	C	24	262	B	19.1	131	D	52.3	264	-	-	-

[1]Stop controlled intersections were analyzed separately

SR 202 / East Lake Sammamish Parkway NE Intersection

SR 202 at the East Lake Sammamish Parkway NE intersection experiences its high afternoon peak-hour volumes from 4:00 to 5:00pm. Similar to the pronounced westbound directional flow of traffic during the morning peak period on SR 202, the evening peak sees the highest volume of travel on SR 202 in the eastbound direction of travel from Redmond to Sammamish.

The highest traffic volumes are on eastbound SR 202 approaching the East Lake Sammamish Parkway NE intersection with a total of 1,614 vehicles in the evening peak hour. The eastbound queues on SR 202 approaching the East Lake Sammamish Parkway intersection are 670 feet in length with an average EB vehicle delay of almost one minute (57.7 seconds).

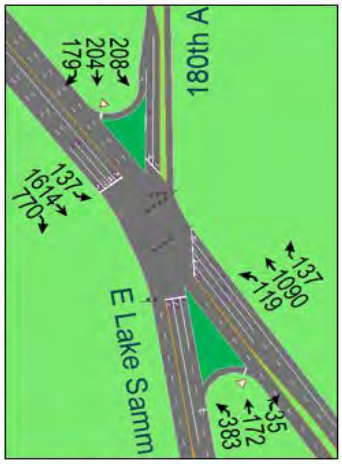
The northbound traffic on East Lake Sammamish Parkway approaching the SR 202 intersection experiences an average of almost three minutes (167.5 seconds) delay per vehicle with a queue backup of over 500 feet. This northbound approach leg of East Lake Sammamish Parkway currently operates at a LOS of F and this excessive delay is a function of considerable congestion at this intersection during the evening peak hour. The southbound approach leg of 180th Avenue SE to the SR 202 / East Lake Sammamish Parkway experiences over two minutes of delay per

vehicle (138.5 seconds) and has an even greater queue length of 568 feet on this southbound stretch of 180th Avenue SE. This approach leg similarly operates at LOS F and this extreme delay condition reflects PM peak hour congestion at this intersection.

Further existing conditions performance information on the SR 202/East Lake Sammamish Parkway intersection is shown below.

SR 202/E Lake Sammamish Pkwy NE
PM Peak – 4:00PM-5:00PM

Turning Movement – 6/5/2018

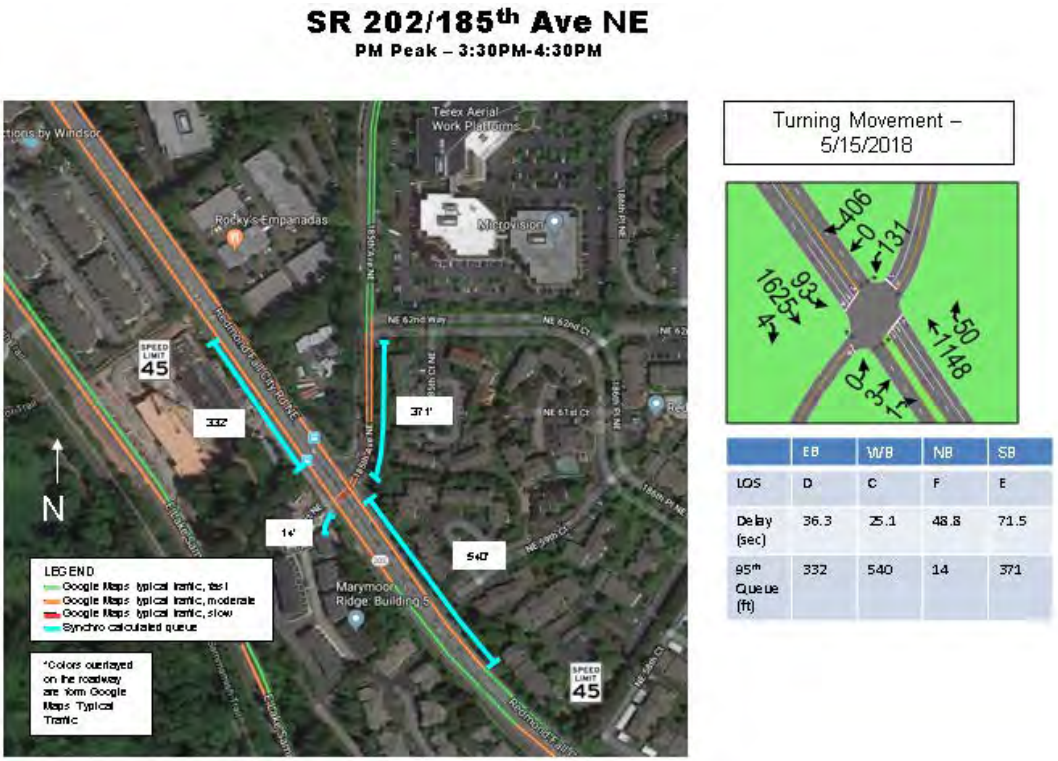


	EB	WB	NB	SB
LOS	E	D	F	F
Delay (sec)	57.7	49.6	167.5	138.5
95th Queue (ft)	670	310	563	568

SR 202/185th Avenue NE Intersection

SR 202 at the 185th Avenue NE intersection in Redmond experiences its afternoon peak hour from 3:30 to 4:30pm, based upon highest volumes at this intersection.

The eastbound through volumes on SR 202 intersection are highest at 1,625 vehicles passing through. The westbound approach/through volumes on SR 202 approaching 185th Avenue NE are also relatively high with 1,148 vehicles passing through this intersection and continuing west on SR 202. The highest queue length is actually on the westbound SR 202 approach to the 185th Avenue NE intersection, at 540 feet and the NB approach on 185th Avenue NE is currently at a failing condition of LOS 'F' with almost 50 seconds of delay per vehicle. The southbound approach on 185th Avenue SE is also subject to considerable delay, operating at LOS E, with an average delay per vehicle of 71 seconds per vehicle. There is also a considerable queue for SB approaching vehicles to this intersection, with a queue length of over 370 feet.



	EB	WB	NB	SB
LOS	D	C	F	E
Delay (sec)	36.3	25.1	48.8	71.5
95th Queue (ft)	332	540	14	371

SR 202/188th Avenue NE Intersection

The afternoon peak hour at the SR 202/188th Avenue NE intersection occurs between 4:00 and 5:00pm, based upon highest traffic volumes.

The SR 202/188th Avenue NE intersection is one of two intersections that performs at cumulative intersection level-of-service 'F" owing to the fact that three of the four intersection approaches (EB SR 202, NB 187th Avenue NE, and SB 188th Avenue NE) all operate at LOS "F" during the afternoon peak hour (4:00-5:00). Although the average approach delay per vehicle for SR 202 is 93 seconds, southbound approach volumes on 188th Avenue NE exhibit extreme delays with an average delay per vehicle in excess of 500 seconds. The average delay for northbound approach volumes during the afternoon peak hour are also in excess of 100 seconds (109.3 seconds) per vehicle on 187th Avenue NE. The substantial delays for these afternoon peak-hour minor approach movements reflect considerable delay and intersection geometric constraints here.

SR 202/188th Ave NE
PM Peak – 4:00PM-5:00PM

	EB	WB	NB	SB
LOS	F	D	F	F
Delay (sec)	93	51.1	109.3	500.4
95th Queue (ft)	646	425	153	226

SR 202/192nd Avenue SE Intersection

The SR 202/192nd Avenue SE intersection experiences its afternoon peak-hour between 4:15 and 5:15pm, based upon highest volumes at this intersection. The through eastbound movements on SR 202 intersection total 2,074 vehicles. The eastbound and northbound approaches to this intersection operate at LOS E, based upon average (per vehicle) delay of 75 and 60 seconds respectively.

SR 202/192nd Ave NE
PM Peak – 4:15PM-5:15PM

	EB	WB	NB	SB
LOS	E	A	E	-
Delay (sec)	75.2	8.2	60.1	-
95th Queue (ft)	447	137	103	-

SR 202/204th Place NE Intersection

The afternoon peak hour at the SR 202/204th Place NE intersection occurs from 3:15 to 4:15pm, based upon peak afternoon volumes. The eastbound through movements on SR 202 at this intersection total 1,724 vehicles and a westbound volume of 1,265 during the afternoon peak hour.

Overall performance at this intersection is acceptable, with only southbound movements on 204th Place NE operating at LOS D (52.5 seconds). Eastbound and westbound movements on SR 202 operate at LOS A and C respectively.

SR 202/Sahalee Way Intersection

The afternoon peak hour at SR 202 and the Sahalee Way intersection occurs between 4:30 and 5:30pm, based upon highest afternoon traffic volumes. In addition, this intersection is one of two intersections in the SR 202 corridor study area that operate at LOS "F" based upon vehicle approach delay, and this is primarily due to the failing eastbound SR 202 approach to Sahalee Way (average vehicle delay and queue length).

There is a high percentage of eastbound SR 202 traffic approaching this intersection from Redmond and the west that turns south on Sahalee Way to travel to Sammamish and beyond (1,169 of 2,213 total PM peak hour approach volumes on EB SR 202). There is substantial queueing and backups experienced by traffic heading eastbound on SR 202 approaching the Sahalee Way intersection because of this high turning volume to southbound Sahalee Way.

There is also considerable delay experienced by northbound traffic on Sahalee Way approaching SR 202, with an average delay of over 60 seconds per vehicle for northbound traffic on Sahalee Way. Almost the entire peak hour volumes on northbound Sahalee Way is turning left at this intersection to head west on SR 202.

SR 202/NE 50th Street and 218th Avenue NE Intersection

The afternoon peak hour at the SR202/NE 50th Street and 218th Avenue NE intersection occurs between 3:30 and 4:30pm, based on highest afternoon traffic volumes.

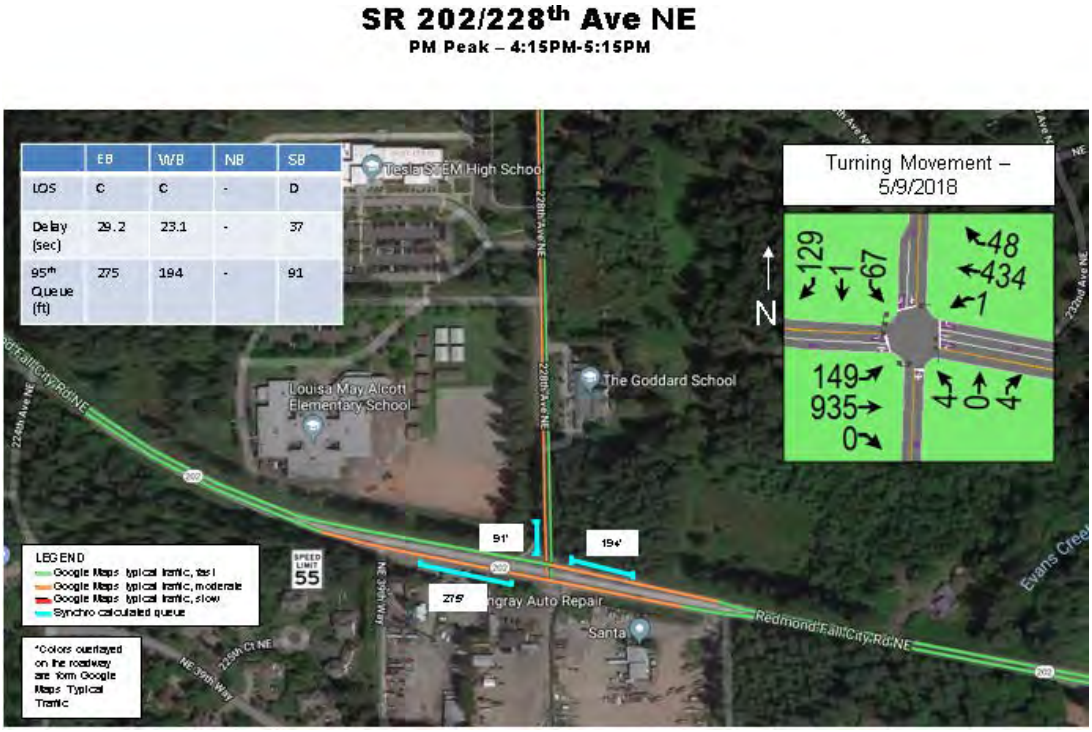
As the next intersection to the east of Sahalee Way on SR 202, traffic volumes here tend to be lower, as more eastbound peak traffic head south on Sahalee Way towards the City of Sammamish and the Sammamish plateau. The highest volume through this paired intersection is 1,091 vehicles during the afternoon peak hour heading east on SR 202.

Overall intersection performance here is acceptable and the highest entry delay to this intersection is experienced by southbound vehicle movements on 218th Avenue SE, with an average vehicle delay of almost 27 seconds.

SR 202/ 228th Avenue NE Intersection

The afternoon peak hour at the SR 202/228th Avenue SE intersection occurs between 4:15 and 5:15pm, based upon the highest afternoon peak traffic volumes.

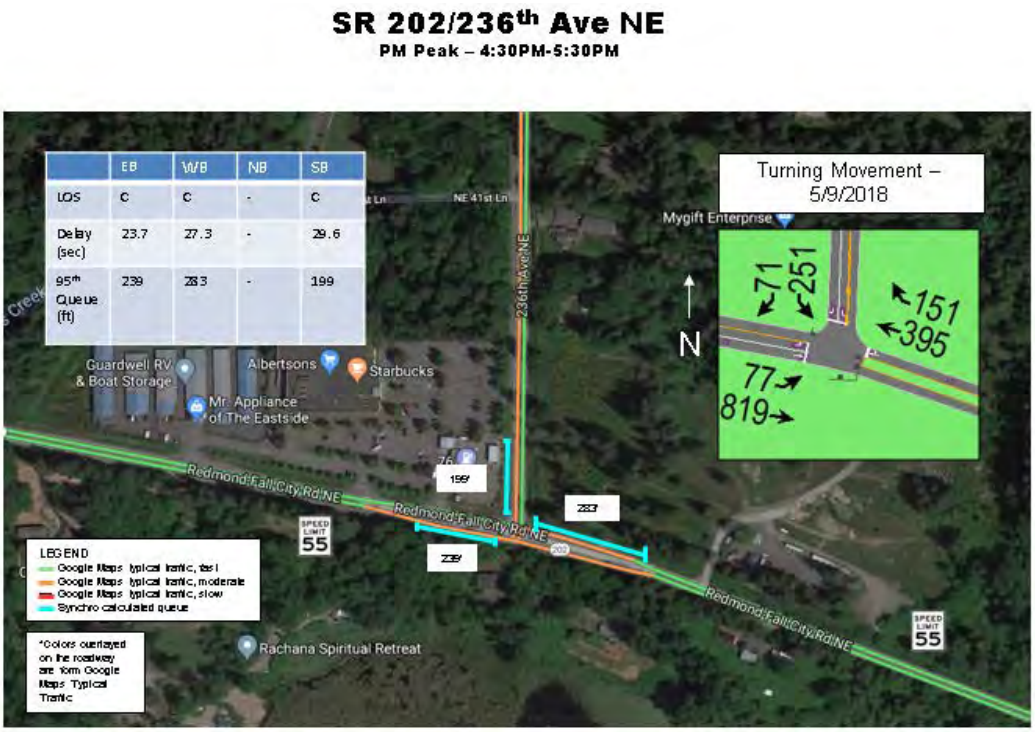
Similar to the next intersection to the west (NE 50th Street/218th Avenue NE), afternoon traffic volumes are lighter here with the highest movement being 935 vehicles heading eastbound on SR 202 through the intersection during the afternoon peak hour. The highest approach delay is on 218th Avenue SE southbound approaching SR 202, with an average vehicle delay of approximately 37 seconds per vehicle (LOS D). The eastbound and westbound SR 202 intersection approaches operate at an acceptable LOS (29 and 23 seconds of average delay per vehicle respectively).



SR 202/236th Avenue NE Intersection

The SR 202/236th Avenue SE intersection experiences its afternoon peak hour from 4:30 to 5:30pm, based upon the highest afternoon peak volumes.

Overall traffic volumes are modest through this intersection as this section of SR 202 becomes predominantly rural in nature. The highest afternoon peak hour volume is the eastbound SR 202 movement through the 236th Avenue intersection, with 819 vehicles passing through on EB SR 202. Overall intersection LOS is sufficient here at the SR 202/236th Avenue intersection, with all three major intersection approaches operating at LOS C during the afternoon peak hour.



SR 202/ 244th Avenue NE Intersection

The afternoon peak hour at the SR 202/ 244th Avenue NE intersection occurs from 4:30 to 5:30pm, based upon the highest peak volumes.

Overall traffic volumes at this intersection are modest, given the generally rural nature of this section of SR 202 and as the easternmost intersection analyzed in this study. The northbound approach leg on 244th Avenue NE does experience an average vehicle delay of approximately 52 seconds per vehicle and a queue backup of 264 feet. However the eastbound and westbound approaches on SR 202 operate at acceptable levels-of-service (LOS C and B respectively).

SR 202 Corridor Travel Times during Morning and Evening Peak Periods

The analysis of existing traffic conditions for the SR 202 corridor stud included an analysis of average travel times across this section of SR 202 (East Lake Sammamish Parkway to 244th Avenue NE) for both the morning and afternoon peak periods. The travel time estimates for the morning and afternoon peak periods were developed using the SimTraffic Analysis program. These travel time estimates developed by SimTraffic were also checked by WSDOT staff conducting actual drive-time assessments of the SR 202 corridor during both the morning and afternoon peak periods.

The average westbound travel time across this section of SR 202 between Sammamish /King County to Redmond is approximately 19 minutes during the morning peak period. The average eastbound travel time from East Lake Sammamish Parkway to 244th Avenue NE on SR 202 is approximately eight and one-half minutes in the eastbound direction of travel during the morning peak period.

Travel Times

AM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	1	16.7	26.0	0.1	18
185th Ave NE	2	8.5	44.3	0.5	37
188th Ave NE	3	33.1	63.5	0.4	22
192nd Dr NE	4	6.2	17.5	0.2	34
204th Pl NE	5	11.6	55.6	0.7	44
Sahalee Way SE	6	31.1	55.7	0.4	25
NE 50th St	7	12.0	59.7	0.7	39
SR 202	8	0.4	9.2	0.0	10
228th Ave NE	9	11.5	71.5	0.8	41
236th Ave NE	10	6.3	35.8	0.5	50
244th Ave NE	11	18.7	61.2	0.8	44
Total		156.1	500.1	5.0	36

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	11	10.4	26.8	0.2	33
236th Ave NE	10	24.7	70.7	0.8	38
228th Ave NE	9	46.3	77.5	0.5	23
218th Ave NE	8	24.2	83.7	0.8	35
SR 202	7	0.6	8.2	0.0	11
Sahalee Way SE	6	35.0	82.3	0.7	29
204th Pl NE	5	42.6	66.0	0.4	21
192nd Dr NE	4	108.9	150.9	0.7	16
188th Ave NE	3	72.9	85.7	0.2	7
185th Ave NE	2	128.0	159.2	0.4	9
180th Ave NE	1	175.8	331.5	0.5	8
Total		669.3	1142.3	5.1	18

During the afternoon/evening peak period, the average eastbound travel time over this section of SR 202 from Redmond / East Lake Sammamish Parkway to 244th Avenue NE intersection is over 23 minutes (23.3. minutes). In the westbound direction of travel, the average travel time from 244th Avenue NE intersection to East Lake Sammamish Parkway in Redmond is almost nine minutes (8.8 minutes).

Travel Times

PM Peak SimTraffic

Arterial Level of Service: EB SR 202

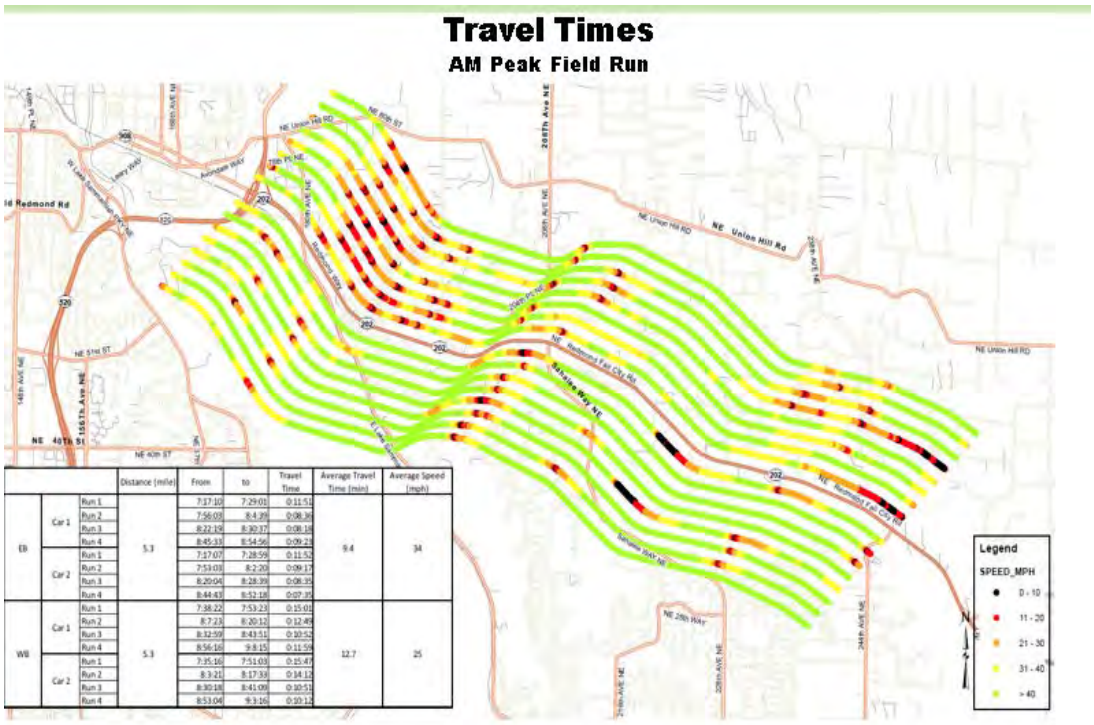
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	21	25.1	860.8	0.1	14
185th Ave NE	22	23.8	59.4	0.5	28
188th Ave NE	23	49.0	78.7	0.4	18
192nd Dr NE	24	22.5	33.9	0.2	18
204th Pl NE	25	18.3	59.9	0.7	41
Sahalee Way SE	26	43.6	66.5	0.4	21
NE 50th St	27	12.4	51.7	0.6	43
218th Ave NE	28	1.9	5.8	0.1	35
228th Ave NE	29	17.9	70.5	0.8	42
236th Ave NE	30	14.2	44.2	0.5	41
244th Ave NE	31	23.0	68.5	0.8	40
Total		251.7	1400.0	5.0	31

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	31	6.9	22.8	0.2	38
236th Ave NE	30	22.6	70.4	0.8	38
228th Ave NE	29	20.0	52.4	0.5	35
218th Ave NE	28	9.8	62.3	0.8	47
NE 50th St	27	1.2	4.8	0.1	42
Sahalee Way SE	26	13.3	51.4	0.6	44
204th Pl NE	25	11.6	31.8	0.4	43
192nd Dr NE	24	11.2	51.2	0.7	48
188th Ave NE	23	42.9	55.7	0.2	11
185th Ave NE	22	33.2	62.7	0.4	23
180th Ave NE	21	31.2	64.2	0.5	25
Total		203.9	529.6	5.1	34

There were also actual “drive-time” field runs conducted by WSDOT project staff to confirm the modeled travel-time results provided by the SimTraffic program. WSDOT staff conducted a series of AM and PM peak-period “field runs” to confirm actual drive time runs during these peak periods. These field runs were conducted in the spring of 2018 (May and June) consistent with the existing (2018) conditions traffic counts that were collected at that time as well.

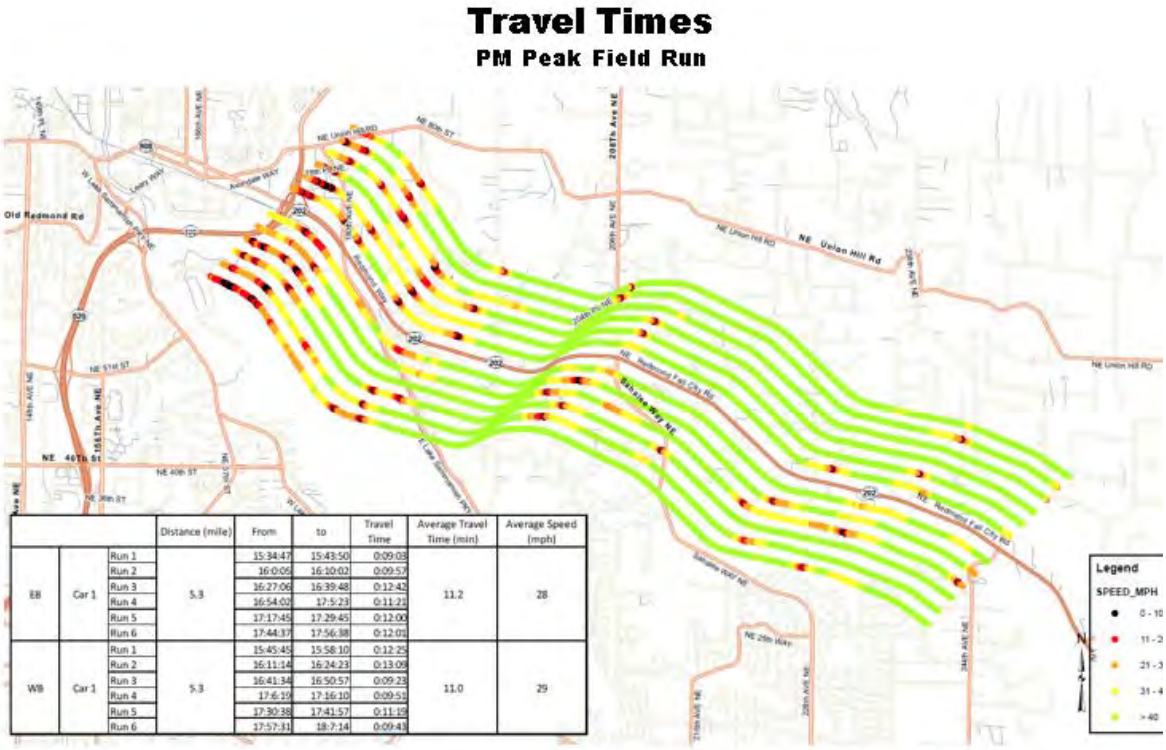
The results of the AM Peak Field Run are shown in the graphic below. During a series of runs conducted by two (2) separate drivers in the AM peak, both eastbound and westbound, the average travel time in the eastbound direction was 9.4 minutes and the average speed was 34 miles-per-hour. In the westbound direction of travel, the average drive time across this 5.3-mile section of SR 202 was 12.7 minutes and the average speed was 25 miles-per-hour. Additional detailed information is provided on the summary graphic.



			Distance (mile)	From	to	Travel Time	Average Travel Time (min)	Average Speed (mph)
EB	Car 1	Run 1	5.3	7:17:10	7:29:01	0:11:51	9.4	34
		Run 2		7:56:03	8:4:39	0:08:36		
		Run 3		8:22:19	8:30:37	0:08:18		
		Run 4		8:45:33	8:54:56	0:09:23		
	Car 2	Run 1		7:17:07	7:28:59	0:11:53		
		Run 2		7:53:03	8:2:20	0:09:17		
		Run 3		8:20:04	8:28:39	0:08:35		
		Run 4		8:44:43	8:52:18	0:07:35		
WB	Car 1	Run 1	5.3	7:38:22	7:53:23	0:15:01	12.7	25
		Run 2		8:7:23	8:20:11	0:12:49		
		Run 3		8:32:59	8:43:51	0:10:52		
		Run 4		8:56:16	9:8:15	0:11:59		
	Car 2	Run 1		7:35:16	7:51:03	0:15:47		
		Run 2		8:3:21	8:17:33	0:14:12		
		Run 3		8:30:18	8:41:09	0:10:51		
		Run 4		8:53:04	9:3:16	0:10:12		

For the afternooon “drive time” field reviews, the below graphic summarizes the results of this field reivew analysis. This field review run was conducted by only one driver and the average travel time for the six eastbound runs on SR 202 conducted by this driver were 11.2 minutes and the average travel speed for this 5.3 mile section was 28 miles-per-hour. On the westboound run, the average travel time was 11 minutes for the six runs and the average travel speed was 29 miles-per-hour.

Additional details are provided on the summary graphic below.



			Distance (mile)	From	to	Travel Time	Average Travel Time (min)	Average Speed (mph)
EB	Car 1	Run 1	5.3	15:34:47	15:43:50	0:09:03	11.2	28
		Run 2		16:0:05	16:10:02	0:09:57		
		Run 3		16:27:06	16:39:48	0:12:42		
		Run 4		16:54:02	17:5:23	0:11:21		
		Run 5		17:17:45	17:29:45	0:12:00		
		Run 6		17:44:37	17:56:38	0:12:01		
WB	Car 1	Run 1	5.3	15:45:45	15:58:10	0:12:25	11.0	29
		Run 2		16:11:14	16:24:23	0:13:09		
		Run 3		16:41:34	16:50:57	0:09:23		
		Run 4		17:6:19	17:16:10	0:09:51		
		Run 5		17:30:38	17:41:57	0:11:19		
		Run 6		17:57:31	18:7:14	0:09:43		

Conclusions

On SR 202 corridor in the existing conditions, there is a very pronounced directional travel flow, with high volumes of traffic heading westbound during the morning peak period towards Redmond, and high volumes of traffic heading eastbound in the afternoon peak-period away from Redmond and towards Sammamish and Duvall. There is a high demand of commuter travel flowing eastbound on SR 202 in the afternoon and westbound in the morning.

The afternoon eastbound peak commuter traffic tends to concentrate at the signalized intersection at East Lake Sammamish Parkway and in the section of SR 202 between the East Lake Sammamish Parkway and Sahalee Way intersections, making this section of SR 202 the most congestion section in the afternoon peak-period. A considerable deal of eastbound traffic during the afternoon peak period turns right at Sahalee Way to head south towards the City of Sammamish and the Sammamish plateau, this results in generally lower traffic volumes and better performance (level-of-service) on SR 202 east of the Sahalee Way intersection.

The congestion experienced on SR 202 between the East Lake Sammamish Parkway and Sahalee Way intersections is a primary contributor to crashes on the SR 202 corridor. A predominant majority of these crashes occurs during these congested peak hours and they are typically rear-end crashes. The basic-level safety analysis has identified the intersection of SR 202 and NE 50th Street / 218 Avenue NE as a candidate for further analysis and evaluation.

State Route 202 Corridor Study
Future Baseline Corridor Traffic Analysis

Purpose of This Summary Technical Memorandum

This Summary Technical Memorandum documents the future baseline traffic operating conditions on the section of SR 202 under study, i.e. from Redmond – Marymoor immediately to the southeast of the SR 520 / SR 202 interchange in Redmond (MP **8.22**) to the SR 202 /244th Avenue SE intersection (MP **13.00**).

During the early course of this study and in consultation with the SR 202 Study Stakeholders, the year 2025 was selected as the near-term timeframe for the baseline analysis and year 2045 was selected as the long-term horizon year for baseline (no-build) analysis. The purpose of this future baseline traffic analysis for years 2025 and 2045 is to demonstrate how the SR 202 corridor between Redmond and Sammamish will perform absent any investments in the 11 intersections on this stretch of SR 202 or in the corridor segments therein.

Intersections Analyzed on this section of SR 202

This section of SR 202 from Redmond – Marymoor to SE Sammamish / 244th Avenue SE includes eleven (11) key intersections in the study area.

The following table summarizes the 11 intersections analyzed for the future baseline conditions:

Intersection -	Traffic Control	Jurisdiction	Milepost
SR 202/ East Lake Sammamish Parkway	Traffic Signal	Redmond	**8.22**
SR 202 / NE 185th Avenue NE	Traffic Signal	Redmond	**8.63**
SR 202 / 188th Avenue NE	Traffic Signal	Redmond	**9.02**
SR 202 / SE 192nd Avenue NE	Traffic Signal	Sammamish	**9.17**
SR 202 / 204th Place NE	Traffic Signal	King County	**9.85**
SR 202 / Sahalee Way SE	Traffic Signal	King County	**10.22**
SR 202 / NE 50th Street	Two-Way Stop	King County	**10.89**
SR 202 / 218th Avenue NE	Two-Way Stop	King County	**10.92**
SR 202 / 228th Avenue NE	Traffic Signal	King County	**11.73**
SR 202 / 236th Avenue NE	Traffic Signal	King County	**12.24**

SR 202 / 244th Avenue NE	Traffic Signal	King County	**13.00**

2025 Baseline Traffic Analysis

The year 2025 baseline traffic analysis was conducted for similar time analysis periods, as was the existing conditions traffic analysis. Specifically, 2025 baseline traffic analysis was modeled using Synchro and SimTraffic for a morning peak analysis period of 6:00 to 9:00 and afternoon peak analysis period of 3:00 to 6:00pm.

The existing morning and evening peak hour intersection operational analysis was conducted using the Synchro Traffic modeling program. The Synchro Traffic program utilizes input data including traffic volumes, vehicle approach speed, average operating speed, intersection geometrics (number of lanes, width of lanes, etc. as well as signal timing/phasing plans to generate performance output on specific, signalized intersections (highest average approach delay per vehicle, average/longest queue lengths, etc.) for these existing conditions.

SR 202 2025 AM Peak Baseline Analysis

The following table summarizes the morning peak-period traffic analysis for the 11 intersections on the SR 202 corridor segment between Redmond / East Lake Sammamish Parkway intersection to the SR 202/ 244th Avenue Northeast, to the southeast of Sammamish.

2025 AM Peak

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.6	278	F	132.6	1909	F	432.6	515	D	45.5	342
SR 202/185th Ave NE	Signal	F	B	17.6	93	F	136.2	1369	D	45	28	B	16.3	160
SR 202/188th Ave NE	Signal	D	D	40.1	229	F	117.1	959	E	55.3	145	D	51.3	133
SR 202/192nd Ave NE	Signal	D	A	3.6	84	E	71.2	1987	E	59.9	112	-	-	-
SR 202/204th Pl NE	Signal	E	B	15.6	194	E	71	1586	-	-	-	E	55.4	273
SR 202/Sahalee Way SE	Signal	F	C	31.7	378	D	39.7	344	E	66.2	927	A	0	17
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	18	A	0	11	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.9	176	A	0	49	-	-	-	D	28.2	20
SR 202/228th Ave NE	Signal	D	D	53.5	296	E	60.2	1420	-	-	-	D	40.4	249
SR 202/236th Ave NE	Signal	C	B	14.6	111	C	23.6	497	-	-	-	D	47.9	189
SR 202/ 244th Ave NE	Signal	C	B	15.6	155	C	25.6	229	D	42.2	222	-	-	-

[1]Stop controlled intersections were analyzed separately

In the future, the existing levels of congestion and failing intersection level-of-service are the same or worse at several key corridor intersections on SR 202 between Redmond and Sammamish. In particular,

SR 202 at the East Lake Sammamish Parkway intersection continues to operate at LOS F during the morning peak period, with the westbound SR 202 and the northbound East Lake Sammamish Parkway approaches performing at LOS F. Total delay for these two failing approaches is substantial. SR 202 at the 185th Avenue NE intersection also performs at LOS F during the morning peak period, with the westbound approach also operating at LOS F with average delay in excess of 100 seconds per vehicle.

SR 202 at the Sahalee Way SE intersection also performs at an aggregate LOS F, due primarily to excessive delay and queuing on the northbound approach on Sahalee Way. This approach has a LOS of E and is almost completely failing. The average delay per vehicle is over one minute and the queue length is in excess of 900 feet.

SR 202 at the 204th Place NE intersection is also close to failing in performance in the 2025 AM peak analysis period, with a project LOS performance of E. The westbound SR 202 approach shows a LOS of E, with considerable average delay per vehicle (71 seconds) and with a substantial queue length of almost 1,600 feet. The southbound approach on 204th Place NE also performs at a LOS of E during the 2025 morning peak, with an average delay per vehicle of almost one minute (55.4 seconds).

All other intersections on this section of SR 202 between Redmond / East Lake Sammamish Parkway intersection and 244th Avenue NE operate at LOS D or better.

SR 202 2025 PM Peak Baseline Analysis

The following table summarizes the afternoon peak-period traffic analysis for the 11 intersections on the SR 202 corridor segment between Redmond / East Lake Sammamish Parkway intersection to the SR 202/ 244th Avenue Northeast, to the southeast of Sammamish.

2025 PM Peak

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	E	75.8	744	D	49.9	296	F	168.1	552	F	138.5	589
SR 202/185th Ave NE	Signal	D	D	43	407	D	26.3	563	D	48.8	23	E	75.4	424
SR 202/188th Ave NE	Signal	F	F	161.6	855	D	53.5	540	F	110.8	177	F	500.4	286
SR 202/192nd Ave NE	Signal	E	E	78.5	548	A	7	127	E	60	91	-	-	-
SR 202/204th Pl NE	Signal	C	B	15.8	257	D	37.7	395	-	-	-	D	52.1	267
SR 202/Sahalee Way SE	Signal	F	F	160.3	1424	C	22.3	122	E	66.2	386	D	47.5	30
SR 202/ NE 50th St[1]	Two-Way Stop	C	A	0	10	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	F	A	2	128	A	0	0	-	-	-	D	32.6	53
SR 202/228th Ave NE	Signal	C	C	34.8	235	C	27.6	271	-	-	-	D	37.2	85
SR 202/236th Ave NE	Signal	C	C	30.7	283	C	31.5	288	-	-	-	D	37.6	271
SR 202/ 244th Ave NE	Signal	D	C	31.2	417	C	22.9	146	E	60.8	273	-	-	-

[1]Stop controlled intersections were analyzed separately

Of the 11 intersections analyzed on this section of the SR 202 corridor for the 2025 PM peak period, four (4) intersections operate at a failing (LOS F) and one (1) intersection is close to failing, with a LOS E. The four intersections operating at a failing LOS "F" include SR 202/East Lake Sammamish Parkway; SR 202/188th Avenue NE; SR 202/Sahalee Way SE; and SR 202 at the 218th Avenue SE intersection. The primary failing approach for these intersections are the northbound and southbound approaches to the SR 202 intersections at East Lake Sammamish Parkway and 188th Avenue NE, with excessive average vehicle delay and queueing on these approach movements. The northbound approaches to the SR 202/East Lake Sammamish Parkway and SR 202/188th Avenue NE intersections also perform in a failing condition during the evening peak period, with excessive delay and queueing for both of these northbound intersection approaches.

The one intersection that operates at a near-failing condition (LOS E) include SR 202 at 192nd Avenue NE, and SR 202 228th Avenue NE. For SR 202 at the 188th Avenue NE intersection, the westbound approach on SR 202 to this intersection operates at a failing condition (LOS F) due to excessive average vehicle delay and queueing. SR 202 at the 192nd Avenue NE intersection also experiences excessive delay and queuing for the northbound and eastbound approaches (LOS E) because of excessive average delay per-vehicle and queuing at these intersections.

All of the other intersections analyzed in the 2025 PM peak period operate at LOS D or better and exhibit acceptable performance.

SR 202 2045 Baseline Morning and Afternoon Peak Period Analysis

The year 2045 baseline traffic analysis was conducted for similar time analysis periods, as was the existing conditions traffic analysis and year 2025 baseline analysis. The 2045 baseline traffic analysis was modeled using Synchro and SimTraffic for a morning peak analysis period of 6:00 to 9:00 and afternoon peak analysis period of 3:00 to 6:00pm.

The existing morning and evening peak hour intersection operational analysis was conducted using the Synchro Traffic modeling program. The Synchro Traffic program utilizes input data including traffic volumes, vehicle approach speed, average operating speed, intersection geometrics (number of lanes, width of lanes, etc. as well as signal timing/phasing plans to generate performance output on specific, signalized intersections (highest average approach delay per vehicle, average/longest queue lengths, etc.) for these existing conditions.

SR 202 2045 AM Peak Baseline Analysis

The following table summarizes the morning peak-period traffic analysis for the 11 intersections on the SR 202 corridor segment between Redmond / East Lake Sammamish Parkway intersection to the SR 202/ 244th Avenue Northeast, to the southeast of Sammamish.

2045 AM Peak

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.7	330	F	153.1	1632	F	438	508	D	45.5	383
SR 202/185th Ave NE	Signal	F	B	18.4	176	F	173.6	1309	D	45	30	B	16.3	162
SR 202/188th Ave NE	Signal	E	D	41.3	301	F	153.9	930	E	55.3	157	D	51.3	132
SR 202/192nd Ave NE	Signal	E	A	3.5	89	E	77	1136	E	59.8	116	-	-	-
SR 202/204th Pl NE	Signal	F	B	19.6	250	F	137.6	2184	-	-	-	D	54.6	389
SR 202/Sahalee Way SE	Signal	F	D	37.1	448	D	39.9	357	F	98.9	878	A	0	15
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	12	A	0	5	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	2.2	155	A	0	0	-	-	-	D	30.2	48
SR 202/228th Ave NE	Signal	E	E	65.6	335	E	66.3	2726	-	-	-	D	49.9	296
SR 202/236th Ave NE	Signal	C	A	8.5	129	C	22.4	530	-	-	-	D	50.6	215
SR 202/ 244th Ave NE	Signal	C	B	16.3	200	C	31.1	305	D	51.4	236	-	-	-

[1]Stop controlled intersections were analyzed separately

Of the 11 intersections analyzed in during the 2045 AM baseline peak period, four (4) of these intersections operate at a failing (LOS F) condition. Intersection level congestion and delay at these failing and other intersections continue to degrade in the long-term (year 2045) absent any improvements at these intersections to address growing congestion and delay. The sequential intersections of SR 202 / East Lake Sammamish Parkway and SR 202 / 185th Avenue NE operate at LOS during the evening peak period, with substantial delay at these two sequential intersections in the westbound direction of travel (over 150 seconds of average delay per vehicle) and long westbound queues (over 1,600 feet at East Lake Sammamish and over 1,300 feet at 185th Avenue NE in Redmond). The SR 202 intersections at 204th Place NE and Sahalee Way SE also operate a failing LOS F in year 2045.

The SR 202 intersections at 188th Avenue NE and 192nd Avenue NE operate at LOS E in the year 2045 morning peak period, primarily due to excessive westbound delays (LOS F at 188th Avenue NE intersection and LOS E at the 192nd Avenue NE intersection). These two intersections likewise experience poor and failing levels-of-service for the westbound directional approach on SR 202 to these intersections (LOS F and E respectively) and the northbound approaches on 187th Avenue NE and 192nd Avenue NE perform poorly (LOS E) with considerable average delay per vehicle and queuing at these intersections.

SR 202 at the 228th Avenue NE intersection also performs at LOS E in year 2045 during the morning peak period. The eastbound and westbound approaches on SR 202 to 228th Avenue NE operate at LOS E, owing to high levels of average delay per vehicle and lengthy queues.

The remaining four intersections, SR 202/NE 50th Street; SR 202/218th Avenue NE; SR 202/236th Avenue; and SR 202/244th Avenue NE, all operate at LOS B or C during the AM peak in year 2045 and thus exhibit acceptable performance with minimal delay and/or queuing.

SR 202 2045 PM Peak Baseline Analysis

The following table summarizes the afternoon peak-period traffic analysis for the 11 intersections on the SR 202 corridor segment between Redmond / East Lake Sammamish Parkway intersection to the SR 202/ 244th Avenue Northeast, to the southeast of Sammamish.

2045 PM Peak

			Eastbound			Westbound			Northbound			Southbound		
Intersection	Traffic Control	Intersection LOS	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	F	122.4	721	D	49.5	280	F	205.5	557	F	138.5	644
SR 202/185th Ave NE	Signal	D	D	42.1	365	C	30.5	622	D	48.8	16	F	82.4	454
SR 202/188th Ave NE	Signal	F	F	198.4	704	D	50.8	576	F	112.7	160	F	500.4	242
SR 202/192nd Ave NE	Signal	E	F	82.2	551	A	5.9	108	E	59.9	98	-	-	-
SR 202/204th Pl NE	Signal	C	B	18.4	269	D	49.1	558	-	-	-	D	49.5	337
SR 202/Sahalee Way SE	Signal	F	F	227.7	1986	C	22.9	151	F	97.1	716	D	47.5	32
SR 202/ NE 50th St[1]	Two-Way Stop	C	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	F	A	2.6	96	A	0	0	-	-	-	E	42.7	51
SR 202/228th Ave NE	Signal	D	D	52.1	274	D	35.6	300	-	-	-	D	44.5	114
SR 202/236th Ave NE	Signal	C	C	30.7	282	D	37.6	335	-	-	-	D	37.3	288
SR 202/ 244th Ave NE	Signal	D	D	35.1	482	C	24.8	207	E	67.7	344	-	-	-

[1]Stop controlled intersections were analyzed separately

There are four (4) SR 202 intersections that operate at a failing level-of-service (LOS) during the afternoon peak period in year 2045: SR 202/East Lake Sammamish Parkway; SR 202/188th Avenue NE; SR 202/Sahalee Way; and SR 202/218th Avenue NE. The intersections of SR 202 at East Lake

Sammamish Parkway and 188th Avenue NE both have three of four approaches to each intersection operating at a failing (LOS F) condition (eastbound, northbound, and southbound). These three failing approaches all exhibit extremely high levels of average delay per approach vehicle as well as excessive queues. The failing conditions at these two intersections are a result of project growth in traffic volumes and levels of congestion that will overwhelm the performance of these intersections.

SR 202 at Sahalee Way operates at a LOS F with the eastbound SR 202 approach to this intersection operating at LOS F and the northbound approach on Sahalee Way to the SR 202 intersection. The eastbound evening peak vehicle movements on SR 202 experience considerable average delay (227.7 seconds) plus excessive queuing in the eastbound direction of travel on SR 202 (1,986 feet). This failing condition reflects inadequate eastbound turn lane storage capacity for the high volume of traffic that is turning right to head southbound on Sahalee Way SE. Likewise, the northbound evening peak traffic on Sahalee Way experiences considerable delay (97.1 seconds average delay per vehicle) and queuing (716 feet) demonstrating the inadequate storage capacity for northbound Sahalee Way traffic that is turning to head west on SR 202 during the evening peak period.

SR 202 at 218th Avenue NE also operate at a failing condition of LOS F during the evening peak period in 2045. This is primarily due to southbound approach delay and queuing approaching this intersection (LOS E).

SR 202 at 192nd Avenue NE is approaching a failing condition in year 2045 as it operates at LOS during the evening peak. The eastbound SR 202 approach to this intersection operates at a LOS F, with high levels of average vehicle delay (82.2 seconds) and queuing (551 feet).

All six remaining intersections perform at LOS D or better and exhibit acceptable levels of performance in year 2045.

SR 202 Corridor Travel-Time Performance Summary: 2025 and 2045

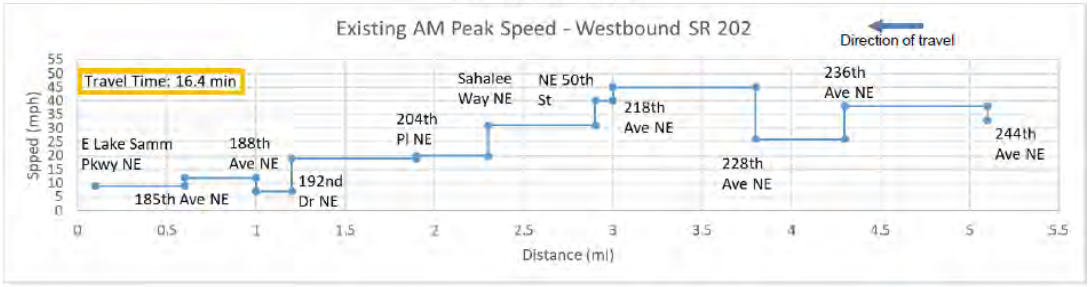
The baseline 2025 and 2045 morning and afternoon peak analyses efforts included an assessment of travel-time performance across the SR 202 from the East Lake Sammamish Parkway Intersection to the 244th Avenue NE intersection in both directions. This travel-time performance analysis was conducted using the SimTraffic modeling program.

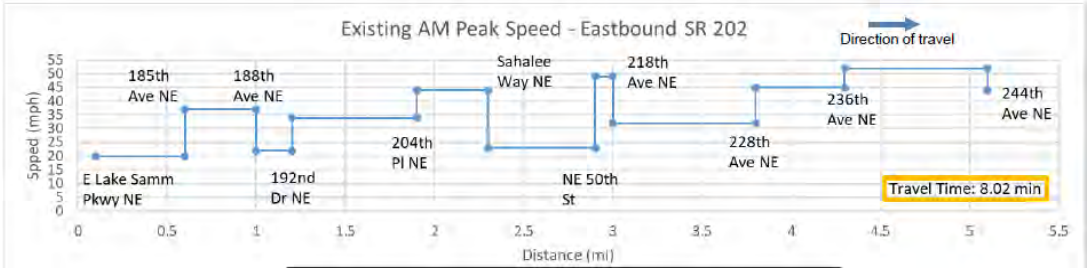
As a point of comparison, the following two charts show the existing (2018) travel-times both westbound (during the AM peak period) and eastbound (during the PM peak period), calculated in the SimTraffic modeling program.

During the existing AM peak period, the average travel time in the westbound direction of travel is slightly over 16 minutes from 244th Avenue NE to the East Lake Sammamish Parkway Intersection. This is

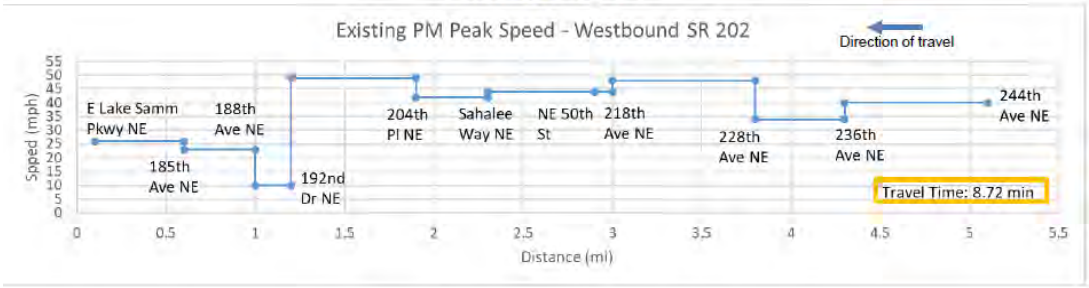
approximately five miles in total distance. The eastbound average travel time during the AM peak from East Lake Sammamish Parkway to 244th Avenue NE is approximately eight minutes.

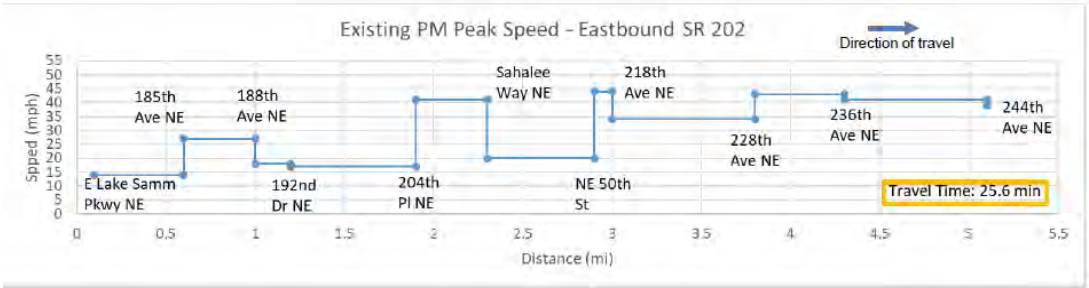
SimTraffic Arterial Speed
Existing AM Peak





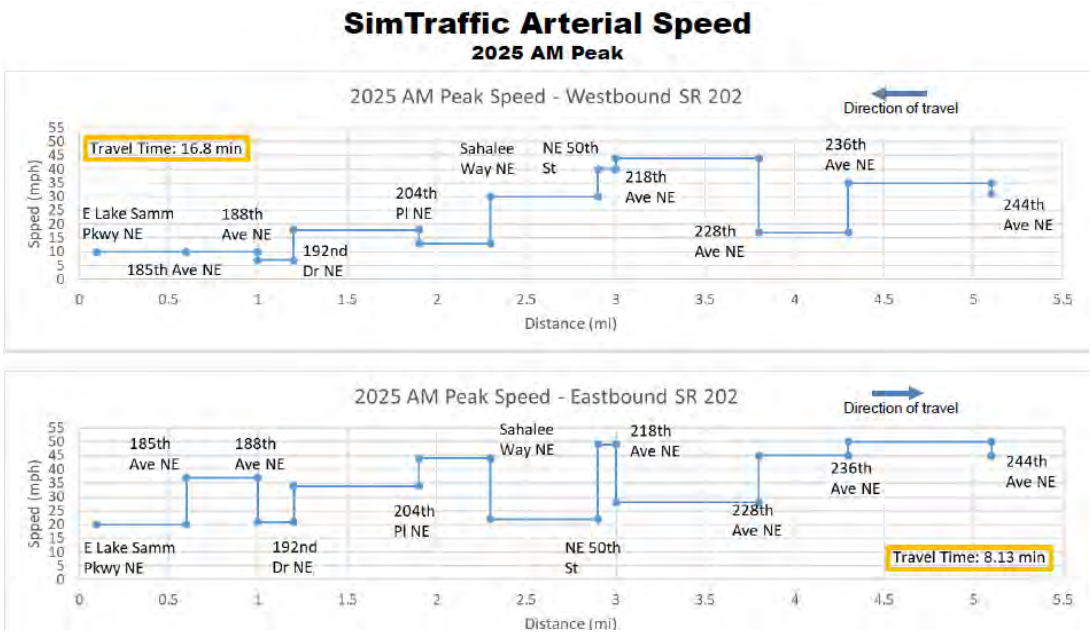
SimTraffic Arterial Speed
Existing PM Peak

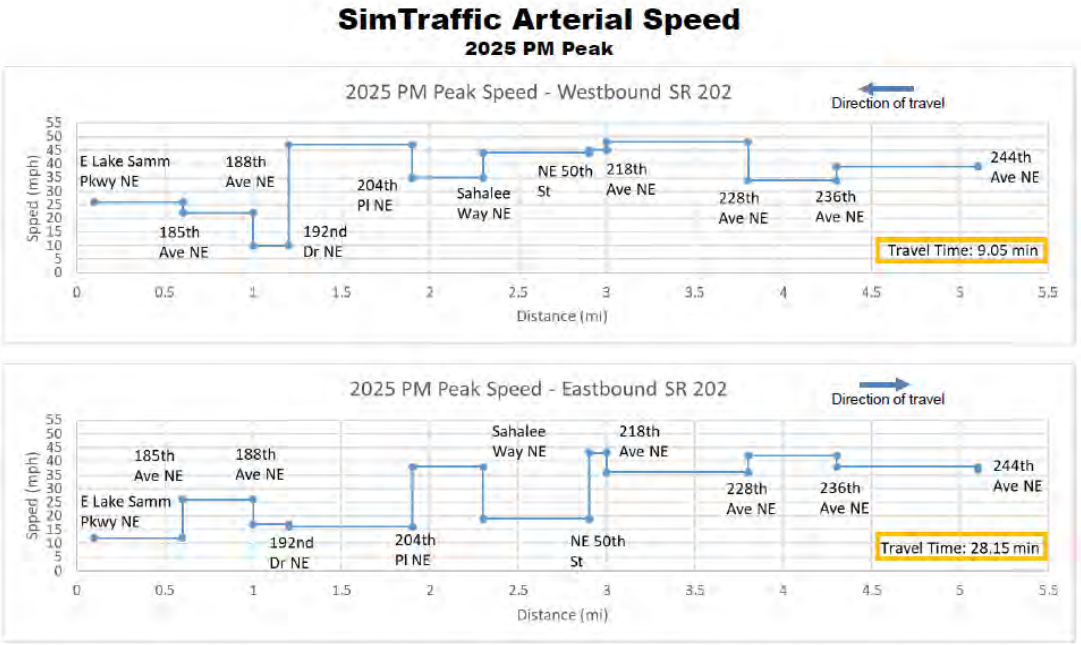




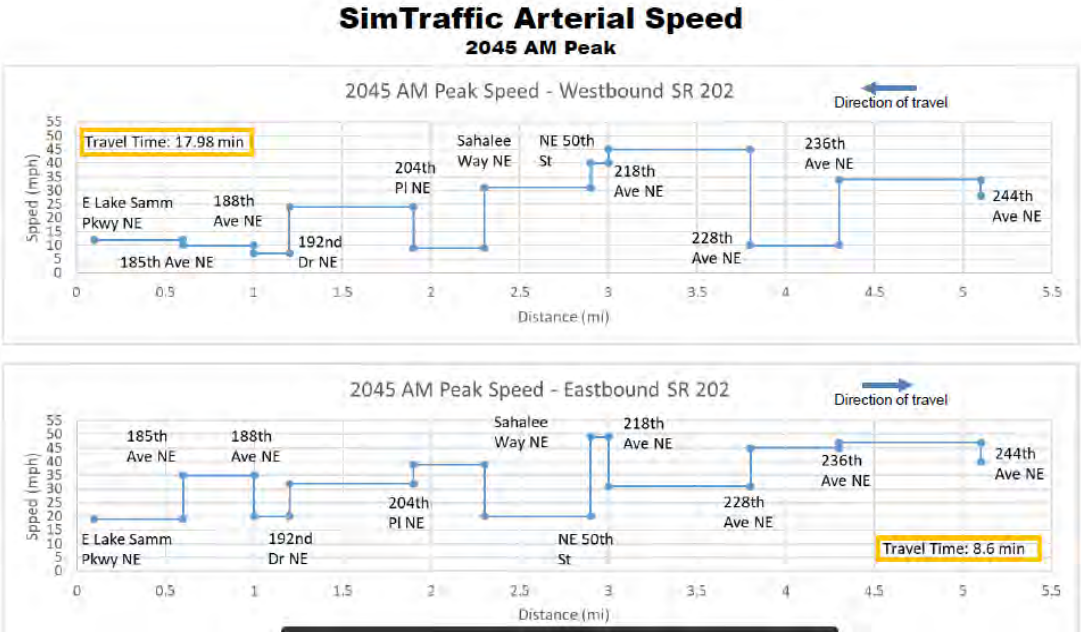
During the existing PM peak period, the average travel time from East Lake Sammamish Parkway NE to 244th Avenue NE is almost 26 minutes for this five-plus mile trip. In the westbound direction of travel, the average travel time is almost nine minutes.

SR 202 2025 AM/PM Peak Travel-Time Performance.

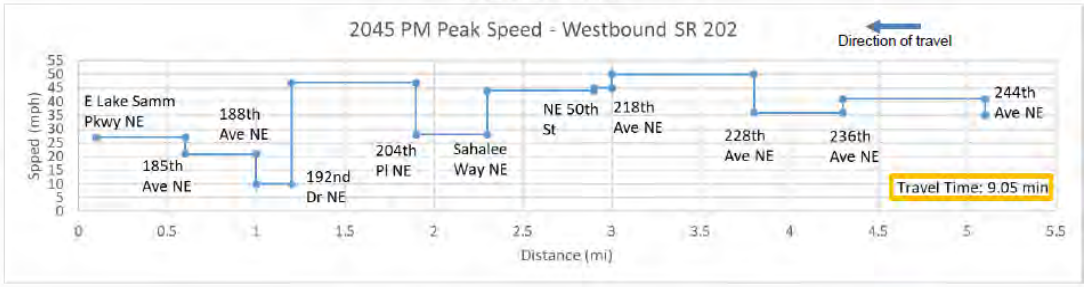


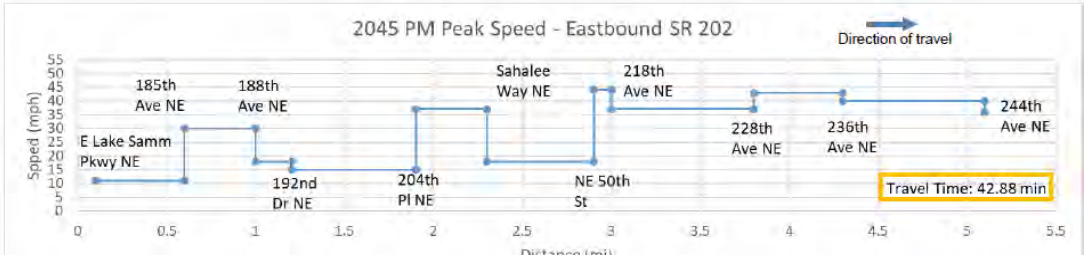


SR 202 2045 AM/PM Peak Travel-Time Performance



SimTraffic Arterial Speed
2045 PM Peak





Appendix D: Traffic Analysis (Synchro and Sidra) LOS and Delay Results

Intersection Analysis - Existing

SR 202 Corridor Summary

Existing AM Peak

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.6	370	F	130.5	2425	F	346.7	478	D	45.5	380
SR 202/185th Ave NE	Signal	E	B	17.7	196	F	1005.5	1209	D	45	37	B	16.3	169
SR 202/188th Ave NE	Signal	E	D	38.1	272	F	84.3	986	E	55.5	125	D	51.3	161
SR 202/192nd Ave NE	Signal	D	A	3.2	74	E	66.2	1863	E	60.3	101	-	-	-
SR 202/204th Pl NE	Signal	C	B	13.5	164	D	38.2	760	-	-	-	D	50.7	287
SR 202/Sahalee Way SE	Signal	D	C	29.3	333	D	38.7	358	D	52.2	939	A	0	11
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.7	5	A	0	0	-	-	-	D	18	26.2
SR 202/228th Ave NE	Signal	D	D	49.7	236	D	47.2	545	-	-	-	C	34.9	213
SR 202/236th Ave NE	Signal	C	B	14.9	100	C	24.5	396	-	-	-	D	40	191
SR 202/ 244th Ave NE	Signal	C	B	13.9	125	C	20.7	193	D	35.8	206	-	-	-

[1]Stop controlled intersections were analyzed separately

Intersection Analysis - Future

SR 202 Corridor Summary

2025 AM Peak

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.6	278	F	132.6	1909	F	432.6	515	D	45.5	342
SR 202/185th Ave NE	Signal	F	B	17.6	93	F	136.2	1369	D	45	28	B	16.3	160
SR 202/188th Ave NE	Signal	F	D	40.1	229	F	117.1	959	E	55.3	145	D	51.3	133
SR 202/192nd Ave NE	Signal	D	A	3.6	84	E	71.2	1987	E	59.9	112	-	-	-
SR 202/204th Pl NE	Signal	E	B	15.6	194	E	71	1586	-	-	-	E	55.4	273
SR 202/Sahalee Way SE	Signal	D	C	31.7	378	D	39.7	344	E	66.2	927	A	0	17
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	18	A	0	11	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.9	176	A	0	49	-	-	-	D	28.2	20
SR 202/228th Ave NE	Signal	D	D	53.5	296	E	60.2	1420	-	-	-	D	40.4	249
SR 202/236th Ave NE	Signal	C	B	14.6	111	C	23.6	497	-	-	-	D	47.9	189
SR 202/ 244th Ave NE	Signal	C	B	15.6	155	C	25.6	229	D	42.2	222	-	-	-

[1]Stop controlled intersections were analyzed separately

Intersection Analysis - Future

SR 202 Corridor Summary

2045 AM Peak

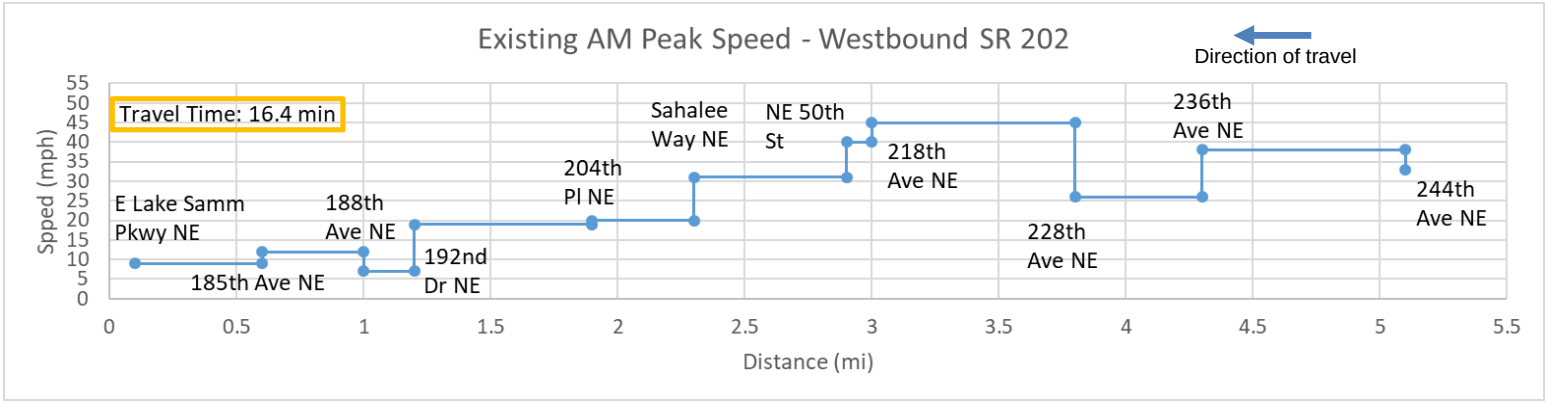
Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.7	330	F	153.1	1632	F	438	508	D	45.5	383
SR 202/185th Ave NE	Signal	F	B	18.4	176	F	173.6	1309	D	45	30	B	16.3	162
SR 202/188th Ave NE	Signal	F	D	41.3	301	F	153.9	930	E	55.3	157	D	51.3	132
SR 202/192nd Ave NE	Signal	E	A	3.5	89	E	77	1136	E	59.8	116	-	-	-
SR 202/204th Pl NE	Signal	F	B	19.6	250	F	137.6	2184	-	-	-	D	54.6	389
SR 202/Sahalee Way SE	Signal	E	D	37.1	448	D	39.9	357	F	98.9	878	A	0	15
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	12	A	0	5	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	2.2	155	A	0	0	-	-	-	D	30.2	48
SR 202/228th Ave NE	Signal	E	E	65.6	335	E	66.3	2726	-	-	-	D	49.9	296
SR 202/236th Ave NE	Signal	C	A	8.5	129	C	22.4	530	-	-	-	D	50.6	215
SR 202/ 244th Ave NE	Signal	C	B	16.3	200	C	31.1	305	D	51.4	236	-	-	-

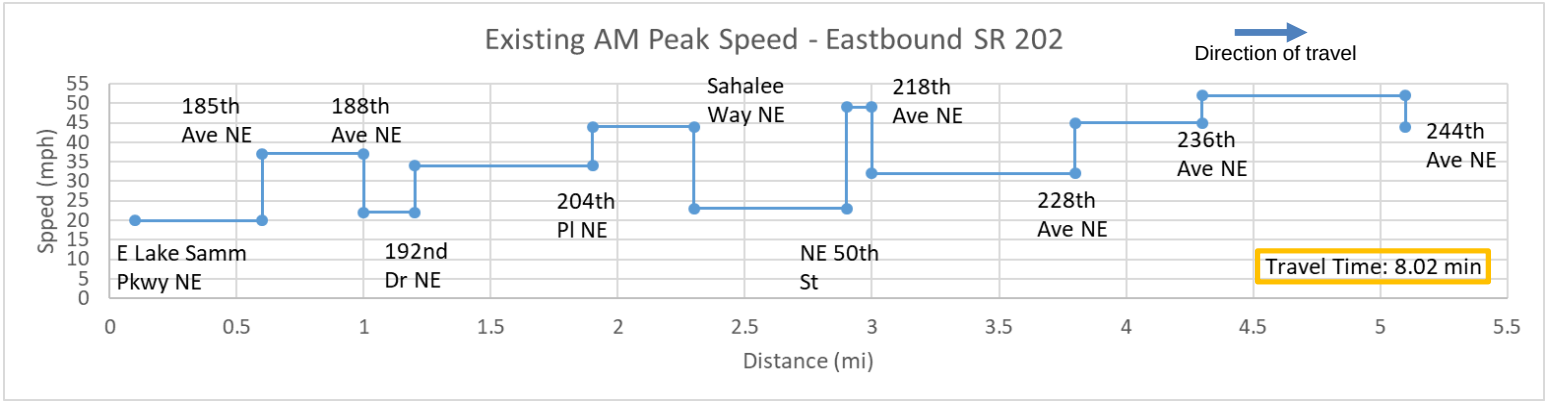
[1]Stop controlled intersections were analyzed separately

Arterial Analysis - Existing

SimTraffic Arterial Speed

Existing AM Peak

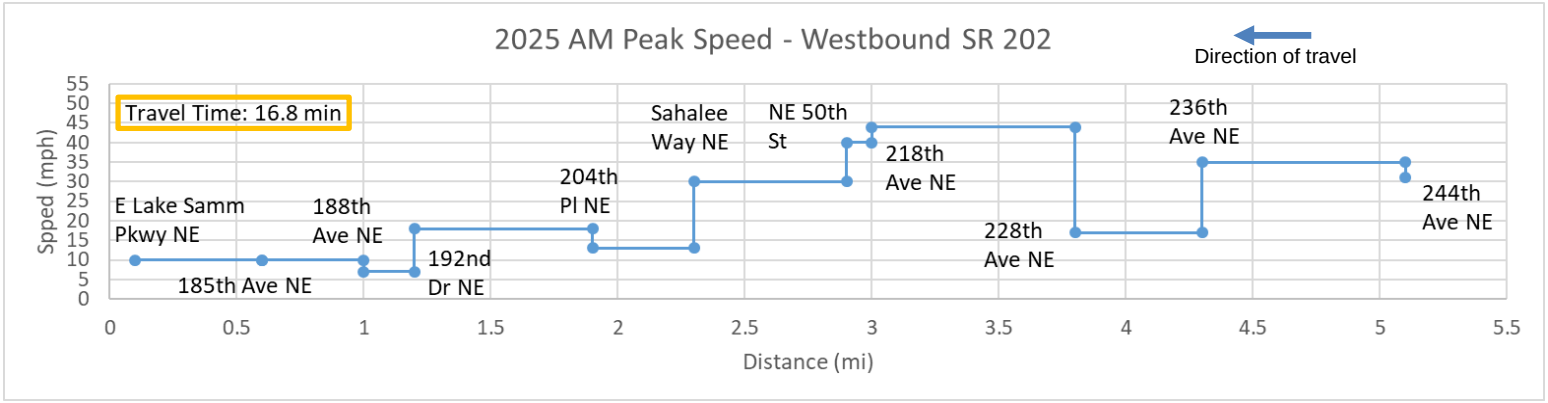


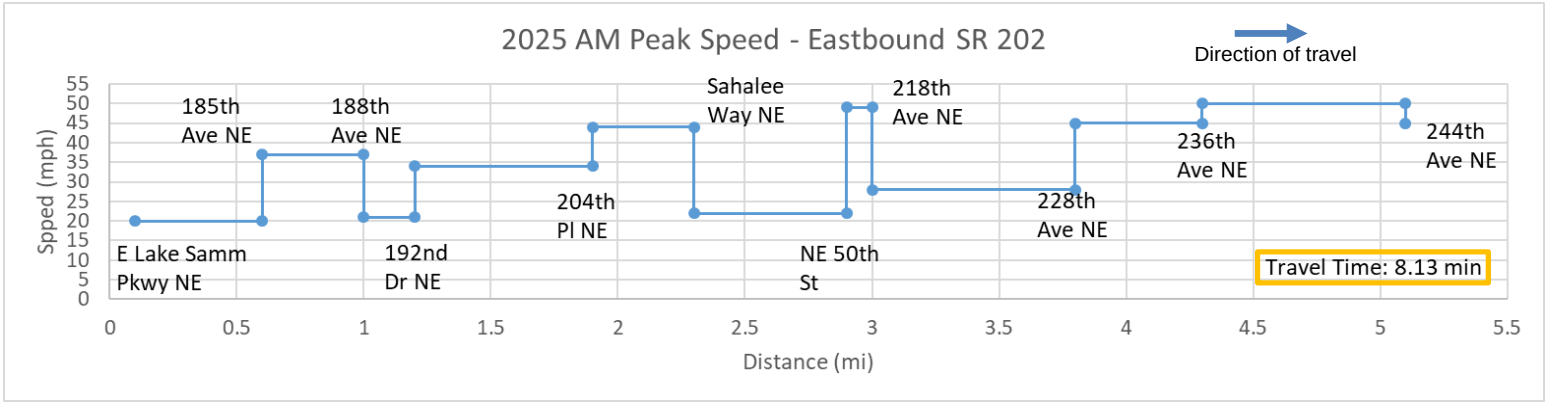


Arterial Analysis - Future

SimTraffic Arterial Speed

2025 AM Peak

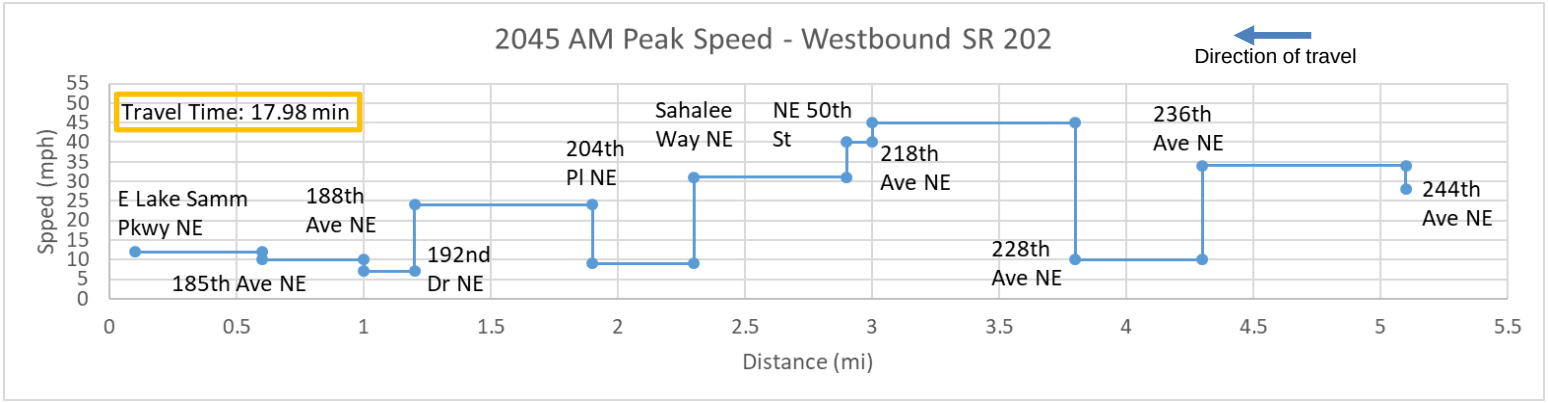


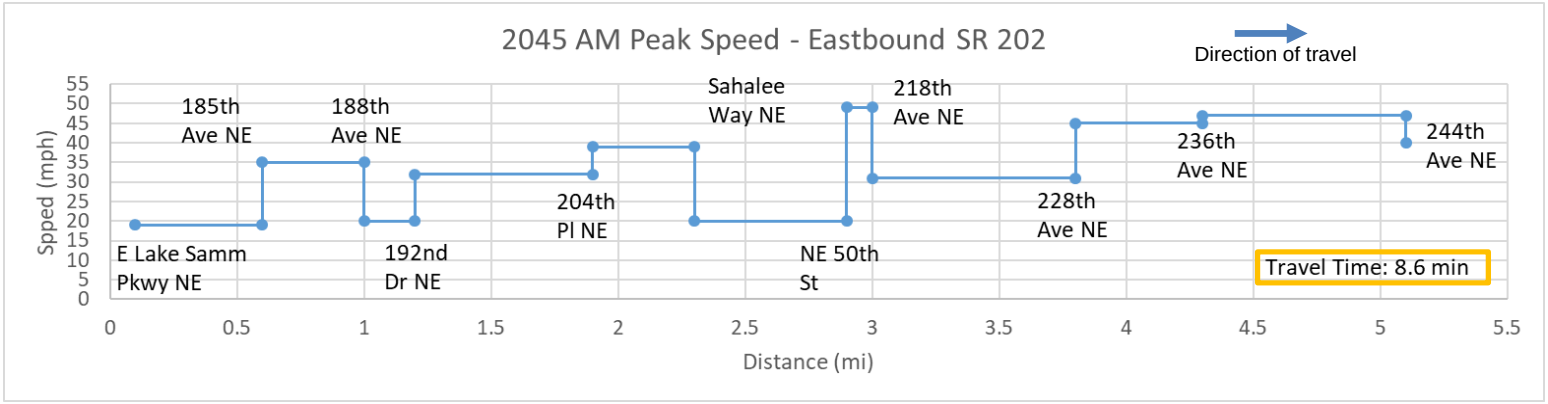


Arterial Analysis - Future

SimTraffic Arterial Speed

2045 AM Peak





Intersection Analysis - Existing

Travel Times

Existing AM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	1	14.9	24.3	0.1	20
185th Ave NE	2	8.8	44.4	0.5	37
188th Ave NE	3	34.8	65.4	0.4	22
192nd Dr NE	4	6.4	17.5	0.2	34
204th Pl NE	5	12.5	56.1	0.7	44
Sahalee Way SE	6	35.7	60.3	0.4	23
NE 50th St	7	9.0	47.4	0.6	49
218th Ave NE	8	3.1	7.1	0.1	32
228th Ave NE	9	13.5	62.7	0.8	45
236th Ave NE	10	5.8	35.1	0.5	52
244th Ave NE	11	17.3	60.8	0.8	44
Total		161.7	481.2	5.0	37

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	11	10.7	26.8	0.2	33
236th Ave NE	10	26.5	72.1	0.8	38
228th Ave NE	9	39.2	70.9	0.5	26
218th Ave NE	8	13.3	63.6	0.8	45
NE 50th St	7	1.5	5.6	0.1	40
Sahalee Way SE	6	35.6	76.1	0.6	31
204th Pl NE	5	45.2	69.7	0.4	20
192nd Dr NE	4	85.3	127.4	0.7	19
188th Ave NE	3	70.2	83.0	0.2	7
185th Ave NE	2	91.7	122.8	0.4	12
180th Ave NE	1	155.3	267.6	0.5	9
Total		574.5	985.5	5.1	20

Intersection Analysis - Future

Travel Times

2025 AM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	1	15.1	24.5	0.1	20
185th Ave NE	2	8.7	44.6	0.5	37
188th Ave NE	3	36.1	66.6	0.4	21
192nd Dr NE	4	6.6	17.3	0.2	34
204th Pl NE	5	14.0	56.4	0.7	44
Sahalee Way SE	6	38.8	63.4	0.4	22
NE 50th St	7	9.6	47.9	0.7	49
218th Ave NE	8	3.9	7.6	0.1	28
228th Ave NE	9	15.7	63.2	0.8	45
236th Ave NE	10	6.9	36.4	0.5	50
244th Ave NE	11	17.4	60.5	0.8	45
Total		172.7	488.4	5.0	37

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	11	12.0	28.3	0.2	31
236th Ave NE	10	32.0	78.1	0.8	35
228th Ave NE	9	74.0	105.9	0.5	17
218th Ave NE	8	13.6	63.9	0.8	44
NE 50th St	7	1.4	5.3	0.1	40
Sahalee Way SE	6	37.1	78.0	0.7	30
204th Pl NE	5	84.3	109.7	0.4	13
192nd Dr NE	4	96.0	137.9	0.7	18
188th Ave NE	3	72.1	84.9	0.2	7
185th Ave NE	2	109.5	140.5	0.4	10
180th Ave NE	1	130.7	175.9	0.5	10
Total		662.6	1008.5	5.1	18

Intersection Analysis - Future

Travel Times

2045 AM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	1	15.6	25.0	0.1	19
185th Ave NE	2	10.0	46.3	0.5	35
188th Ave NE	3	38.8	69.6	0.4	20
192nd Dr NE	4	7.2	18.3	0.2	32
204th Pl NE	5	20.0	63.8	0.7	39
Sahalee Way SE	6	45.4	70.0	0.4	20
NE 50th St	7	10.2	47.9	0.7	49
218th Ave NE	8	3.0	6.8	0.1	31
228th Ave NE	9	15.7	63.1	0.8	45
236th Ave NE	10	7.9	38.8	0.5	47
244th Ave NE	11	21.9	66.9	0.8	40
Total		195.9	516.5	5.0	35

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	11	15.2	31.9	0.2	28
236th Ave NE	10	32.6	79.9	0.8	34
228th Ave NE	9	143.3	177.7	0.5	10
218th Ave NE	8	13.4	62.6	0.8	45
NE 50th St	7	1.4	5.3	0.1	40
Sahalee Way SE	6	36.0	76.7	0.7	31
204th Pl NE	5	124.7	169.4	0.4	9
192nd Dr NE	4	62.9	104.5	0.7	24
188th Ave NE	3	72.4	86.5	0.2	7
185th Ave NE	2	105.0	135.9	0.4	10
180th Ave NE	1	106.6	148.5	0.5	12
Total		713.4	1078.9	5.1	18

Intersection Analysis - Existing

SR 202 Corridor summary
Existing PM Peak

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	E	E	57.7	670	D	49.6	310	F	167.5	563	F	138.5	568
SR 202/185th Ave NE	Signal	D	D	36.3	332	C	25.1	540	D	48.8	14	E	71.5	371
SR 202/188th Ave NE	Signal	F	F	93	646	D	51.1	425	F	109.3	153	F	500.4	226
SR 202/192nd Ave NE	Signal	D	E	75.2	447	A	8.2	137	E	60.1	103	-	-	-
SR 202/204th Pl NE	Signal	B	A	8.7	151	C	24.5	214	-	-	-	D	52.5	149
SR 202/Sahalee Way SE	Signal	F	F	105.6	1142	C	21.8	145	E	63.3	359	D	47.5	40
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	C	A	1.5	3	A	0	0	-	-	-	D	26.8	23
SR 202/228th Ave NE	Signal	C	C	29.2	275	C	23.1	194	-	-	-	D	37	91
SR 202/236th Ave NE	Signal	C	C	23.7	239	C	27.3	283	-	-	-	C	29.6	199
SR 202/ 244th Ave NE	Signal	C	C	24	262	B	19.1	131	D	52.3	264	-	-	-

[1]Stop controlled intersections were analyzed separately

Intersection Analysis - Future

SR 202 Corridor summary
2025 PM Peak

Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	E	75.8	744	D	49.9	296	F	168.1	552	F	138.5	589
SR 202/185th Ave NE	Signal	D	D	43	407	C	26.3	563	D	48.8	23	E	75.4	424
SR 202/188th Ave NE	Signal	F	F	161.6	855	D	53.5	540	F	110.8	177	F	500.4	286
SR 202/192nd Ave NE	Signal	E	E	78.5	548	A	7	127	E	60	91	-	-	-
SR 202/204th Pl NE	Signal	C	B	15.8	257	D	37.7	395	-	-	-	D	52.1	267
SR 202/Sahalee Way SE	Signal	F	F	160.3	1424	C	22.3	122	E	66.2	386	D	47.5	30
SR 202/ NE 50th St[1]	Two-Way Stop	C	A	0	10	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	F	A	2	128	A	0	0	-	-	-	D	32.6	53
SR 202/228th Ave NE	Signal	C	C	34.8	235	C	27.6	271	-	-	-	D	37.2	85
SR 202/236th Ave NE	Signal	C	C	30.7	283	C	31.5	288	-	-	-	D	37.6	271
SR 202/ 244th Ave NE	Signal	D	C	31.2	417	C	22.9	146	E	60.8	273	-	-	-

[1]Stop controlled intersections were analyzed separately

Intersection Analysis - Future

SR 202 Corridor summary
2045 PM Peak

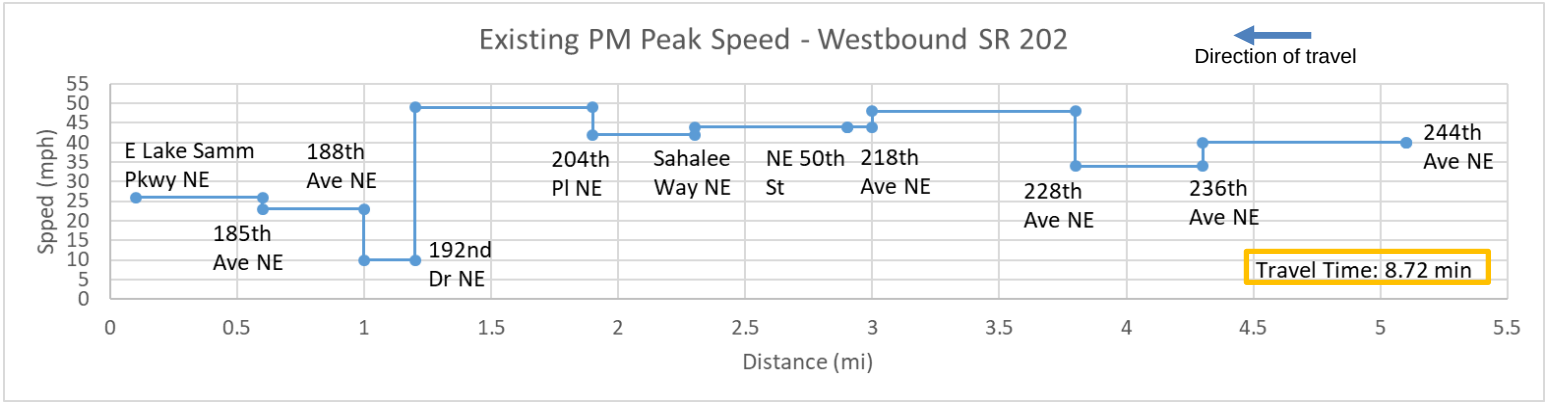
Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	F	122.4	721	D	49.5	280	F	205.5	557	F	138.5	644
SR 202/185th Ave NE	Signal	D	D	42.1	365	C	30.5	622	D	48.8	16	F	82.4	454
SR 202/188th Ave NE	Signal	F	F	198.4	704	D	50.8	576	F	112.7	160	F	500.4	242
SR 202/192nd Ave NE	Signal	E	F	82.2	551	A	5.9	108	E	59.9	98	-	-	-
SR 202/204th Pl NE	Signal	C	B	18.4	269	D	49.1	558	-	-	-	D	49.5	337
SR 202/Sahalee Way SE	Signal	F	F	227.7	1986	C	22.9	151	F	97.1	716	D	47.5	32
SR 202/ NE 50th St[1]	Two-Way Stop	C	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	F	A	2.6	96	A	0	0	-	-	-	E	42.7	51
SR 202/228th Ave NE	Signal	D	D	52.1	274	D	35.6	300	-	-	-	D	44.5	114
SR 202/236th Ave NE	Signal	C	C	30.7	282	D	37.6	335	-	-	-	D	37.3	288
SR 202/ 244th Ave NE	Signal	D	D	35.1	482	C	24.8	207	E	67.7	344	-	-	-

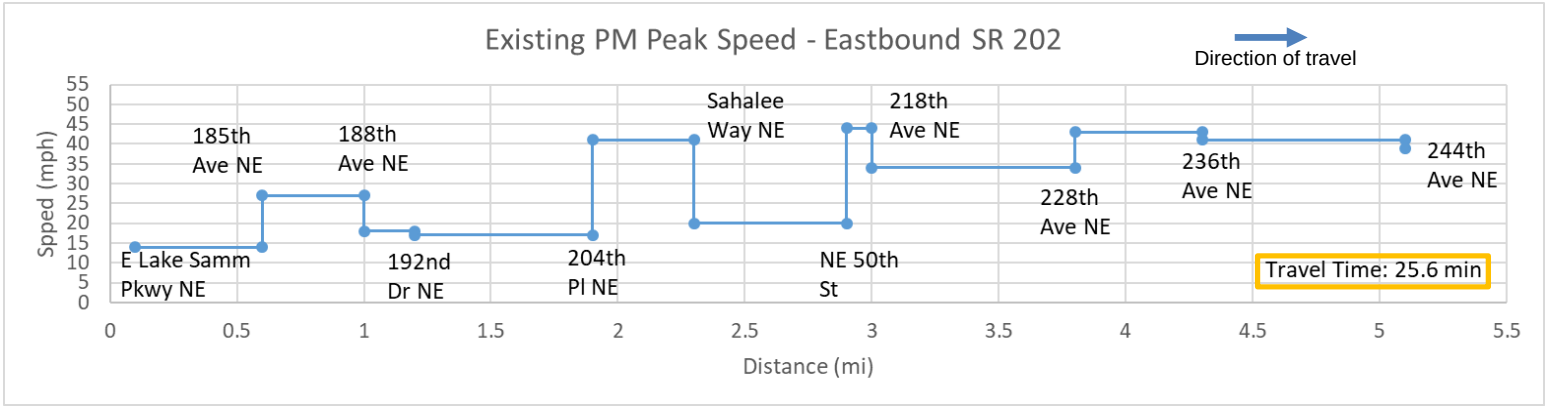
[1]Stop controlled intersections were analyzed separately

Arterial Analysis - Existing

SimTraffic Arterial Speed

Existing PM Peak

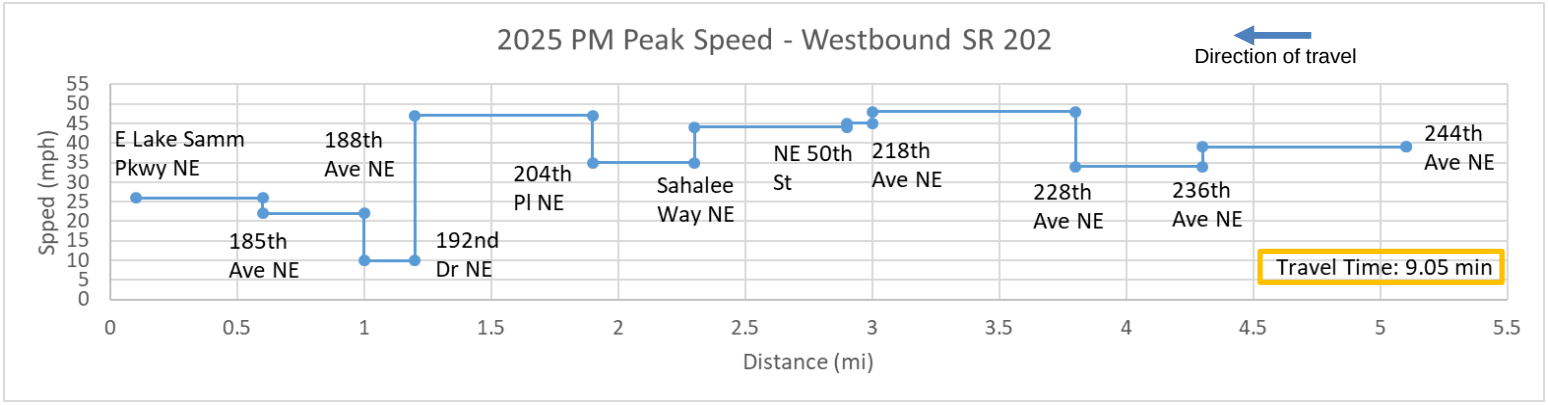


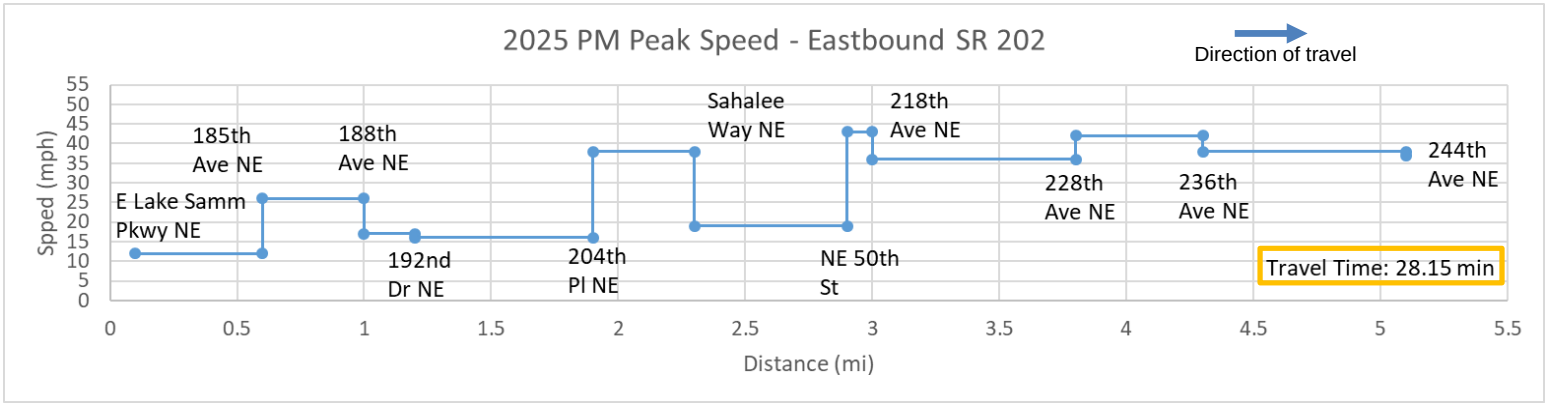


Arterial Analysis - Future

SimTraffic Arterial Speed

2025 PM Peak

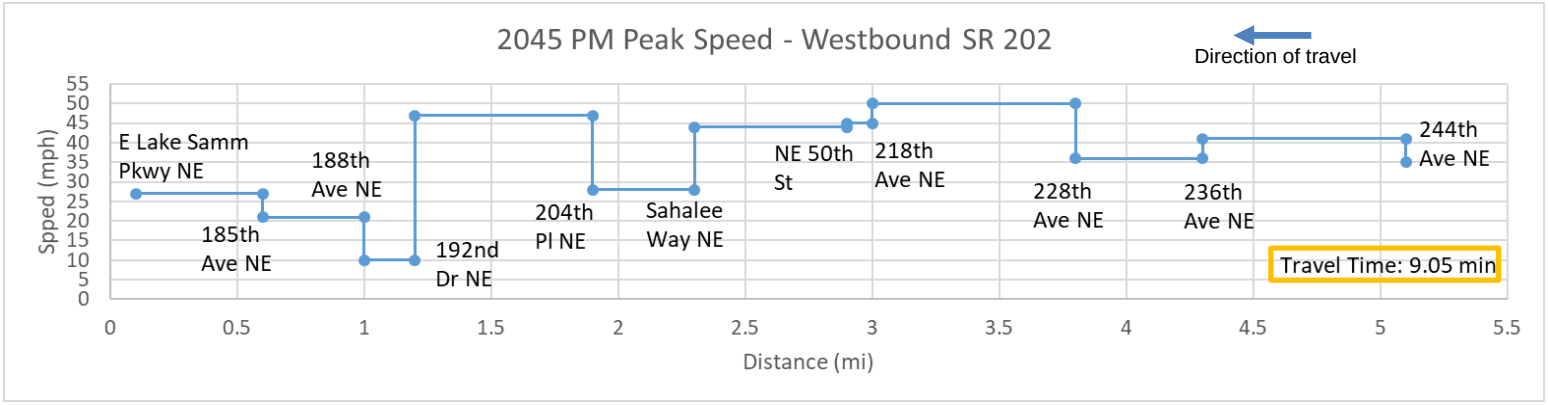


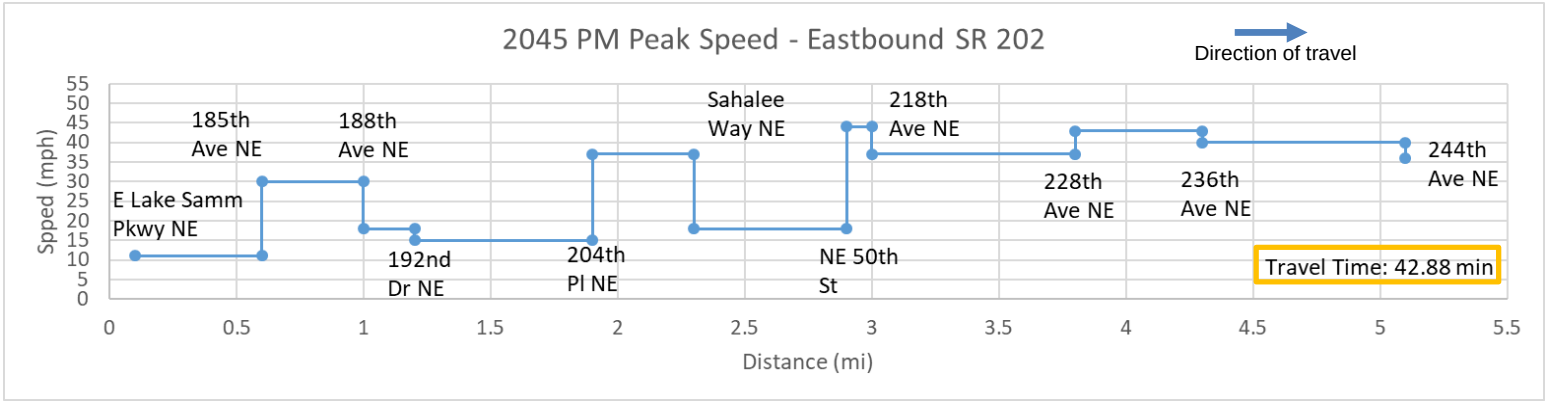


Arterial Analysis - Future

SimTraffic Arterial Speed

2045 PM Peak





Intersection Analysis - Existing

Travel Times

Existing PM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	21	26.1	994.0	0.1	14
185th Ave NE	22	25.3	61.0	0.5	27
188th Ave NE	23	49.3	79.0	0.4	18
192nd Dr NE	24	23.2	34.7	0.2	17
204th Pl NE	25	18.1	59.5	0.7	41
Sahalee Way SE	26	45.5	67.9	0.4	20
NE 50th St	27	12.2	51.1	0.6	44
218th Ave NE	28	2.0	5.9	0.1	34
228th Ave NE	29	16.1	68.4	0.8	43
236th Ave NE	30	14.4	44.7	0.5	41
244th Ave NE	31	24.6	70.1	0.8	39
Total		256.8	1536.4	5.0	31

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	31	6.1	21.8	0.2	40
236th Ave NE	30	20.7	68.3	0.8	40
228th Ave NE	29	20.8	52.8	0.5	34
218th Ave NE	28	9.2	61.7	0.8	48
NE 50th St	27	1.0	4.6	0.1	44
Sahalee Way SE	26	12.3	50.5	0.6	44
204th Pl NE	25	13.0	32.9	0.4	42
192nd Dr NE	24	11.0	50.1	0.7	49
188th Ave NE	23	44.4	57.2	0.2	10
185th Ave NE	22	32.0	61.3	0.4	23
180th Ave NE	21	29.2	62.1	0.5	26
Total		199.6	523.4	5.1	35

Intersection Analysis - Future

Travel Times

2025 PM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	21	29.9	1109.7	0.1	12
185th Ave NE	22	28.3	63.3	0.5	26
188th Ave NE	23	55.6	85.1	0.4	17
192nd Dr NE	24	25.6	37.0	0.2	16
204th Pl NE	25	22.5	64.2	0.7	38
Sahalee Way SE	26	51.4	81.5	0.4	19
NE 50th St	27	12.3	50.2	0.6	43
218th Ave NE	28	2.8	8.0	0.1	36
228th Ave NE	29	17.0	69.5	0.8	42
236th Ave NE	30	16.9	47.5	0.5	38
244th Ave NE	31	27.9	73.5	0.8	37
Total		290.1	1689.5	5.0	29

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	31	6.7	22.5	0.2	39
236th Ave NE	30	23.1	70.1	0.8	39
228th Ave NE	29	21.4	52.9	0.5	34
218th Ave NE	28	10.1	61.6	0.8	48
NE 50th St	27	1.2	6.4	0.1	45
Sahalee Way SE	26	12.1	48.8	0.6	44
204th Pl NE	25	19.9	39.5	0.4	35
192nd Dr NE	24	13.9	53.1	0.7	47
188th Ave NE	23	47.9	60.6	0.2	10
185th Ave NE	22	35.4	65.1	0.4	22
180th Ave NE	21	29.8	62.7	0.5	26
Total		221.6	543.3	5.1	34

Intersection Analysis - Future

Travel Times

2045 PM Peak SimTraffic

Arterial Level of Service: EB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	21	34.5	1807.0	0.1	11
185th Ave NE	22	21.8	54.2	0.5	30
188th Ave NE	23	48.4	78.1	0.4	18
192nd Dr NE	24	27.7	39.1	0.2	15
204th Pl NE	25	25.5	66.8	0.7	37
Sahalee Way SE	26	54.7	281.6	0.4	18
NE 50th St	27	11.2	48.9	0.6	44
218th Ave NE	28	2.6	7.9	0.1	37
228th Ave NE	29	17.4	67.9	0.8	43
236th Ave NE	30	15.9	45.6	0.5	40
244th Ave NE	31	31.0	76.0	0.8	36
Total		290.7	2573.0	5.0	30

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	31	9.5	25.5	0.2	35
236th Ave NE	30	22.1	65.1	0.8	41
228th Ave NE	29	21.9	51.0	0.5	36
218th Ave NE	28	10.0	59.2	0.8	50
NE 50th St	27	1.2	6.5	0.1	45
Sahalee Way SE	26	12.3	48.8	0.6	44
204th Pl NE	25	28.4	48.2	0.4	28
192nd Dr NE	24	14.8	52.9	0.7	47
188th Ave NE	23	46.8	59.4	0.2	10
185th Ave NE	22	37.1	66.9	0.4	21
180th Ave NE	21	27.1	59.6	0.5	27
Total		231.4	543.1	5.1	34

Intersection Analysis - Future

SR 202/E Lake Sammamish Pkwy NE

2025/2045 AM Peak – 8:00AM-9:00AM

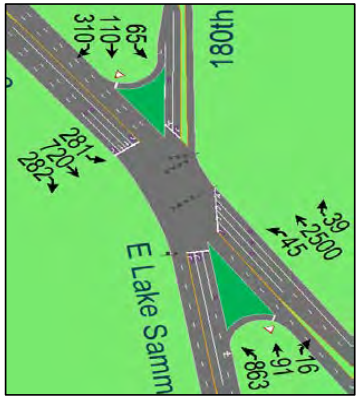
	2025	2045
Intersection LOS	F	F

		EB	WB	NB	SB
Delay	2025	32.6	132.6	432.6	45.5
	2045	32.7	153.1	438	45.5
95th Queue	2025	278’	1909’	515’	342’
	2045	330’	1632’	508’	383’

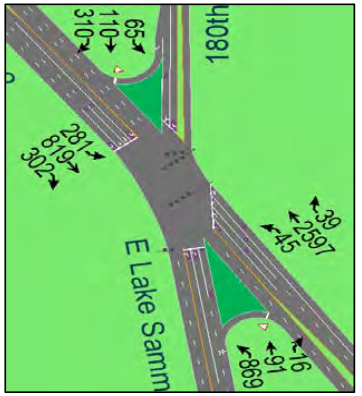
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 WB queue is shorter than 2025 WB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

2025 Turning Movement



2045 Turning Movement



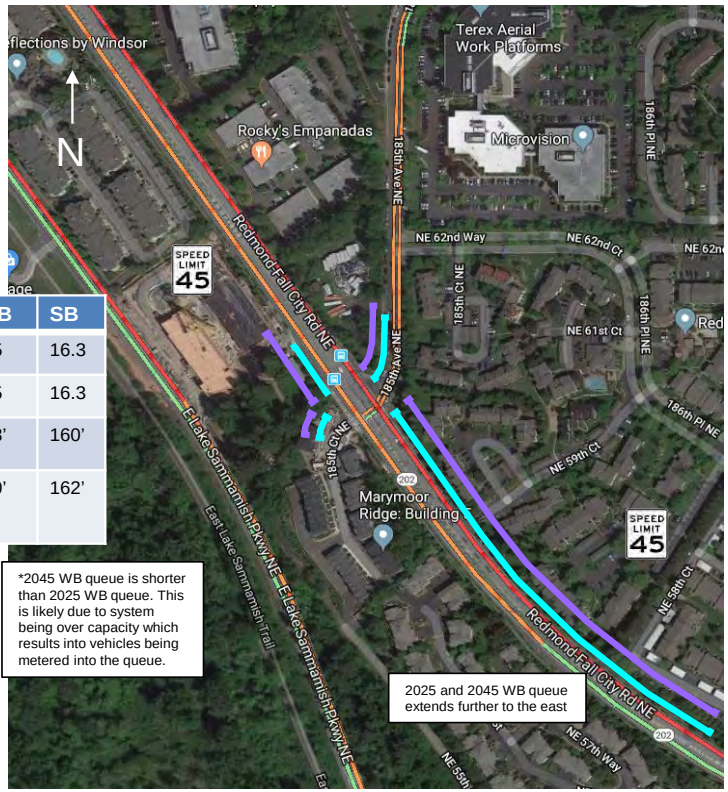
Intersection Analysis - Future

SR 202/185th Ave NE

2025/2045 AM Peak – 8:30AM-9:30AM

	2025	2045
Intersection LOS	F	F

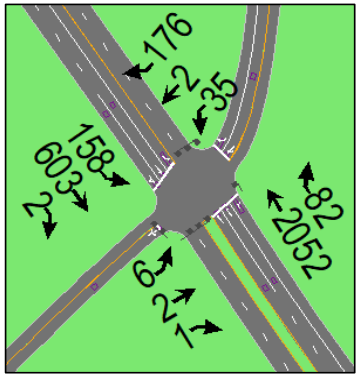
		EB	WB	NB	SB
Delay	2025	17.6	136.2	45	16.3
	2045	18.4	173.6	45	16.3
95th Queue	2025	93’	1369’	28’	160’
	2045	176’	1309’	30’	162’



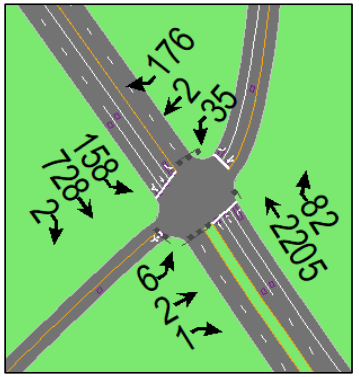
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 WB queue is shorter than 2025 WB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

2025 Turning Movement



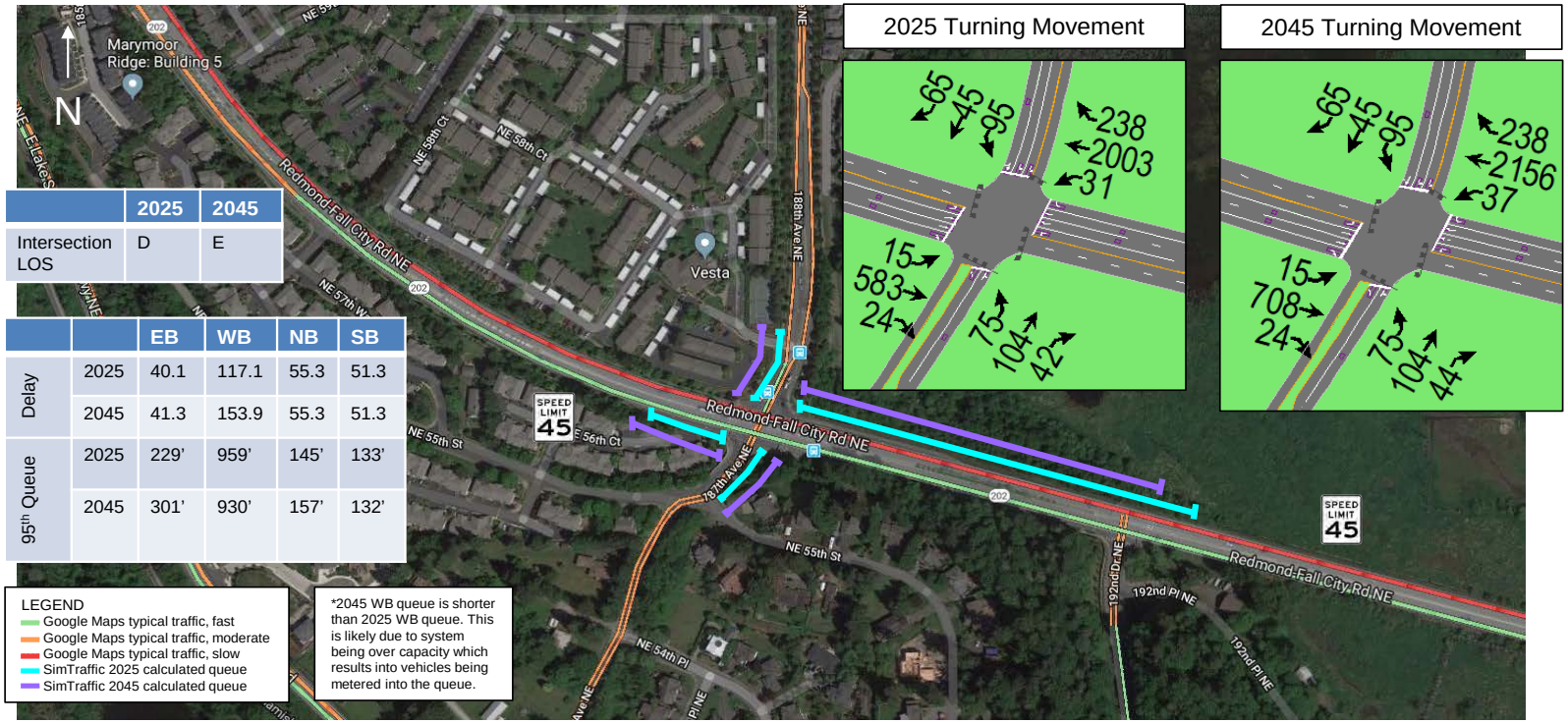
2045 Turning Movement



Intersection Analysis - Future

SR 202/188th Ave NE

2025/2045 AM Peak – 8:30AM-9:30AM



	2025	2045
Intersection LOS	D	E

		EB	WB	NB	SB
Delay	2025	40.1	117.1	55.3	51.3
	2045	41.3	153.9	55.3	51.3
95th Queue	2025	229’	959’	145’	133’
	2045	301’	930’	157’	132’

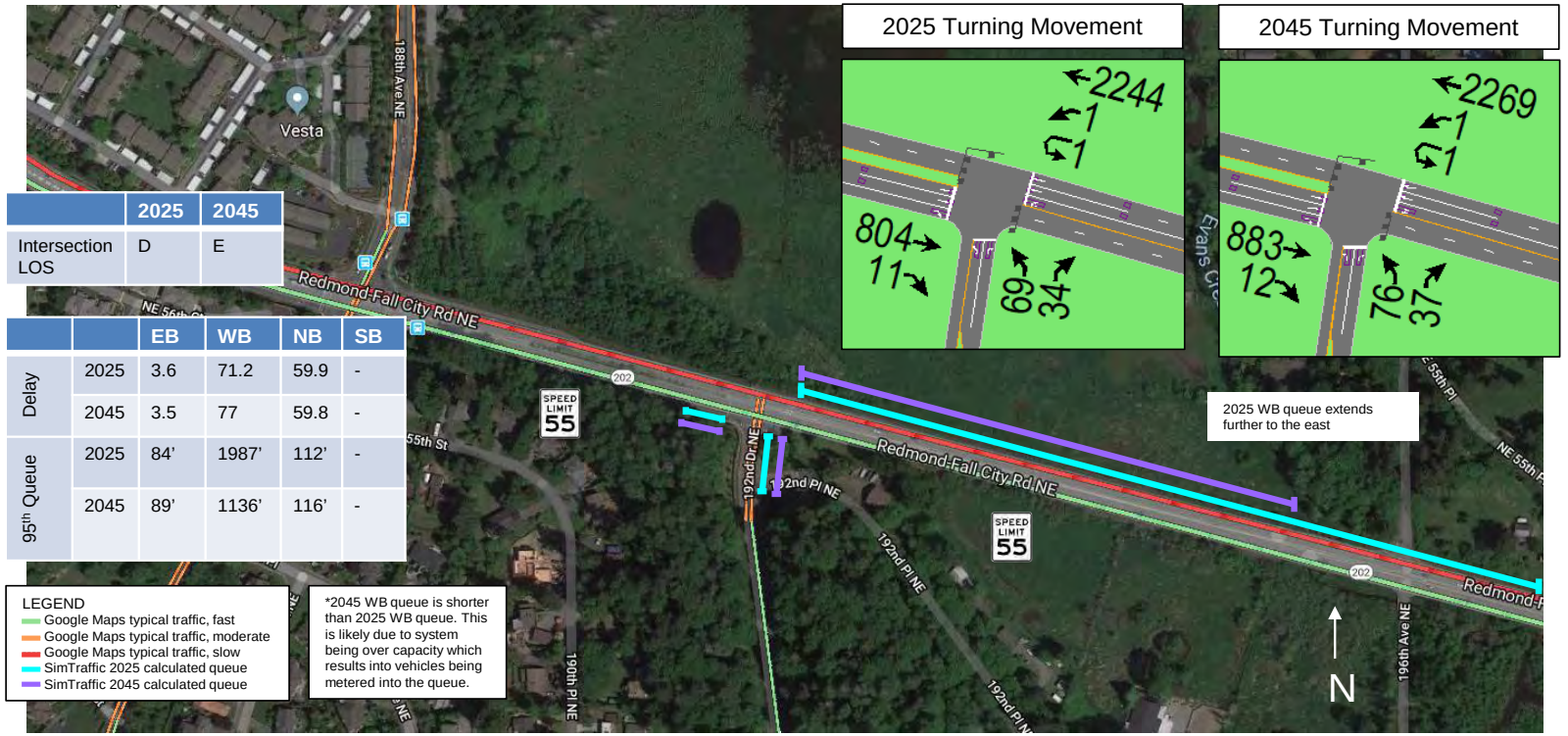
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 WB queue is shorter than 2025 WB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

Intersection Analysis - Future

SR 202/192nd Ave NE

2025/2045 AM Peak – 6:45AM-7:45AM



		EB	WB	NB	SB
Delay	2025	3.6	71.2	59.9	-
	2045	3.5	77	59.8	-
95th Queue	2025	84’	1987’	112’	-
	2045	89’	1136’	116’	-

	2025	2045
Intersection LOS	D	E

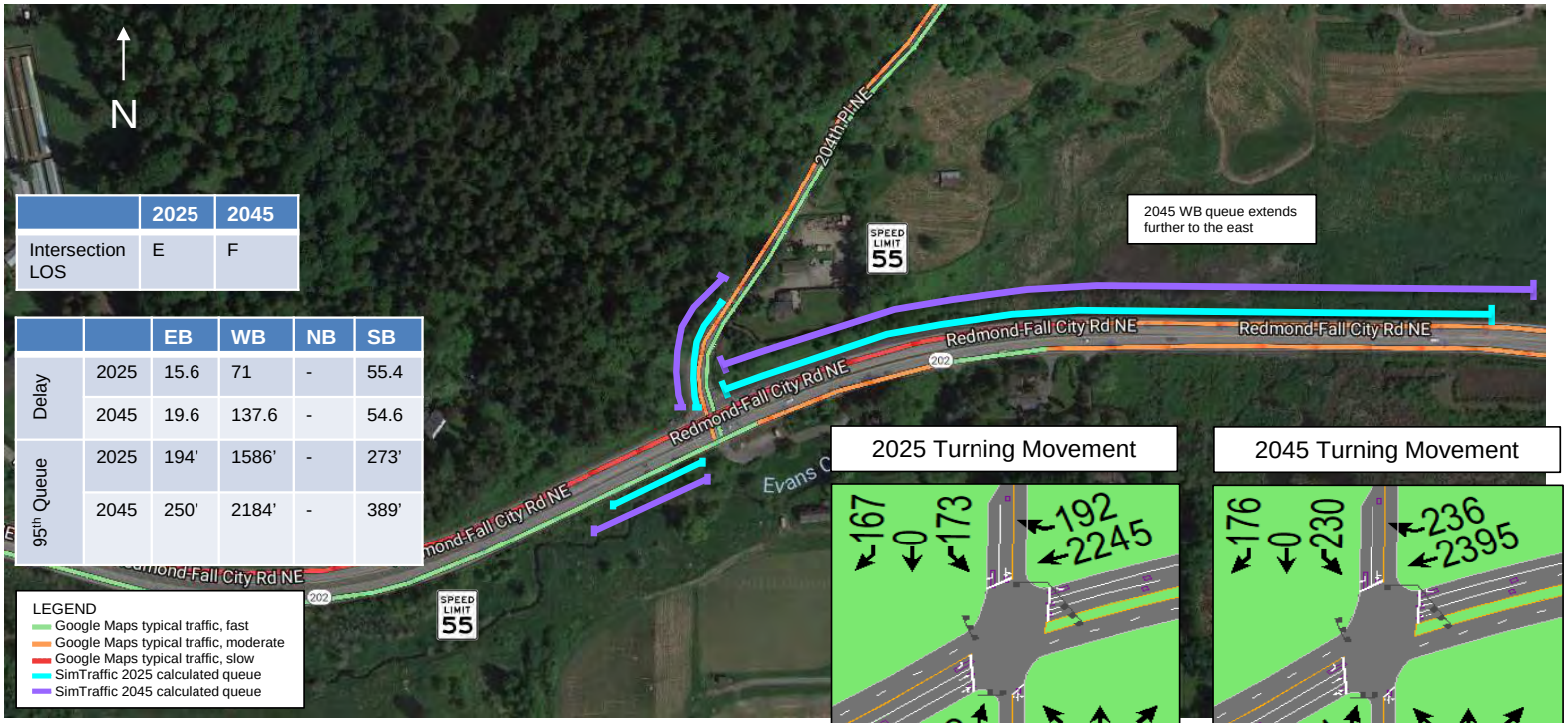
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 WB queue is shorter than 2025 WB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

Intersection Analysis - Future

SR 202/204th Pl NE

2025/2045 AM Peak – 7:00AM-8:00AM



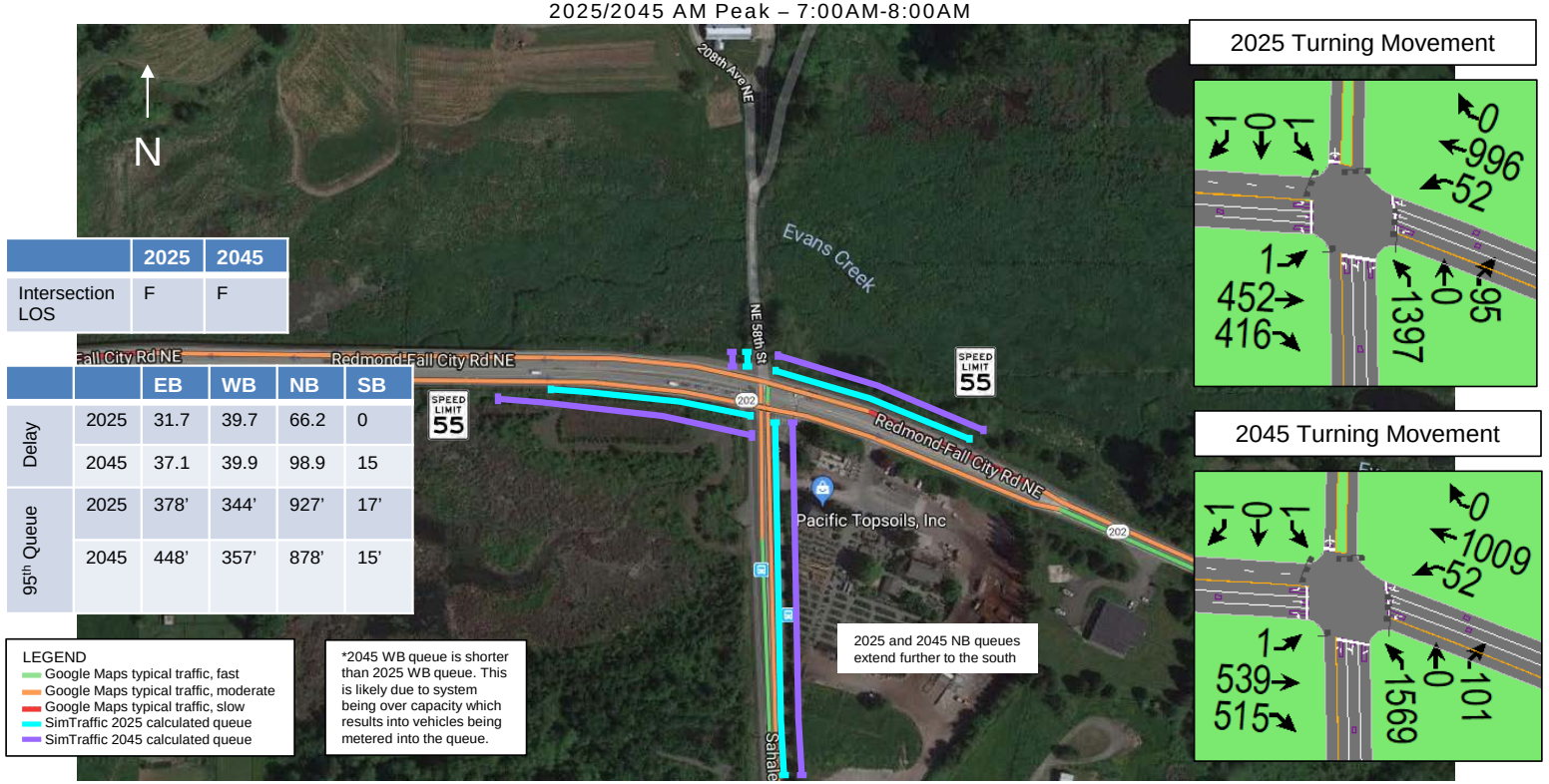
	2025	2045
Intersection LOS	E	F

		EB	WB	NB	SB
Delay	2025	15.6	71	-	55.4
	2045	19.6	137.6	-	54.6
95th Queue	2025	194’	1586’	-	273’
	2045	250’	2184’	-	389’

Intersection Analysis - Future

SR 202/Sahalee Way SE

2025/2045 AM Peak – 7:00AM-8:00AM



	2025	2045
Intersection LOS	F	F

		EB	WB	NB	SB
Delay	2025	31.7	39.7	66.2	0
	2045	37.1	39.9	98.9	15
95th Queue	2025	378’	344’	927’	17’
	2045	448’	357’	878’	15’

LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 WB queue is shorter than 2025 WB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

Intersection Analysis - Future

SR 202/NE 50th St and 218th Ave NE

2025/2045 AM Peak – 6:45AM-7:45AM

	2025	2045
Intersection LOS	C	C

		EB	WB	NB	SB
Delay	2025	1.9	0	-	28.2
	2045	2.2	0	-	30.2
95th Queue	2025	176’	11’	-	20’
	2045	155’	0’	-	48’

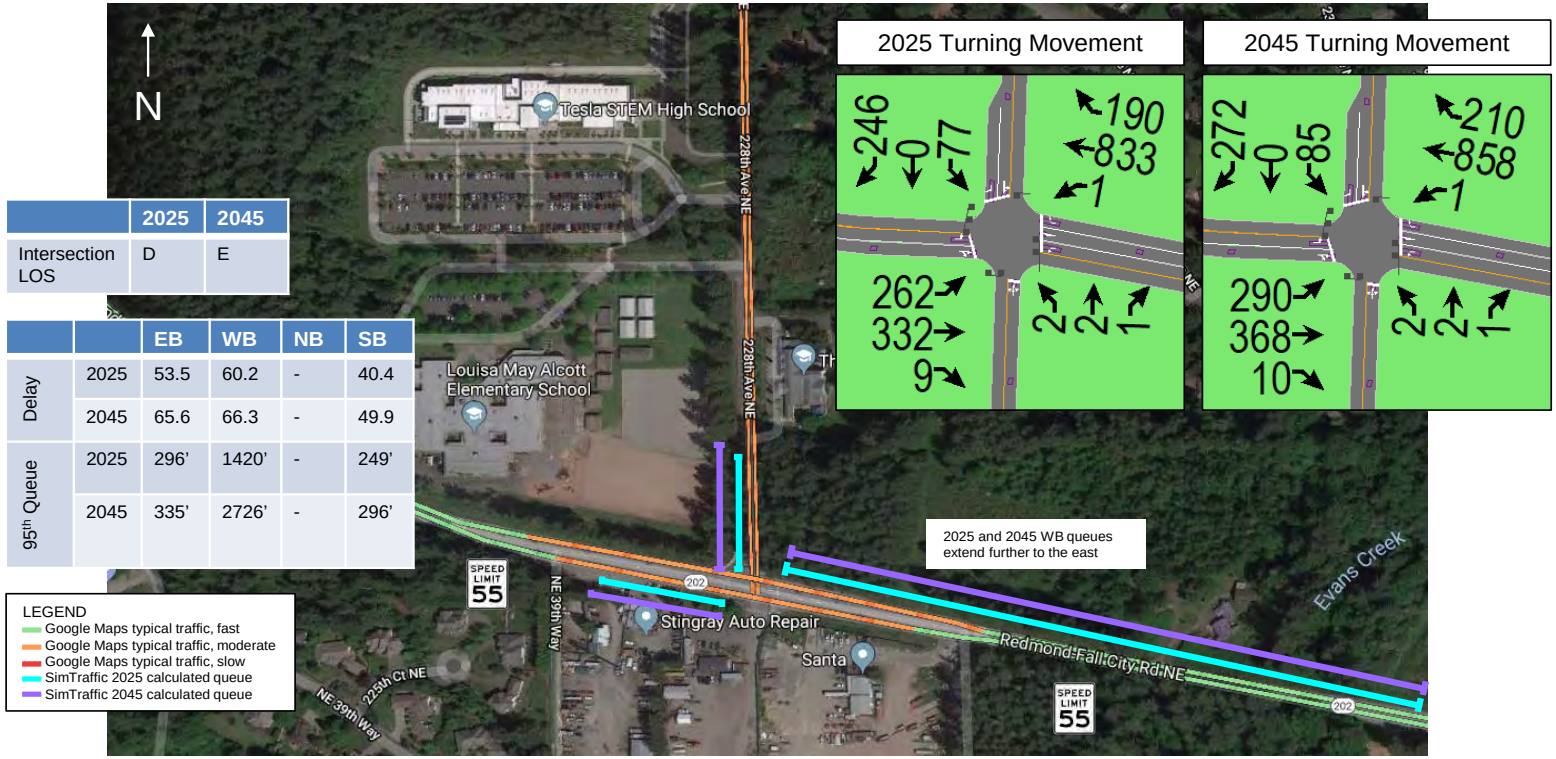
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

Metrics shown above are for SR 202/ 218th Ave NE. Metrics for SR 202/ NE 50th St in all approaches are LOS A, no delay, and no queue.

Intersection Analysis - Future

SR 202/228th Ave NE

2025/2045 AM Peak – 6:45AM-7:45AM



	2025	2045
Intersection LOS	D	E

		EB	WB	NB	SB
Delay	2025	53.5	60.2	-	40.4
	2045	65.6	66.3	-	49.9
95th Queue	2025	296’	1420’	-	249’
	2045	335’	2726’	-	296’

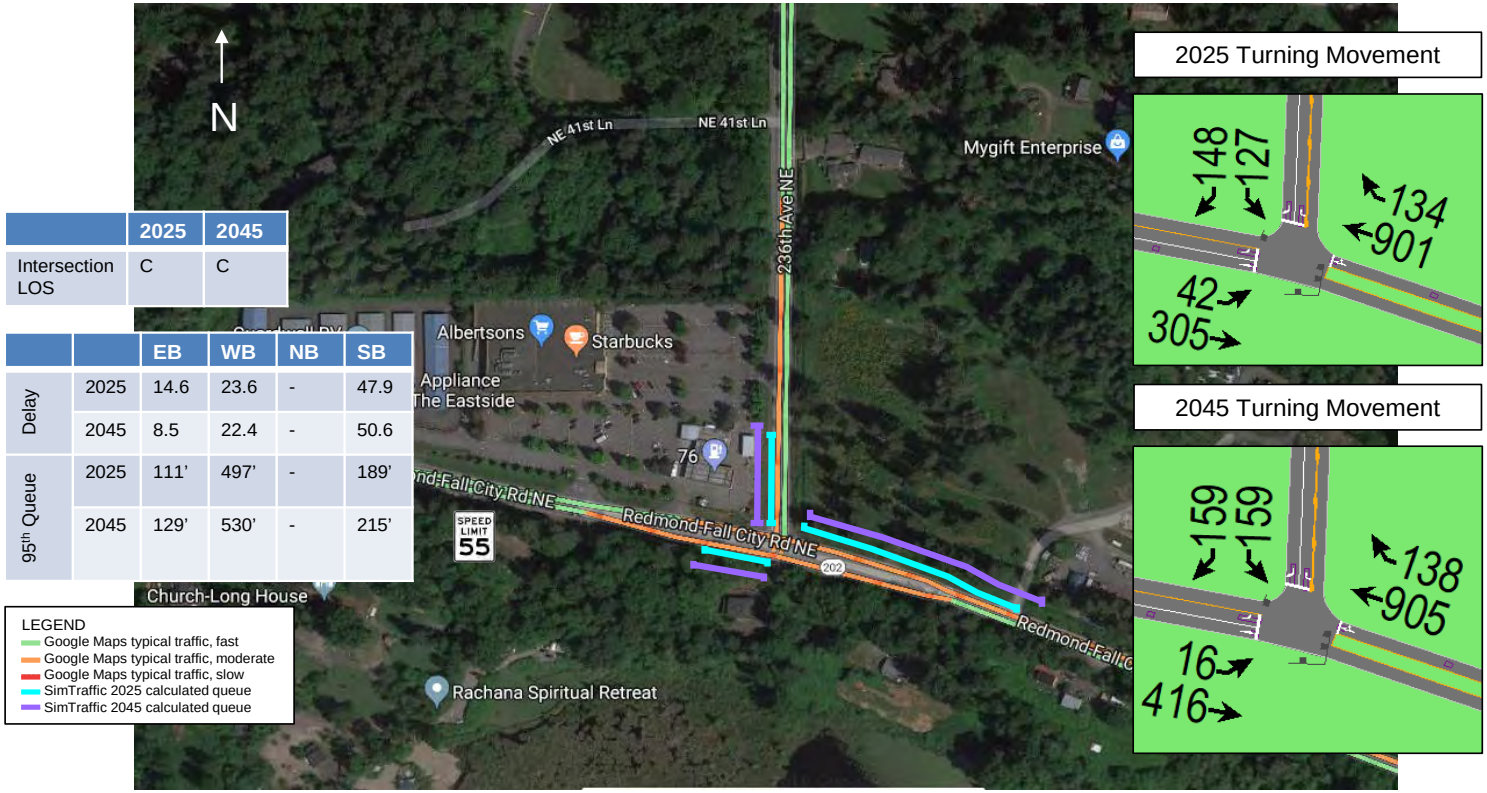
Intersection Analysis - Future

SR 202/236th Ave NE

2025/2045 AM Peak – 7:45AM-8:45AM

	2025	2045
Intersection LOS	C	C

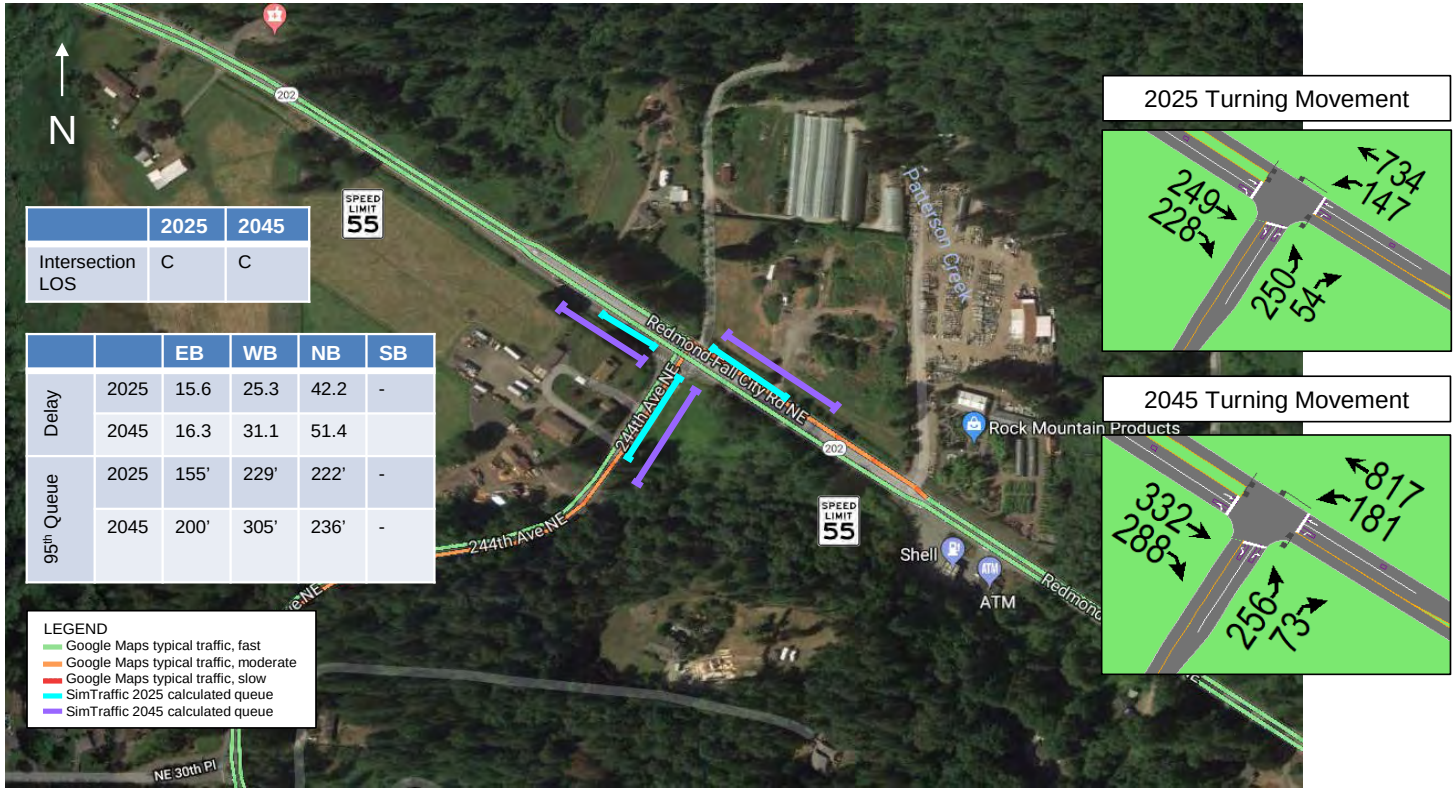
		EB	WB	NB	SB
Delay	2025	14.6	23.6	-	47.9
	2045	8.5	22.4	-	50.6
95th Queue	2025	111'	497'	-	189'
	2045	129'	530'	-	215'



Intersection Analysis - Future

SR 202/244th Ave NE

2025/2045 AM Peak – 6:45AM-7:45AM



	2025	2045
Intersection LOS	C	C

		EB	WB	NB	SB
Delay	2025	15.6	25.3	42.2	-
	2045	16.3	31.1	51.4	
95th Queue	2025	155’	229’	222’	-
	2045	200’	305’	236’	-

2025 Turning Movement

2045 Turning Movement

Intersection Analysis - Future

SR 202/E Lake Sammamish Pkwy NE

2025/2045 PM Peak – 4:00PM-5:00PM

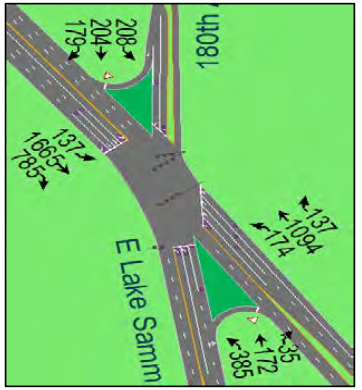
	2025	2045
Intersection LOS	F	F

		EB	WB	NB	SB
Delay	2025	75.8	49.9	168.1	138.5
	2045	122.4	49.5	202.5	138.5
95th Queue	2025	744'	296'	552'	589'
	2045	721'	280'	557'	644'

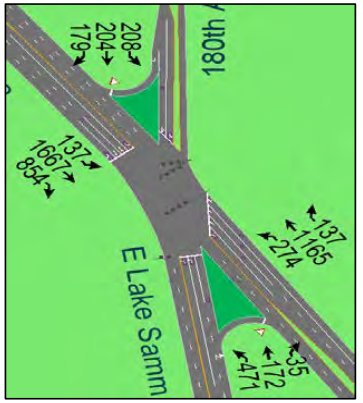
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 EB queue is shorter than 2025 EB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

2025 Turning Movement



2045 Turning Movement



Intersection Analysis - Future

SR 202/185th Ave NE

2025/2045 PM Peak – 3:30PM-4:30PM

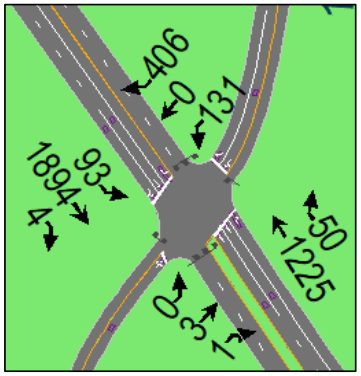
	2025	2045
Intersection LOS	D	D

		EB	WB	NB	SB
Delay	2025	43	26.3	48.8	75.4
	2045	42.1	30.5	48.8	82.4
95th Queue	2025	407'	563'	23'	424'
	2045	365'	622'	16'	454'

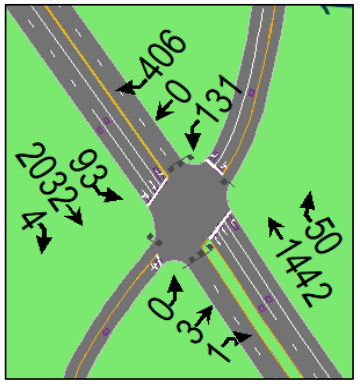
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 EB queue is shorter than 2025 EB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

2025 Turning Movement



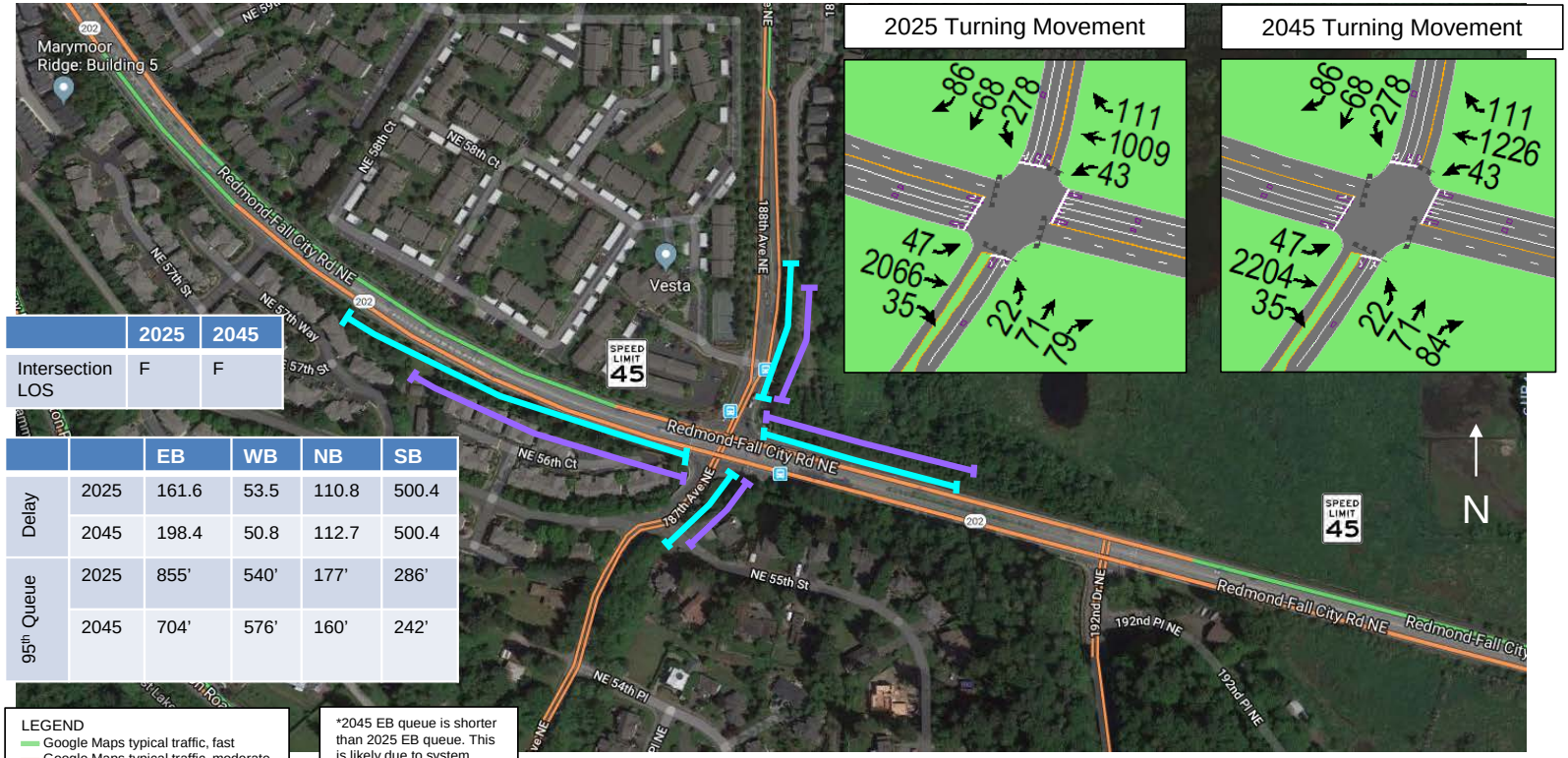
2045 Turning Movement



Intersection Analysis - Future

SR 202/188th Ave NE

2025/2045 PM Peak – 4:00PM-5:00PM



	2025	2045
Intersection LOS	F	F

		EB	WB	NB	SB
Delay	2025	161.6	53.5	110.8	500.4
	2045	198.4	50.8	112.7	500.4
95th Queue	2025	855’	540’	177’	286’
	2045	704’	576’	160’	242’

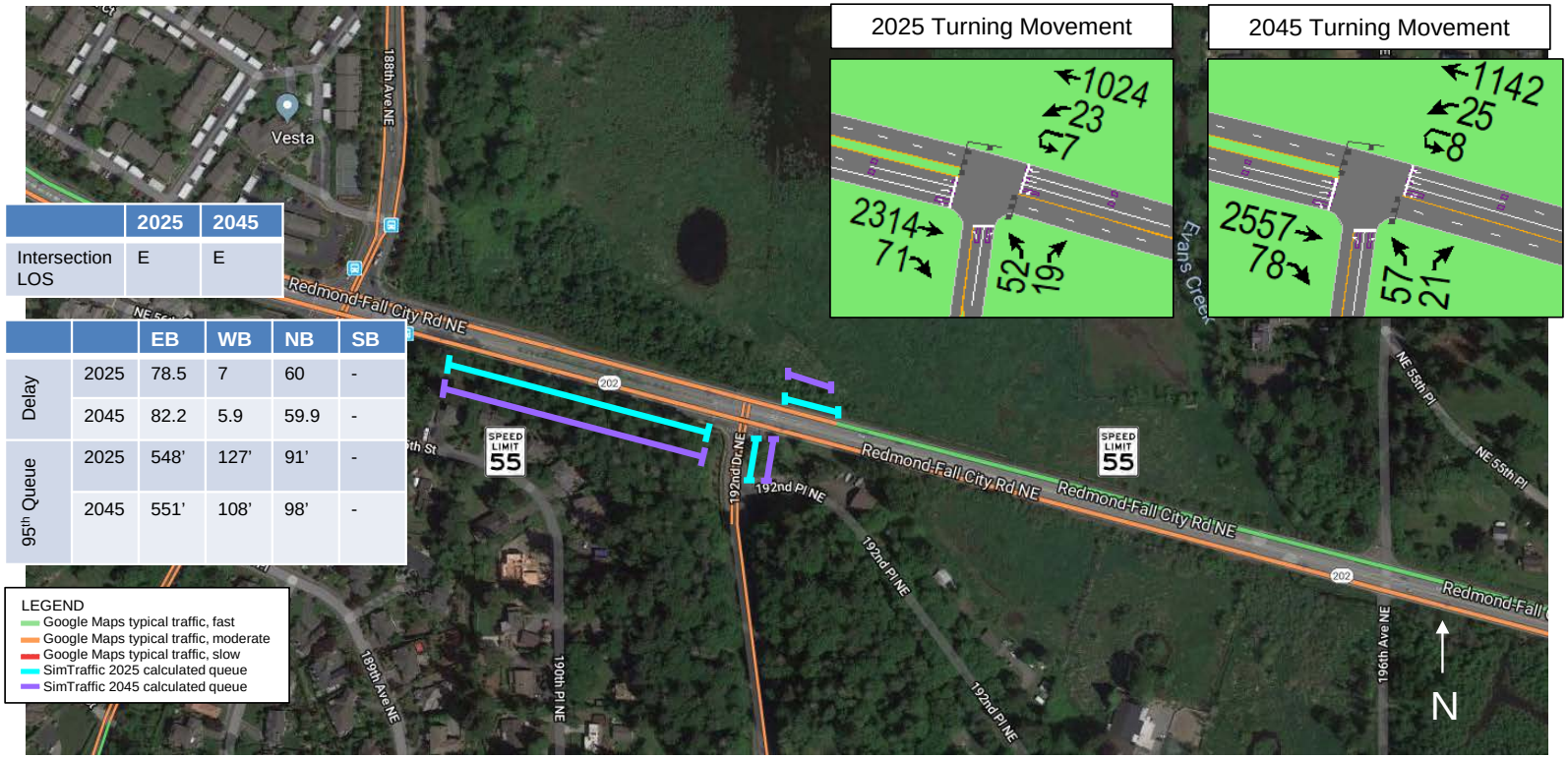
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*2045 EB queue is shorter than 2025 EB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

Intersection Analysis - Future

SR 202/192nd Ave NE

2025/2045 PM Peak – 4:15PM-5:15PM



	2025	2045
Intersection LOS	E	E

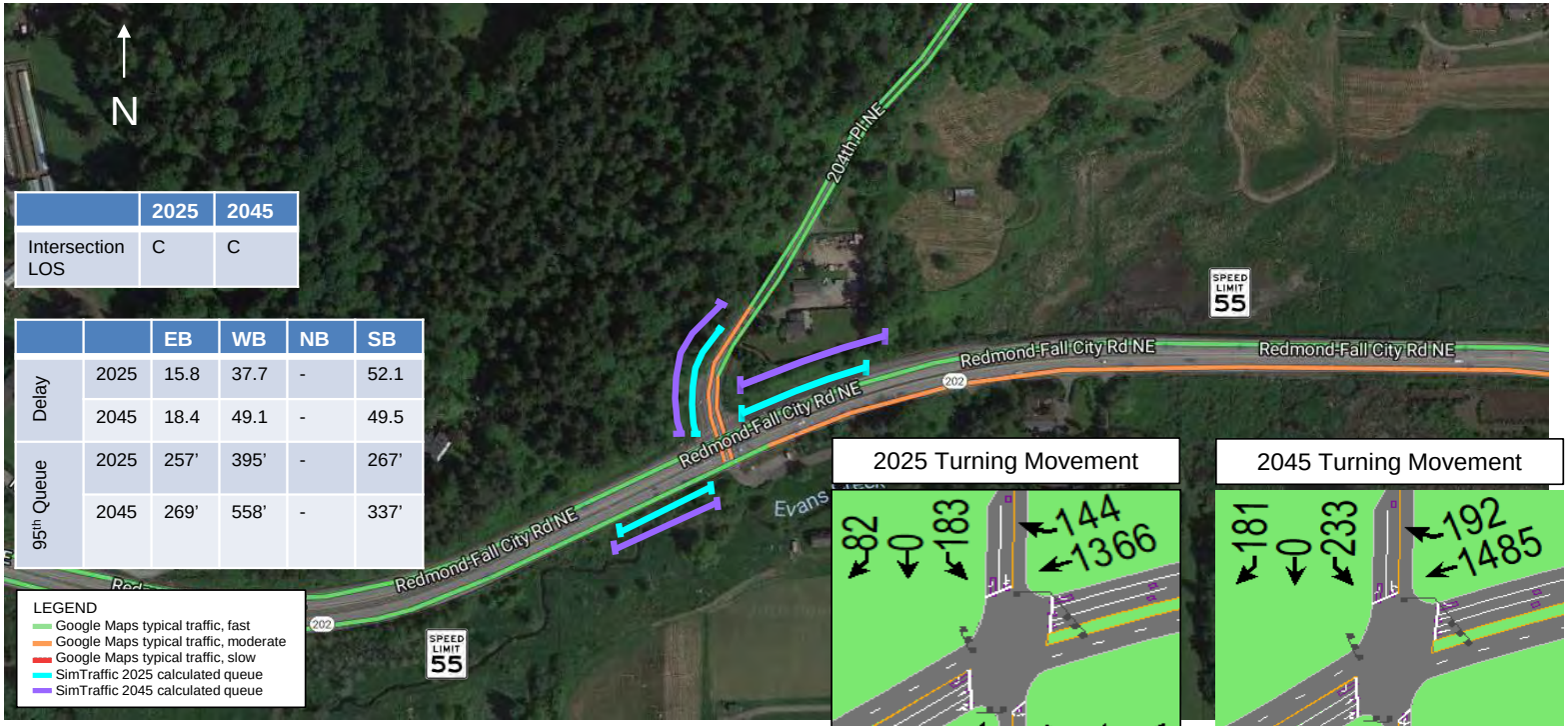
		EB	WB	NB	SB
Delay	2025	78.5	7	60	-
	2045	82.2	5.9	59.9	-
95th Queue	2025	548'	127'	91'	-
	2045	551'	108'	98'	-

LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

Intersection Analysis - Future

SR 202/204th Pl NE

2025/2045 PM Peak – 3:15PM-4:15PM



	2025	2045
Intersection LOS	C	C

		EB	WB	NB	SB
Delay	2025	15.8	37.7	-	52.1
	2045	18.4	49.1	-	49.5
95th Queue	2025	257'	395'	-	267'
	2045	269'	558'	-	337'

2025 Turning Movement

2045 Turning Movement

Intersection Analysis - Future

SR 202/Sahalee Way SE

2025/2045 PM Peak – 4:30PM-5:30PM

	2025	2045
Intersection LOS	F	F

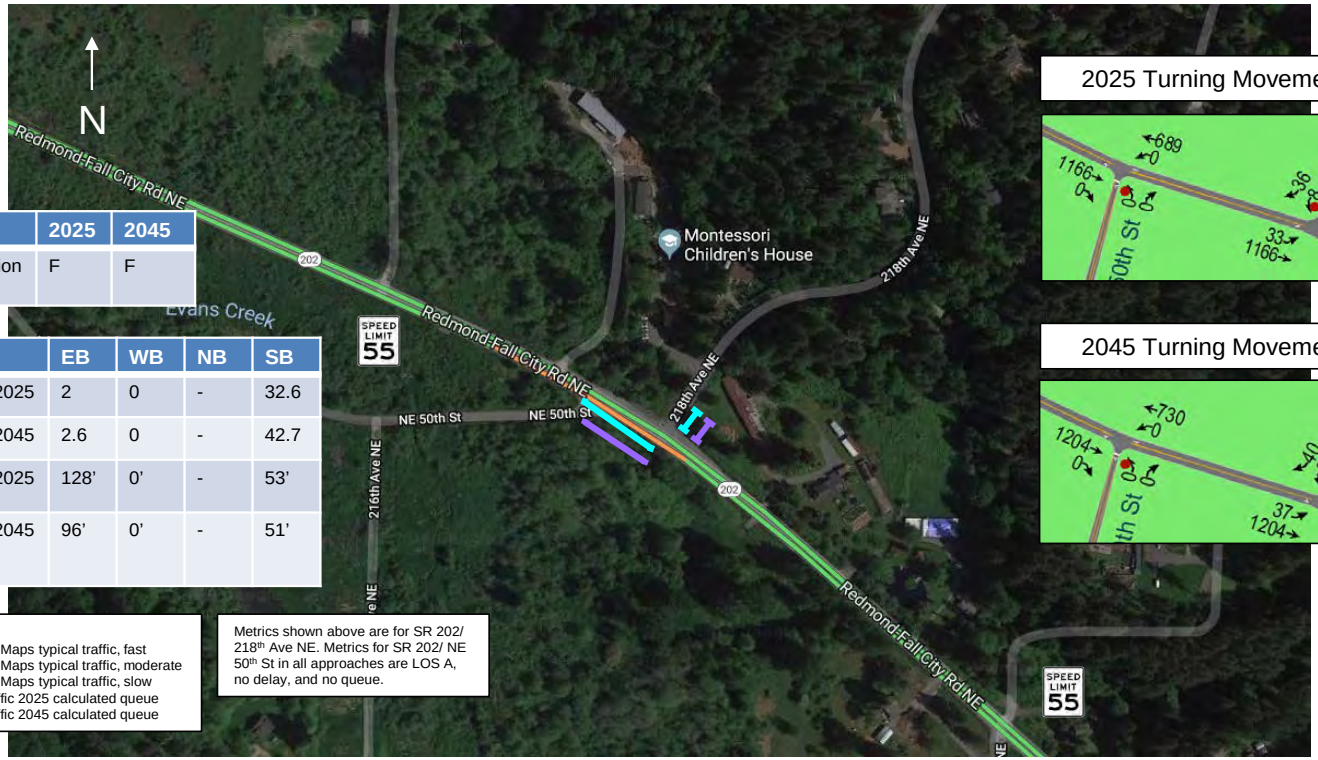
		EB	WB	NB	SB
Delay	2025	160.3	22.3	66.2	47.5
	2045	227.7	22.9	97.1	47.5
95th Queue	2025	1424’	133’	386’	30’
	2045	1986’	151’	716’	32’

LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

Intersection Analysis - Future

SR 202/NE 50th St and 218th Ave NE

2025/2045 PM Peak – 3:30PM-4:30PM



	2025	2045
Intersection LOS	F	F

		EB	WB	NB	SB
Delay	2025	2	0	-	32.6
	2045	2.6	0	-	42.7
95th Queue	2025	128’	0’	-	53’
	2045	96’	0’	-	51’

LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

Metrics shown above are for SR 202/ 218th Ave NE. Metrics for SR 202/ NE 50th St in all approaches are LOS A, no delay, and no queue.

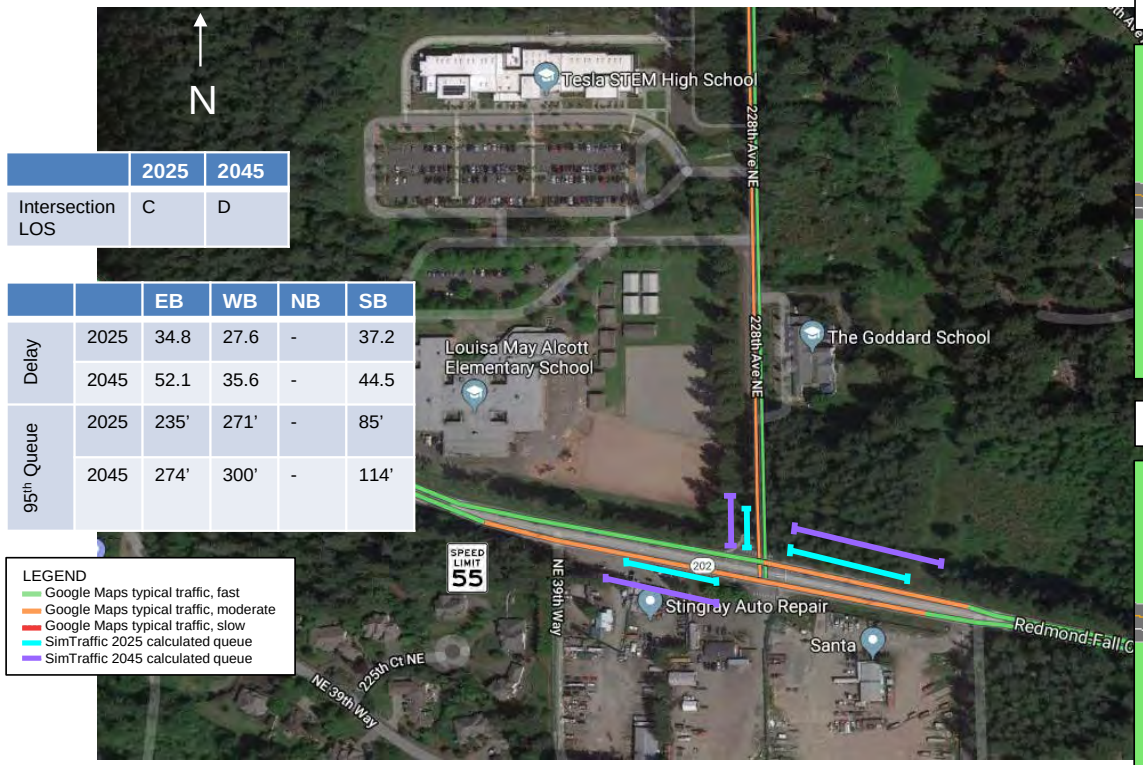
Intersection Analysis - Future

SR 202/228th Ave NE

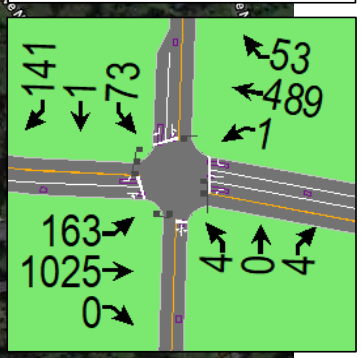
2025/2045 PM Peak – 4:15PM-5:15PM

	2025	2045
Intersection LOS	C	D

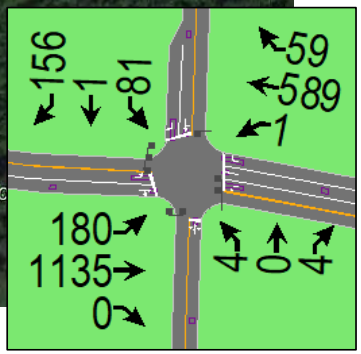
		EB	WB	NB	SB
Delay	2025	34.8	27.6	-	37.2
	2045	52.1	35.6	-	44.5
95th Queue	2025	235'	271'	-	85'
	2045	274'	300'	-	114'



2025 Turning Movement



2045 Turning Movement



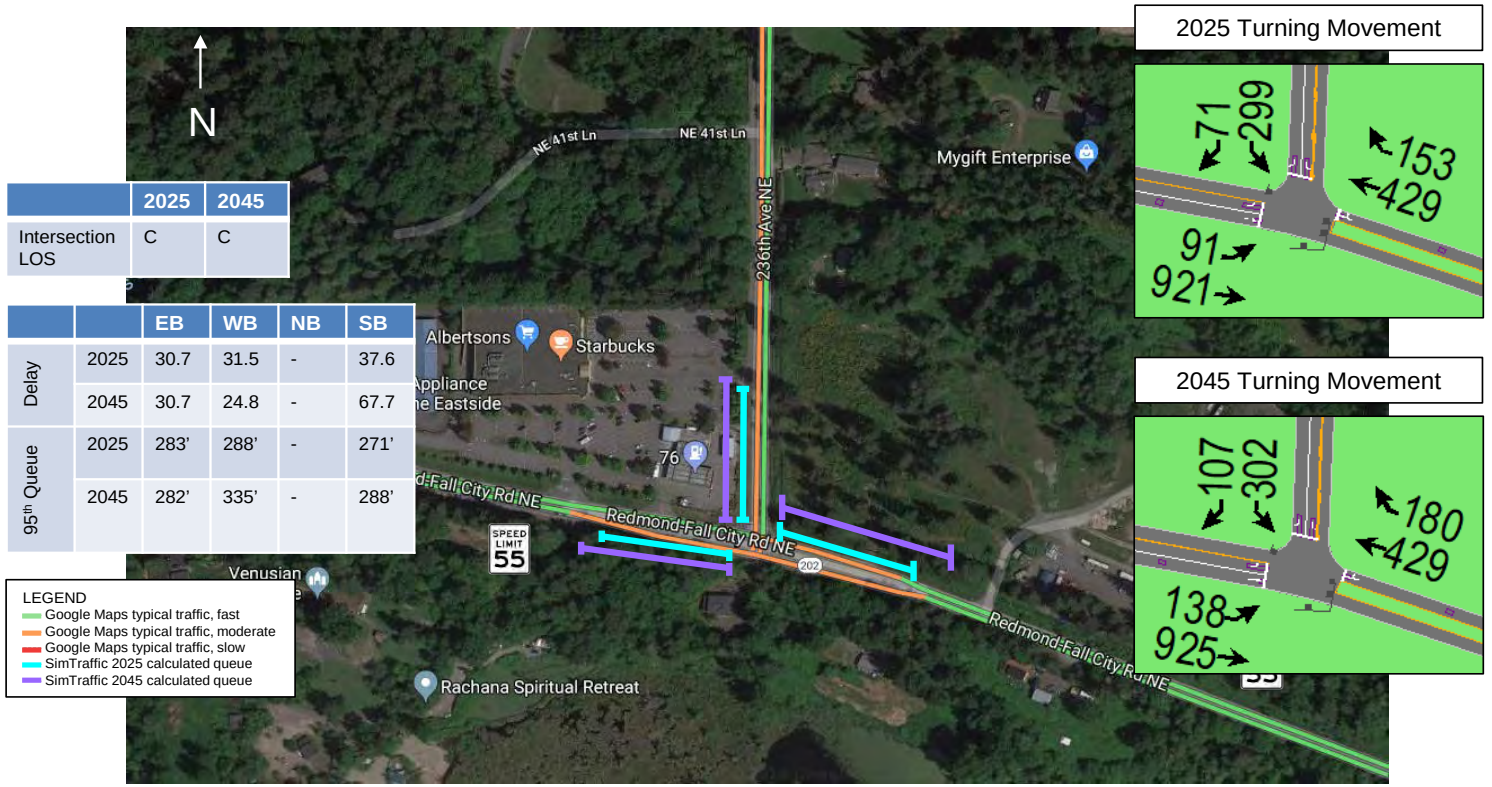
Intersection Analysis - Future

SR 202/236th Ave NE

2025/2045 PM Peak – 4:30PM-5:30PM

	2025	2045
Intersection LOS	C	C

		EB	WB	NB	SB
Delay	2025	30.7	31.5	-	37.6
	2045	30.7	24.8	-	67.7
95th Queue	2025	283'	288'	-	271'
	2045	282'	335'	-	288'



2025 Turning Movement

2045 Turning Movement

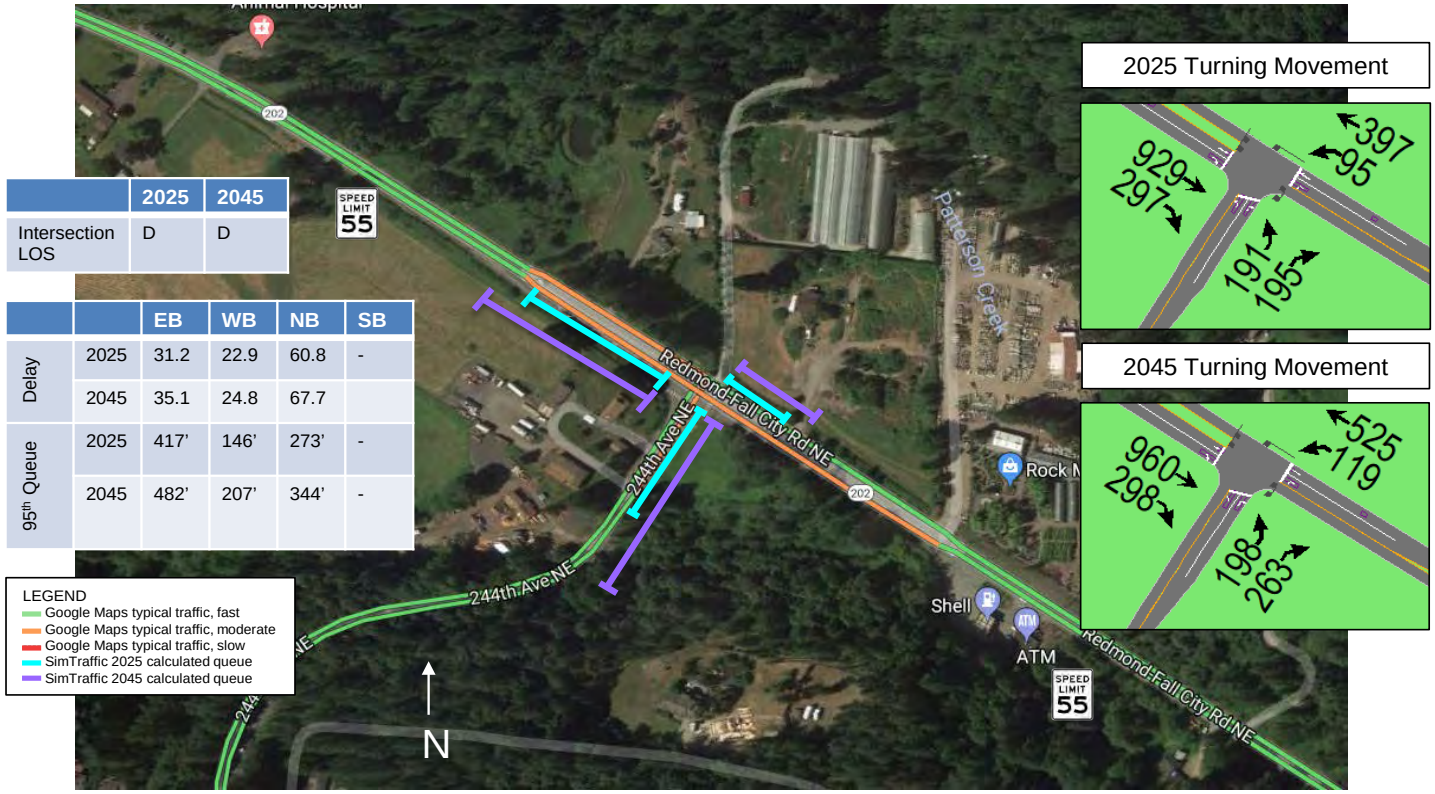
Intersection Analysis - Future

SR 202/244th Ave NE

2025/2045 PM Peak – 4:30PM-5:30PM

	2025	2045
Intersection LOS	D	D

		EB	WB	NB	SB
Delay	2025	31.2	22.9	60.8	-
	2045	35.1	24.8	67.7	
95th Queue	2025	417'	146'	273'	-
	2045	482'	207'	344'	-



Appendix E: Screening and Evaluation Results

SR 202 Corridor Study - Master Recommendations List

Intersections/Corridor	Alternatives	LOS	Queue	Travel Time	Ped/Bike	Transit	Safety	Cost	Average	Total	Timeframe	Screened Out?
NE 50th St and 218th Ave NE	Restrict turning movements for people going in and out of 218th	4	4	3	3	3	4	3	3.43	24	Near-term	
NE 50th St and 218th Ave NE	Close access or make 50th one-way towards the west	3.5	3	3	3	3	4	2.5	3.14	22	Near-term	Yes
192nd Dr NE	Eastbound left turn change from protected only to protected permissive (flashing yellow arrow)	3.5	3	3.5	3	3	3	3	3.14	22	Near-term	Yes
E Lake Samm Pkwy NE	Remove middle crosswalk and add it to the east leg	2.5	3	2	3	3	3	4	2.93	20.5	Near-term	
E Lake Samm Pkwy NE	Change northbound triple left to double left with a through/right	2.5	2.5	3	3	3	3	3	2.86	20	Near-term	
Corridor Wide	Expand KCM Community Connections, Ride2, Mobility Hub, Just One Trip, Safe Routes to School, and School Pool programs in the Redmond and Sammamish area	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Evauate potential to reroute or add KC Metro and Sound Transit service from Sammamish Plateau to Redmond area via Inglewood Hill Road and East Lake Sammamish Parkway	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Implement planned express KCM transit service along SR 202 by 2025 and 2045	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Evaluate potential to utilize church parking lots in Sammamish as park and rides during the work week	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
E Lake Samm Pkwy NE	Consider extending bike markings through intersection	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Consider installing additional speed limit signs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Evaluate need for improved illumination	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Consider installing variable message signs	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Corridor Wide	Evaluate need for additional bus stops along SR 202	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Near-term	
Sahalee Way NE	Option A Roundabout	5	4	5	3	4	5	2.5	4.07	28.5	Mid/long term	Yes
Sahalee Way NE	Option B Roundabout (EB Metered)	4.5	4	5	3	4	5	2.5	4.00	28	Mid/long term	
NE 50th St and 218th Ave NE	Roundabout near Montessori school	3.5	3.5	3	3	3	5	2	3.29	23	Mid/long term	Yes
NE 50th St and 218th Ave NE	Add a left turn pocket on WB SR 202 to 218th	3	3	3	3	3	4	3	3.14	22	Mid/long term	
NE 50th St and 218th Ave NE	Convert intersection to roundabout	4.5	4	5	3	4	5	2.5	4.00	28	Mid/long term	Yes
204th Pl NE	Southbound dual lefts to eastbound so green light is shorter	3.5	3	3.5	3	3	3	3	3.14	22	Mid/long term	
NE 50th St and 218th Ave NE	Realign 218th and 50th to make them 4-way intersection	4	4	3	3	3	4	1	3.14	22	Mid/long term	Yes
Sahalee Way NE	Option C Roundabout (EB Metered)	3	3	1	3	4	5	2.5	3.07	21.5	Mid/long term	Yes
204th Pl NE	Extend turn lanes north on 204th	3.5	3.5	3.5	3	3	3	2	3.07	21.5	Mid/long term	
188th to Sahalee	Existing roads have potential to reduce flow off Sahalee (bypasses, effectively)	3.5	3.5	3	3	3	2	3	3.00	21	Mid/long term	Yes
Sahalee Way NE	Extend storage of 2nd westbound through lane	3	3	3	3	3	3	2	2.86	20	Mid/long term	Yes
E Lake Samm Pkwy NE	Make a new southbound through lane in the western island: left, left/through, through, right turn slip lane	2.5	3	2.5	3	3	3	2.5	2.79	19.5	Mid/long term	
Corridor Wide	Consider establishing a shuttle service on the Sammamish Plateau	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mid/long term	
Sahalee Way NE	Consider installing bike lane to support active modes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mid/long term	
Corridor Wide	Evaluate installation of bike/ped accommodations	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mid/long term	
Sahalee Way NE	Evaluate potential for bus only lane connecting to park and rides	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mid/long term	
Sahalee Way NE	Extend eastbound right turn. Eastbound bridge widening might be required.	3.5	3.5	3.5	3	3.5	3	1	3.00	21	Long-term	Yes
204th Pl NE	Roundabout	2.5	2.5	2.5	3	2.5	4	2.5	2.79	19.5	Long-term	Yes
192nd Dr NE	Roundabout	2.5	2.5	2.5	3	2.5	4	2.5	2.79	19.5	Long-term	Yes
188th Ave NE	Roundabouts	2.5	2.5	2.5	3	2.5	4	2.5	2.79	19.5	Long-term	Yes
E Lake Samm Pkwy NE	Peanut roundabout	2.5	2.5	2.5	3	2.5	4	2	2.71	19	Long-term	Yes
Corridor Wide	Road diet + corridor-wide roundabouts	2	2	2	4	2	4	2	2.57	18	Long-term	
Corridor Wide	Evaluate potential for dedicated HOV lane, queue jumps, slip lanes for buses at intersections	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Long-term	

Cost estimates are planning level and assume little to no design. These estimates were derived using the Planning Level Cost Estimate Tool and were further refined by WSDOT's Program Management Office.

KEY:

Analyzed Quantitatively	
Analyzed Qualitatively	
TDM	

SR 202 Corridor Study - Planning Level Cost Estimates*, DRAFT

Near Term						
Intersection/Corridor	**Alternatives**	**Total Score**	**Timeframe**	**Estimated Cost: Low Range (2016 $)**	**Estimated Cost: High Range (2016 $)**	**Partners & Resources**
E Lake Samm Pkwy NE	Remove middle crosswalk and add it to the east leg	20.5	Near-term	450,000	600,000	WSDOT, King County
NE 50th St and 218th Ave NE	Close access or make 50th one-way towards the west	19.5	Near-term	90,000	120,000	WSDOT, King County
Corridor Wide	Expand KCM Community Connections, Ride2, Mobility Hub, Just One Trip, Safe Routes to School, and School Pool programs in the Redmond and Sammamish area	N/A	Near-term	N/A	N/A	King County Metro, Schools, Employers, WSDOT
Corridor Wide	Evaluate potential to reroute or add KC Metro and Sound Transit service from Sammamish Plateau to Redmond area via Inglewood Hill Road and East Lake Sammamish Parkway	N/A	Near-term	N/A	N/A	King County Metro, Schools, Employers, WSDOT
Corridor Wide	Implement planned express KCM transit service along SR 202 by 2025 and 2045; Evaluate need for additional bus stops along SR 202.	N/A	Near-term	N/A	N/A	King County Metro
Corridor Wide	Evaluate potential to utilize church parking lots in Sammamish as park and rides during the work week	N/A	Near-term	N/A	N/A	King County Metro, WSDOT
E Lake Samm Pkwy NE	Consider extending bike markings through intersection	N/A	Near-term	N/A	N/A	WSDOT, Redmond
Corridor Wide	Consider installing additional ITS/driver information signage	N/A	Near-term	N/A	N/A	WSDOT, Redmond, Sammamish, King County

Mid Term						
Intersection/Corridor	**Alternatives**	**Total Score**	**Timeframe**	**Estimated Cost: Low Range (2016 $)**	**Estimated Cost: High Range (2016 $)**	**Partners & Resources**
Sahalee Way NE	Option B Roundabout (EB Metered)	28	Mid/long term	8,100,000	10,800,000	WSDOT, King County
E Lake Samm Pkwy NE	Make a new southbound through lane in the western island: left, left/through, through, right turn slip lane	20	Mid/long term	1,890,000	2,520,000	WSDOT, King County
204th Pl NE	Extend turn lanes on 204th	20	Mid/long term	1,530,000	2,040,000	WSDOT, King County
NE 50th St and 218th Ave NE	Add a left turn pocket on EB SR 202 to 218th	18.5	Mid/long term	1,350,000	1,800,000	WSDOT, King County
Corridor Wide	Consider establishing a shuttle service on the Sammamish Plateau	N/A	Mid/long term	N/A	N/A	King County Metro, private sector
Corridor Wide	Evaluate installation of bike/ped accommodations	N/A	Mid/long term	N/A	N/A	WSDOT, King County, Redmond, Sammamish
Sahalee Way NE	Evaluate potential for bus only lane connecting to park and rides	N/A	Mid/long term	N/A	N/A	WSDOT, King County, Redmond, Sammamish, King County Metro

Long Term						
Intersection/Corridor	**Alternatives**	**Total Score**	**Timeframe**	**Estimated Cost: Low Range (2016 $)**	**Estimated Cost: High Range (2016 $)**	**Partners & Resources**
Corridor Wide	Road diet + corridor-wide roundabouts	18	Long-term	TBD	TBD	WSDOT, King County
Corridor Wide	Evaluate potential for dedicated HOV lane, queue jumps, slip lanes for buses at intersections	N/A	Long-term	N/A	N/A	WSDOT, King County, Redmond, Sammamish, King County Metro

*Cost estimates are planning level and assume little to no design. These estimates were derived using the Planning Level Cost Estimate Tool and were further refined by WSDOT's Program Management Office.

E Lake Samm and Sahalee Way Alternatives AM Peak Summary

2025 AM Peak

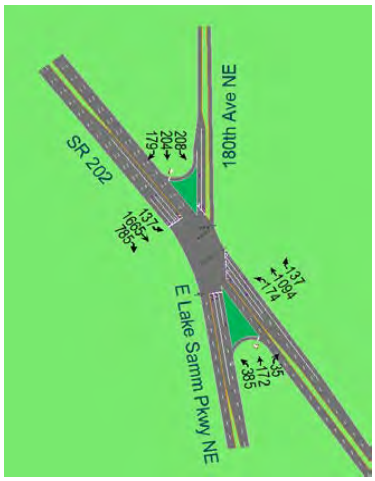
Intersection	Traffic Control	Alternative	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
				LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	Existing	F	C	32.6	278	F	132.6	1909	F	432.6	515	D	45.5	342
	Signal	NB Triple Left to Double Left w/ Through/Right	F	C	34.4	339	F	153.4	2083	F	573.7	664	D	45.5	354
SR 202/Sahalee Way SE	Signal	Existing	D	C	31.7	378	D	39.7	344	E	66.2	927	A	0	17
	Roundabout	Option A	A	A	9.8	65.2	A	4.7	14.5	A	16.8	252.1	-	-	-
	Roundabout	Option B (EB Metered)	B	B	10.6	341.7	C	30.4	366.3	B	14.4	266.9	-	-	-
	Roundabout	Option C (EB Metered)	F	C	31	637.4	A	4.6	19.2	F	578.1	11881.4	-	-	-
	Signal	Extended WB Storage	D	C	31.7	388	D	39.7	255	E	66.2	908	-	-	-
	Signal	Second EBRT Lane	F	C	29.5	373	D	39.7	348	E	66.2	891	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	Existing	C	A	1.9	176	A	0	49	-	-	-	D	28.2	20
	Roundabout		A	A	4.4	87.3	A	5.5	766	-	-	-	B	18.7	15

E Lake Samm and Sahalee Way Alternatives PM Peak Summary

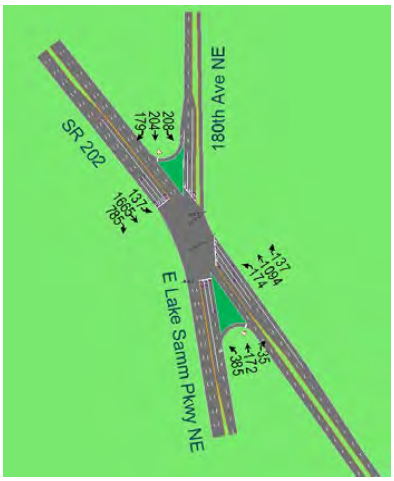
2025 PM Peak

Intersection	Traffic Control	Alternative	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
				LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	Existing	F	E	75.8	744	D	49.9	296	F	168.1	552	F	138.5	589
	Signal	A) Added SB Through Lane	F	F	87.9	732	D	52.6	291	F	157.3	577	E	77.4	402
	Signal	B) Move middle crosswalk to east leg	F	F	106.3	668	D	44.3	322	E	79	352	F	99.1	632
	Signal	C) A + B	E	E	72	684	D	39.4	287	E	79	404	F	118.3	639
SR 202/Sahalee Way SE	Signal	Existing	F	F	160.3	1424	C	22.3	122	E	66.2	386	D	47.5	30
	Roundabout	Option A	B	A	4.6	391.2	A	4.9	9.9	E	57.7	352.9	-	-	-
	Roundabout	Option B (Meter Off)	B	A	4.6	402.7	A	7.5	54.4	F	88.7	519.4	-	-	-
	Roundabout	Option C (Meter Off)	F	A	4.4	365.9	A	4.7	11.1	F	713.6	5994.7	-	-	-
	Signal	Extended WB Storage	F	F	160.3	1186	C	22.3	138	E	66.2	422	-	-	-
	Signal	Second EBRT Lane	E	F	81	897	C	22.3	140	E	66.2	392	-	-	-
SR 202/218th Ave NE[1]	Two-Way Stop	Existing	F	A	2	128	A	0	0	-	-	-	D	32.6	53
	Roundabout		B	B	15.6	5187.7	A	4.7	185.4	-	-	-	A	9.6	10.2

E Lake Samm: Existing

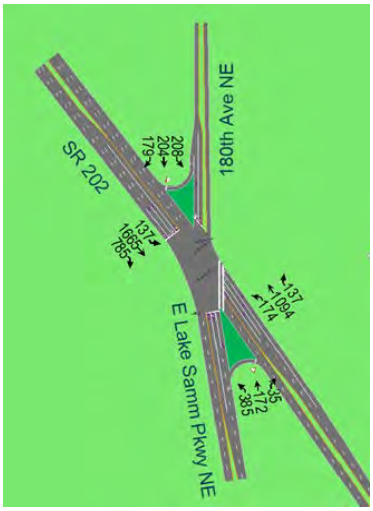


E Lake Samm Option A: Added SB Through Lane



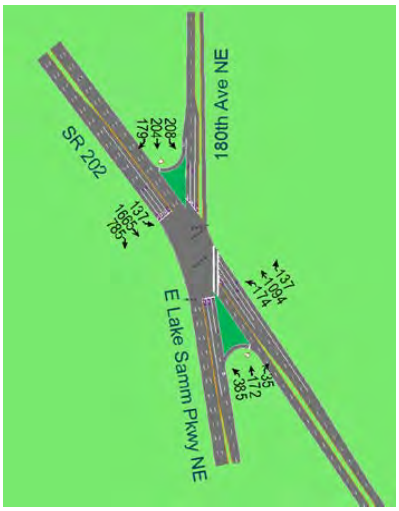
-Add a new southbound through lane
-SB configuration will become left, left/through, through, right turn slip lane
-2025 PM Peak SB delay improves by 61 seconds and improves queue by 187ft.
-No significant change in delay or queue in the EB, WB or NB directions.
-Overall intersection LOS remained at F

E Lake Samm Option B: Moved middle crosswalk to east leg



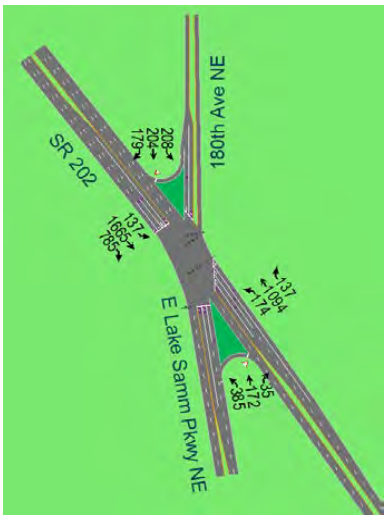
-Remove middle crosswalk and add it to the east leg.
-The new crosswalk will run with the NB movement.
-Removing the middle crosswalk decreased the cycle length from 180 to 145 seconds.
-Added 5 seconds to the EB/WB LT to account for the loss of the EB/WB LT phase when pedestrians would cross middle crosswalk
-Added 7.4 seconds to NB phase to account for added pedestrian crosswalk phase length.
-2025 PM Peak NB delay improved by 89 seconds and queuing decreased by 200ft.
-2025 PM Peak SB delay improved by 39 seconds and queuing remained about the same.
-2025 PM Peak EB delay worsened by 30 seconds but queuing reduced by 76ft.
-2025 PM Peak WB delay and queue remained about the same
-Overall intersection LOS remained at F

E Lake Samm Option C: Option A+B



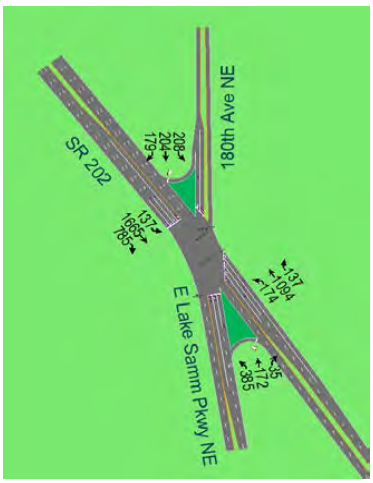
-Combine Alternatives A and B which includes a new SB through lane and moving the middle crosswalk to the east leg
-Removed 7 seconds from SB direction from 25 to 18 seconds
-Added 7 seconds to EB/WB through from 73 to 80 seconds.
-2025 PM Peak SB delay improves by 20 seconds and queuing increased by 50ft
-2025 PM Peak NB delay improves by 89 seconds and queuing decreased by 148ft
-2025 PM Peak WB delay reduced by 10 seconds and queuing remained about the same.
-2025 PM Peak EB delay remained about the same and queuing improved by 60ft.
-Overall intersection LOS went from F to E

E Lake Samm Option D



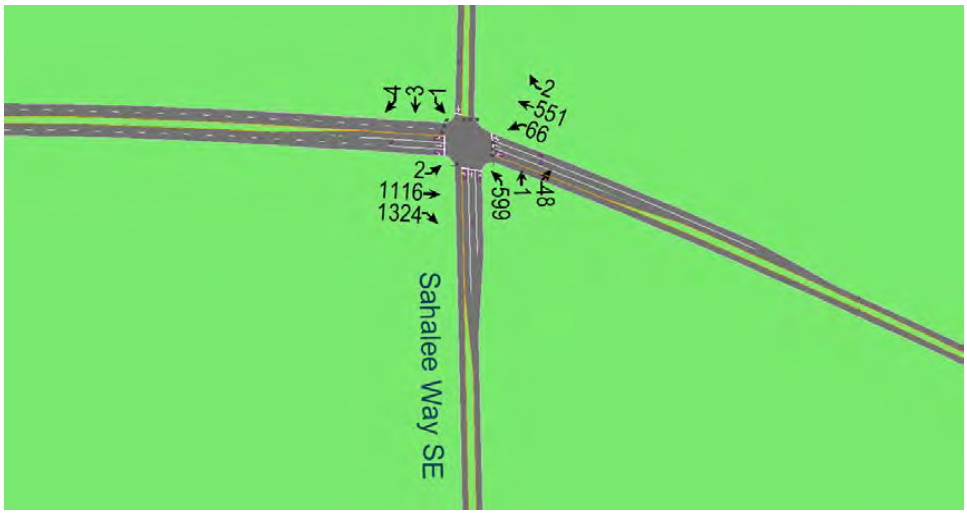
-Change northbound triple left to double left with a through/right.
-2025 AM Peak delay worsened by 141 seconds and queuing increased by 150ft.
-Due to the significant negative effects to the NB direction during the AM peak, this alternative was removed from consideration.

E Lake Samm Option E

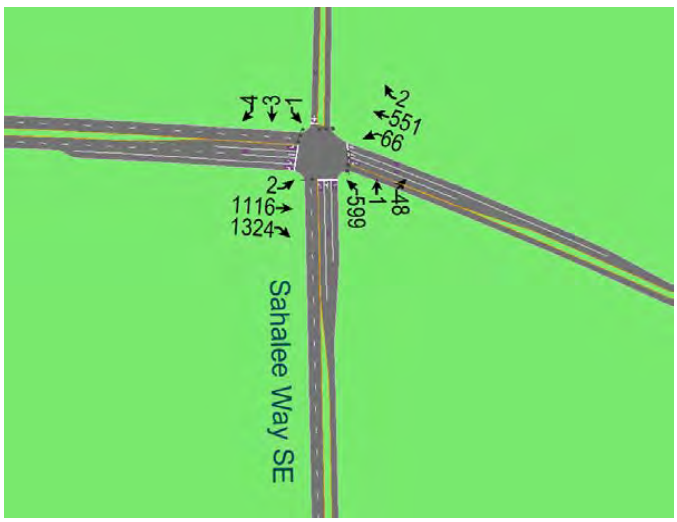


-Eastbound right turn to be simultaneous with westbound left turn or southbound through.
-This option was eliminated due to multiple factors:
*To accomplish this option the simultaneous movements would need to be buffered to prevent entering the incorrect lane
*The SB through movement/WB left turn would have difficulty maneuvering to the right lane if they are destined for the parking lot after the intersection. This weaving would cause conflicts with the EB right vehicles.
*Weaving of the EB right turn vehicles to the left lane for the left turn at NE 65th would also cause potential conflicts.

Sahalee Way NE: Existing



2025 Sahalee Way NE: Additional EB right turn lane



- Additional 400’ eastbound right turn lane
- Overall PM Peak intersection LOS improves from existing LOS F to LOS E
- Eastbound PM Peak delay improves from 160.3 sec to 81 sec
- Eastbound PM Peak queue improves from 1424’ to 897’
- Westbound and Northbound PM Peak has the same results as existing

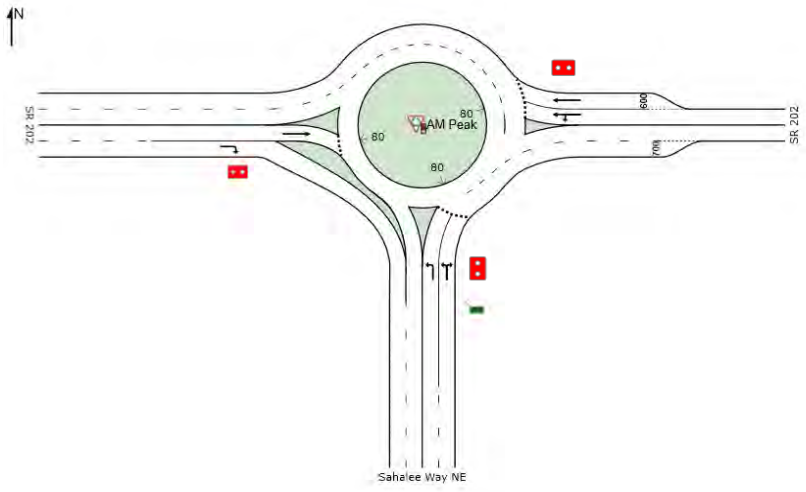
2025 Sahalee Way NE: Extended WB Through

- Extended second westbound through lane from 500’ to 1000’
- Overall AM Peak intersection LOS improves from existing LOS F to LOS D
- Westbound AM Peak delay remains has the same results as existing
- Westbound AM Peak queue improves from 344’ to 255’
- Eastbound and Northbound AM Peak has the same results as existing
- All directions in the PM Peak has the same results as existing

2025 Sahalee Way NE: Roundabout Option A

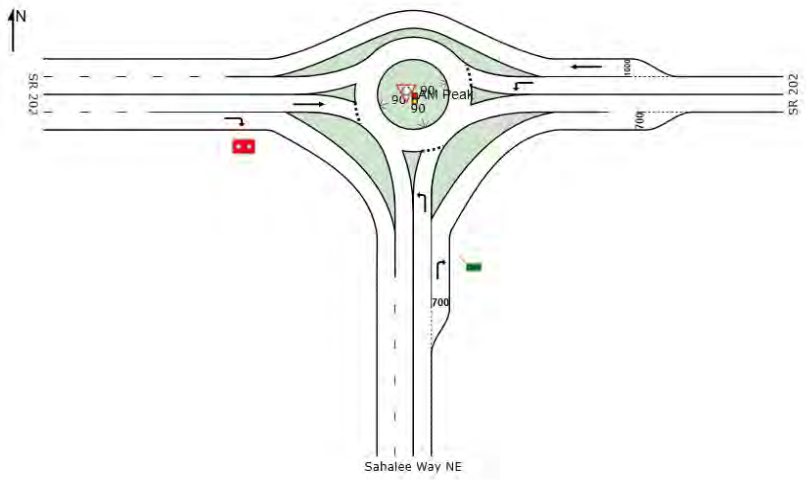
- Unmetered two lane roundabout.
- All the metrics (LOS, queue, delay, v/c) are better than the 2025 AM Peak and PM Peak no build
- This has the largest footprint and most likely the most expensive option out of the three
- Anticipate potential right of way takes and environmental impacts

2025 Sahalee Way NE: Roundabout Option B



- Combination single/two lane roundabout that is metered
- The metrics are similar to or better than the 2025 AM Peak and PM Peak no build
- Since the eastbound approach has less demand and volume in the AM Peak, the eastbound approach will be metered and will experience longer queues than the no build alternative
- The meters will be turned off in the PM Peak since there is more volume and higher demand in the eastbound direction.
- We anticipate that the design will fit in the existing footprint

2025 Sahalee Way NE: Roundabout Option C



- Metered single lane roundabout with a westbound through slip lane
- The eastbound approach will be metered, similar to Option B
- The metrics are worse than the 2025 PM Peak no build, except for the westbound approach
- This has the smallest footprint out of the three options

2025 50th/218th: Roundabout Option

- Single lane roundabout
- The metrics are better or similar for both peaks except for westbound AM peak and eastbound PM peak.
- Project would require widening of SR 202 and may entail some environmental or ROW impacts

Appendix F: Demographic Analysis

EJSCREEN ACS Summary Report

Location: King County
Ring (buffer): 0-mile radius
Description:

Summary of ACS Estimates	2012 - 2016
Population	2,079,550
Population Density (per sq. mile)	983
Minority Population	785,191
% Minority	38%
Households	831,995
Housing Units	882,655
Housing Units Built Before 1950	156,004
Per Capita Income	43,629
Land Area (sq. miles) (Source: SF1)	2,115.59
% Land Area	92%
Water Area (sq. miles) (Source: SF1)	191.87
% Water Area	8%

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	2,079,550	100%	0
Population Reporting One Race	1,953,734	94%	12,780
White	1,397,436	67%	3,487
Black	127,902	6%	1,766
American Indian	14,581	1%	927
Asian	332,246	16%	2,493
Pacific Islander	16,215	1%	698
Some Other Race	65,354	3%	3,409
Population Reporting Two or More Races	125,816	6%	3,756
Total Hispanic Population	194,189	9%	0
Total Non-Hispanic Population	1,885,361		
White Alone	1,294,359	62%	554
Black Alone	124,303	6%	1,580
American Indian Alone	11,354	1%	738
Non-Hispanic Asian Alone	330,518	16%	2,437
Pacific Islander Alone	15,874	1%	634
Other Race Alone	3,929	0%	644
Two or More Races Alone	105,024	5%	3,457
Population by Sex			
Male	1,037,792	50%	0
Female	1,041,758	50%	0
Population by Age			
Age 0-4	127,021	6%	0
Age 0-17	434,553	21%	2,351
Age 18+	1,644,997	79%	5,176
Age 65+	252,941	12%	2,636

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS) 2012 - 2016 .

EJSCREEN ACS Summary Report

Location: King County
Ring (buffer): 0-mile radius
Description:

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	1,464,776	100%	0
Less than 9th Grade	50,104	3%	1,730
9th - 12th Grade, No Diploma	60,386	4%	1,855
High School Graduate	234,399	16%	3,354
Some College, No Degree	401,333	27%	4,121
Associate Degree	120,434	8%	2,319
Bachelor's Degree or more	718,554	49%	5,148
Population Age 5+ Years by Ability to Speak English			
Total	1,952,529	100%	0
Speak only English	1,435,056	73%	5,052
Non-English at Home[1+2+3+4]	517,473	27%	5,458
[1]Speak English "very well"	312,713	16%	4,468
[2]Speak English "well"	111,492	6%	2,665
[3]Speak English "not well"	72,854	4%	2,349
[4]Speak English "not at all"	20,414	1%	1,209
[3+4]Speak English "less than well"	93,268	5%	2,642
[2+3+4]Speak English "less than very well"	204,760	10%	3,753
Linguistically Isolated Households*			
Total	46,518	100%	1,489
Speak Spanish	10,388	22%	801
Speak Other Indo-European Languages	7,711	17%	618
Speak Asian-Pacific Island Languages	23,509	51%	946
Speak Other Languages	4,910	11%	547
Households by Household Income			
Household Income Base	831,995	100%	2,757
< $15,000	69,702	8%	1,987
$15,000 - $25,000	52,466	6%	1,691
$25,000 - $50,000	145,853	18%	2,810
$50,000 - $75,000	131,320	16%	2,620
$75,000 +	432,654	52%	4,395
Occupied Housing Units by Tenure			
Total	831,995	100%	2,757
Owner Occupied	476,551	57%	3,698
Renter Occupied	355,444	43%	3,339
Employed Population Age 16+ Years			
Total	1,691,932	100%	774
In Labor Force	1,175,087	69%	3,762
Civilian Unemployed in Labor Force	64,711	4%	1,836
Not In Labor Force	516,845	31%	4,010

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: King County
Ring (buffer): 0-mile radius
Description:

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	1,952,529	100%	0
English	1,435,056	73%	5,890
Spanish	128,871	7%	2,734
French	12,617	1%	2,144
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	11,411	1%	943
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	63,585	3%	2,679
Chinese	69,663	4%	2,276
Japanese	N/A	N/A	N/A
Korean	21,848	1%	1,497
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	33,066	2%	1,839
Other Asian	66,315	3%	2,383
Tagalog	27,393	1%	1,721
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	8,006	0%	1,309
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	37,154	2%	2,270
Total Non-English	517,473	27%	5,890

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS) 2012 - 2016.
*Population by Language Spoken at Home is available at the census tract summary level and up.

EJSCREEN ACS Summary Report

Location: User-specified linear location
Ring (buffer): 0.5-mile radius
Description: SR 202

Summary of ACS Estimates	2012 - 2016
Population	6,203
Population Density (per sq. mile)	1,436
Minority Population	3,544
% Minority	57%
Households	2,210
Housing Units	2,310
Housing Units Built Before 1950	17
Per Capita Income	56,309
Land Area (sq. miles) (Source: SF1)	4.32
% Land Area	98%
Water Area (sq. miles) (Source: SF1)	0.07
% Water Area	2%

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population by Race			
Total	6,203	100%	631
Population Reporting One Race	6,085	98%	1,379
White	3,470	56%	695
Black	67	1%	58
American Indian	15	0%	44
Asian	2,450	39%	400
Pacific Islander	0	0%	29
Some Other Race	84	1%	153
Population Reporting Two or More Races	118	2%	164
Total Hispanic Population	899	14%	629
Total Non-Hispanic Population	5,304		
White Alone	2,659	43%	357
Black Alone	67	1%	58
American Indian Alone	15	0%	44
Non-Hispanic Asian Alone	2,450	39%	400
Pacific Islander Alone	0	0%	29
Other Race Alone	0	0%	19
Two or More Races Alone	114	2%	164
Population by Sex			
Male	3,241	52%	356
Female	2,962	48%	498
Population by Age			
Age 0-4	631	10%	313
Age 0-17	1,502	24%	345
Age 18+	4,701	76%	411
Age 65+	367	6%	109

Data Note: Detail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS) 2012 - 2016 .

EJSCREEN ACS Summary Report

Location: User-specified linear location
Ring (buffer): 0.5-mile radius
Description: SR 202

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population 25+ by Educational Attainment			
Total	4,394	100%	385
Less than 9th Grade	239	5%	203
9th - 12th Grade, No Diploma	65	1%	36
High School Graduate	360	8%	119
Some College, No Degree	1,022	23%	225
Associate Degree	299	7%	119
Bachelor's Degree or more	2,709	62%	325
Population Age 5+ Years by Ability to Speak English			
Total	5,572	100%	462
Speak only English	2,871	52%	373
Non-English at Home[1+2+3+4]	2,702	48%	569
[1]Speak English "very well"	1,816	33%	360
[2]Speak English "well"	551	10%	197
[3]Speak English "not well"	273	5%	241
[4]Speak English "not at all"	62	1%	71
[3+4]Speak English "less than well"	335	6%	251
[2+3+4]Speak English "less than very well"	886	16%	319
Linguistically Isolated Households*			
Total	161	100%	107
Speak Spanish	45	28%	65
Speak Other Indo-European Languages	10	6%	65
Speak Asian-Pacific Island Languages	104	65%	84
Speak Other Languages	1	1%	12
Households by Household Income			
Household Income Base	2,210	100%	192
< $15,000	86	4%	98
$15,000 - $25,000	35	2%	39
$25,000 - $50,000	245	11%	126
$50,000 - $75,000	446	20%	139
$75,000 +	1,398	63%	228
Occupied Housing Units by Tenure			
Total	2,210	100%	192
Owner Occupied	969	44%	98
Renter Occupied	1,241	56%	200
Employed Population Age 16+ Years			
Total	4,755	100%	404
In Labor Force	3,537	74%	384
Civilian Unemployed in Labor Force	100	2%	95
Not In Labor Force	1,218	26%	264

Data Note: Datail may not sum to totals due to rounding. Hispanic population can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS)
*Households in which no one 14 and over speaks English "very well" or speaks English only.

EJSCREEN ACS Summary Report

Location: User-specified linear location
Ring (buffer): 0.5-mile radius
Description: SR 202

	2012 - 2016 ACS Estimates	Percent	MOE (±)
Population by Language Spoken at Home*			
Total (persons age 5 and above)	7,612	100%	421
English	4,426	58%	446
Spanish	495	7%	454
French	41	1%	322
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	78	1%	78
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	1,282	17%	340
Chinese	435	6%	193
Japanese	N/A	N/A	N/A
Korean	36	0%	54
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	32	0%	47
Other Asian	540	7%	223
Tagalog	53	1%	51
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	20	0%	46
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	10	0%	22
Total Non-English	3,186	42%	613

Data Note: Detail may not sum to totals due to rounding. Hispanic popultion can be of any race.
N/A means not available. Source: U.S. Census Bureau, American Community Survey (ACS) 2012 - 2016.
*Population by Language Spoken at Home is available at the census tract summary level and up.

Appendix G: Traffic Modeling Methods and Assumptions

SR 202 CORRIDOR STUDY

Travel Demand Modeling Technical Memo

INTRODUCTION

This technical memorandum describes the travel demand modeling tasks for the SR 202 Corridor Study. It documents the methodology and assumptions, base year model development, calibration and validation and the future baseline model development for Years 2025 and 2045.

METHODOLOGY and ASSUMPTIONS

In this study there were two different types of modeling platforms developed for traffic forecasting and analysis. The macroscopic four-step travel demand model was used as the macroscopic model to look at demand forecasts and traffic distribution. The traffic operational and simulation model was used to evaluate traffic performance, including the intersection and corridor segments' performances. This technical memo only focuses on the macroscopic travel demand model.

The macroscopic travel demand model helps identify how many people want to travel at the same time (travel demand), where people want to travel to/from (origin/destination), and which routes they will likely take, based on socioeconomic data. The travel demand model also helps create traffic forecasts for the number of people and vehicles that will use a transportation facility; to understand a transportation system or particular corridor; and to understand potential impacts/benefits due to changes in a transportation system.

The I-405 Corridor Model based on the PSRC Travel Demand Model, was used for this study, since the focused area, I-405 corridor, is closer to SR 202 and it has better land use data for the study vicinity. The model covers base year and future years 2025 and 2045.

- Study Area
  The I-405 Model includes four counties: King, Snohomish, Pierce and Kitsap Counties. The study area was identified to allow screen line validation and to make sure all possible alternative routes for the study corridor are covered. The following map shows the study area for the travel demand model on the SR 202 corridor.

  In addition to screen line validation, traffic at key intersections along the study corridor was counted to understand traffic patterns and volumes. These intersection counts were also used for a second level of screen line validation. **Table 1** lists all screen line cross streets and count locations.

Figure 1 Macroscopic Travel Demand Model Study Area

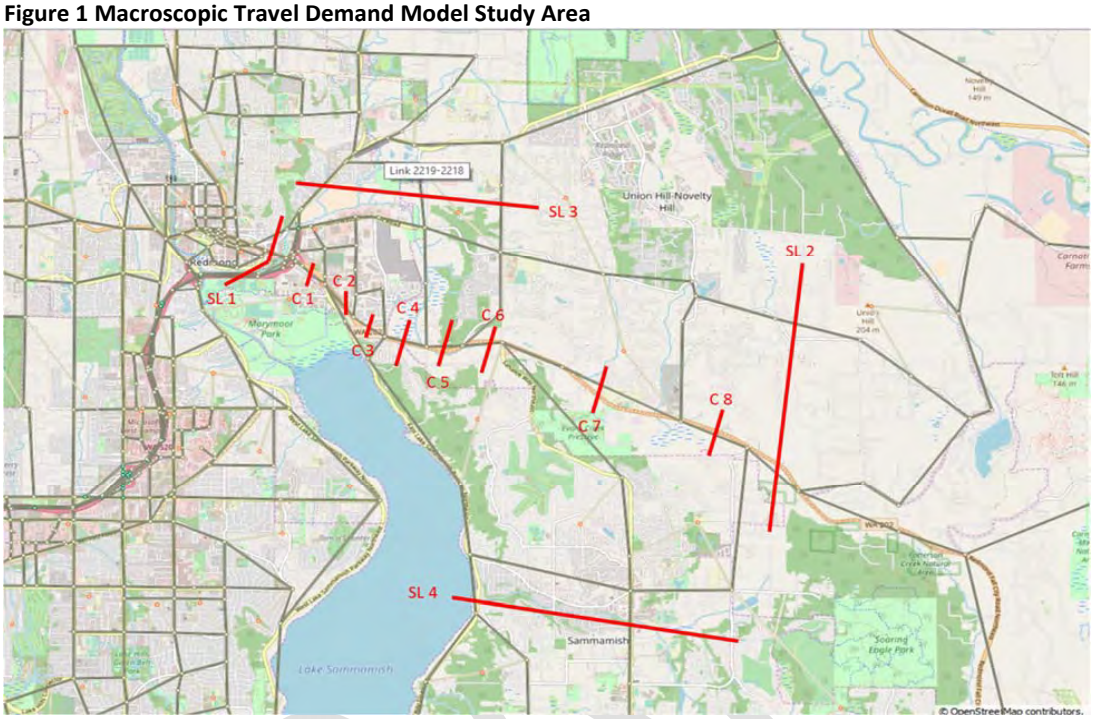


Table 1 Screen Line Cross Street

	Cross St	Location
SL 1	Avondale Way NE	S of NE Union Hill Rd
	SR 202 (NE Redmond Way)	W of SR 520
	SR 520 (GP)	W of SR 202 Ramps
	SR 520 (HOV)	W of SR 202 Ramps
SL 2	SR 202	E of 244th Ave NE
	NE Union Hill Rd	E of 238th Ave NE
SL 3	Avondale Road NE	N of Avondale Way NE
	196th Ave NE	N of SR 202
	208th Ave NE	N of SR 202
SL 4	East Lake Sammamish PkWy NE	S of NE Inglewood Hill Rd
	228th Ave NE	S of NE Inglewood Hill Rd
C1	SR 202	E of SR 520 Ramps
C2	SR 202	E of East Lake Sammamish PkWy NE
C3	SR 202	E of 185th Ave NE
C4	SR 202	E of 188th Ave NE
C5	SR 202	E of 196th Ave NE
C6	SR 202	E of 204th Place NE
C7	SR 202	E of Sahalee Way NE
C8	SR 202	E of 236th Ave NE

- Analysis years and time periods
  One of the study objectives is to identify short- and long-term improvement strategies to address performance. WSDOT has defined the short-term as six years from the base year, and long-term as 25-26 years from the base year. Given the Base year model is Year 2018, the analysis years for this study are:
    - Base year = 2018
    - Future forecast years = 2025 and 2045

  The model analyses were focused on the AM and PM peak periods:
    - AM Peak Period = 6:00 – 9:00
    - PM Peak Period = 3:00 – 6:00

- Land use assumptions
  Because the I-405 Model is based on the PSRC Regional Travel Demand Model, the land use assumptions are consistent with the PSRC assumptions. Plus, the land uses in the jurisdictions along I-405 and this study vicinity were more up to date based on the Cities' comprehensive plans.

- Network assumptions
  All network assumptions are consistent with the PSRC Regional Travel Demand Model assumptions for future improvements.

- Performance Measures
    - Corridor Demand / Volumes
        - AM Peak Period = 6:00 – 9:00
        - PM Peak Period = 3:00 – 6:00
    - Study Intersections Level of Service (LOS)
        - AM Peak Hour
        - PM Peak Hour
    - Segment Travel Time
        - AM Peak Hour
        - PM Peak Hour

BASE YEAR MODEL DEVELOPMENT AND CALIBRATION / VALIDATION

The primary objective of model calibration/validation is to obtain model estimates within the predefined calibration/validation targets and compare these with the observed performance measures. The calibration/validation was conducted for AM and PM peak periods for the following performance measures:

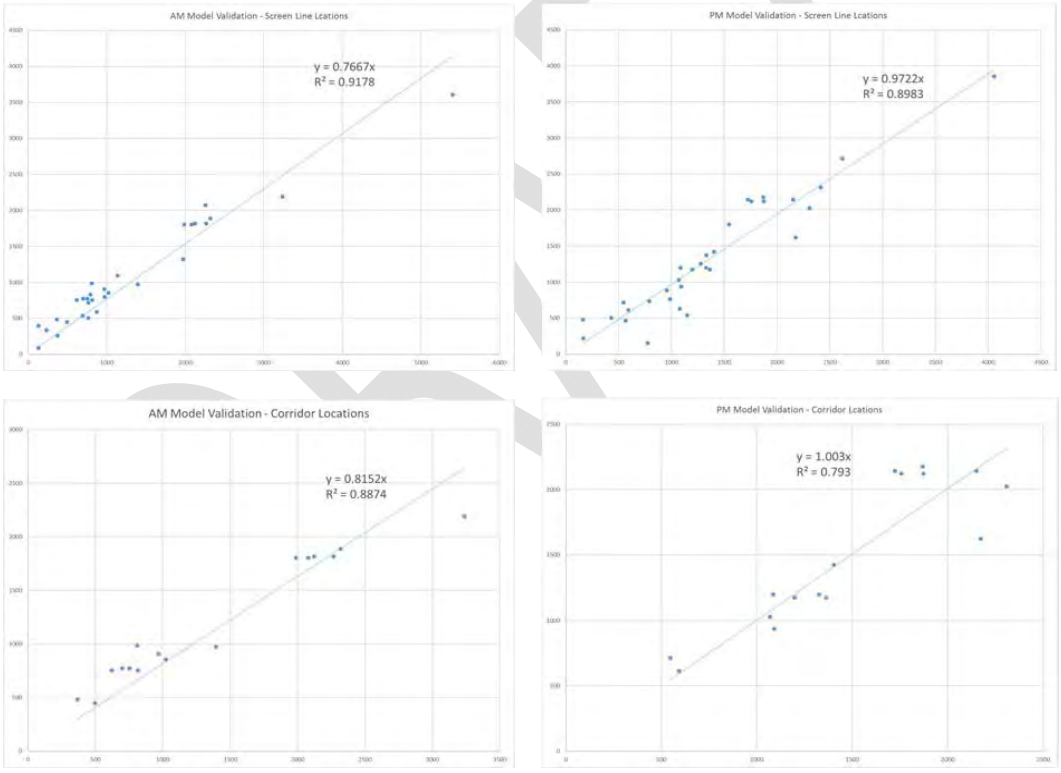
- traffic volumes at selected screen lines
- traffic volumes on the study corridor

In order to calibrate the model to get the forecast volumes close to the observed counts, some parameters, such as link capacity and posted speed in the model were adjusted. Because the model was designed for macroscopic demand modeling, the pre-coded capacities and posted speeds are based on the given functional roadway classifications. They are not necessarily the real situation for some

roadways. When demand modeling for the corridor study is conducted, more local and real conditions should be taken into account, for example, capacity change due to lane width, shoulder width, the allowance for on-street parking, and so on.

The following figures show the plots of the model forecast volumes (y axis) versus observed counts (x axis) for AM and PM peak periods. Keeping in mind an R-squared value of 1 (45 degree regression line) would show a perfect match between forecast volumes and counts, the actual R-square was 0.918 and 0.898 for AM and PM respectively for screen lines; and 0.887 and 0.793 for AM and PM respectively for SR 202 corridors. These indicate that the model is validated within an acceptable range compared to the observed counts. Although the R-square for corridor for PM was low, caution was used not to "over-calibrate" the corridor or the study area, as the regional travel demand model is designed from the region-wide perspective.

Figure 2 Travel Demand Model Validation Scatter Plots



FUTURE BASELINE MODEL DEVELOPMENT

The calibrated base year travel demand model was carried over to develop the future Year 2025 and 2045 baseline models. The project assumptions in the future models were consistent with the I-405 and

PSRC models. Typically, projects assumed to be included as no-build in future conditions would only be those that are currently planned and/or programmed for planning, design and/or construction.
The future baseline no-build condition was analyzed based on the travel demand model. Based on the forecast, the data shows growth from base year to Year 2045. The annual growth rates along the SR 202 corridor between base year and 2025 are shaper than between 2025 and 2045. This is expected and consistent with the entire Puget Sound Region. The following table shows the growth rates for AM and PM peak periods.

Table 2 SR 202 Estimated Annual Growth Rate

	AM		PM	
	Total Volumes	AGR	Total Volumes	AGR
2018	28,584		30,969	
2025	30,374	0.87%	33,718	1.22%
2045	32,783	0.38%	36,867	0.45%

Note: Total Volumes = Sum of all turning movement at all intersections
AGR = Annual Growth Rate

A post-processing method for the final future estimated demand and volumes for the study area was developed. The delta method was developed and used for the future demand for the study intersection volumes. The results of these future year model runs will be the basis for identifying future year deficiencies in the short-term (2025) and long-term (2045) horizon years. The following equation shows the delta method for post-processing the volumes.

Future post-processed volumes
= observed existing counts + (future year model demand – base year model demand)

Appendix H: Wildlife Safety Ranking Criteria

Appendix H: Wildlife Safety Ranking Criteria

Derivation of wildlife-related safety ranks applied to one-mile highway segments using geographic ranges and 5 year (2012-2016) accumulations of carcass removals and collisions. Assignment of rank is hierarchical. Each highway segment gets the highest rank it qualifies for.

Carcass Removals	Low	Med	High
Deer	w/in range, 1-5	5-14	15 or more
Elk	w/in range, 1	2	3 or more
Bighorn Sheep	w/in range	1	2 or more
Black Bear	w/in range	1	2 or more

Collisions	Low	Med	High
Deer	w/in range, 1	2-5	6 or more
Elk	w/in range, 1	2	3 or more

SR 202 Corridor Study Report

COMMENT FORM

Return comments to: **Thomas Noyes / WSDOT -** ***noyest@wsdot.wa.gov***

Comment due date: **EOD, June 14th, 2019**

Document title: **SR 202 Corridor Study**

Reviewer(s):

Page No.	Line No.	Comment	Commenter	WSDOT's Response to Comment