SR 202 CORRIDOR STUDY

EAST LAKE SAMMAMISH PARKWAY TO 244TH AVE NE

MP 8.22 TO MP 13.00

WSDOT

JUNE 30, 2019

Management of Mobility Division
Seattle, WA 98104

LEAP Transportation Document 2017-2 ALL PROJECTS as developed April 20, 2017 2017-19 Biennium Project L1000183

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WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
NORTHWEST REGION

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

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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 address performance issues along the study corridor.

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 identified performance issues. No design or construction funds are currently available for implementation of any of the strategies.

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. Due to the scope and budget of the study, there is a greater focus on near- and mid-term strategies. 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.

Cost estimates were generated using WSDOT's Planning Level Cost Estimating Tool (PLCE) in 2016 dollars. These estimates were developed with little to no design. Unknown factors could lead to changes in the estimates in the future. The range show below displays 10% below average estimated project cost (low range) and 20% above average estimated project cost (high range).

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	Modify access and operations at NE 50th, such as restricting movements to right-in/right-out or modifying to one-way access.	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	WSDOTRedmond
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 suggested in this study will enable WSDOT and other agencies to address identified performance issues along the study corridor. Funding is not currently available for any of the recommended strategies included in this report, therefore, grants, partnerships or other funding sources will need to be pursued. WSDOT pursues funding through a statewide priority process. Top investment priorities include preservation of existing assets such as pavement and bridges, safety, and removal of fish passage barriers.

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-, mid-, and long-term. Recommended strategies must be consistent with state, regional, and local planning efforts. At this time, the Puget Sound Regional Council's Regional Transportation Plan does not identify any funds or projects for the study corridor.

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:

CURRENT AND FUTURE PROJECTS				
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.

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.

Study Area

The study area extends along SR 202 between East Lake Sammamish Parkway in Redmond and 244th Avenue Northeast in Sammamish. The study limits were selected to encompass access points to and from Sammamish and the corridor bottleneck at E Lake Sammamish Parkway. While the SR 520 and SR 202 interchange is another key corridor constraint, the interchange was omitted from the study due to budget and time constraints. 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	✕	
2	SR 202/185th Ave NE	Signalized	✕	
3	SR 202/188th Ave NE	Signalized	✕	
4	SR 202/192nd Dr NE	Signalized	✕	
5	SR 202/204th Pl NE	Signalized	✕	
6	SR 202/Sahalee Way SE	Signalized	✕	✕
7	SR 202/NE 50th St	Two-Way Stop	✕	✕
8	SR 202/218th Ave NE	Two-Way Stop	✕	
9	SR 202/228th Ave NE	Signalized	✕	
10	SR 202/236th Ave NE	Signalized	✕	
11	SR 202/244th Ave NE	Signalized	✕	

TABLE 2: SR 202 STUDY INTERSECTIONS

4 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.

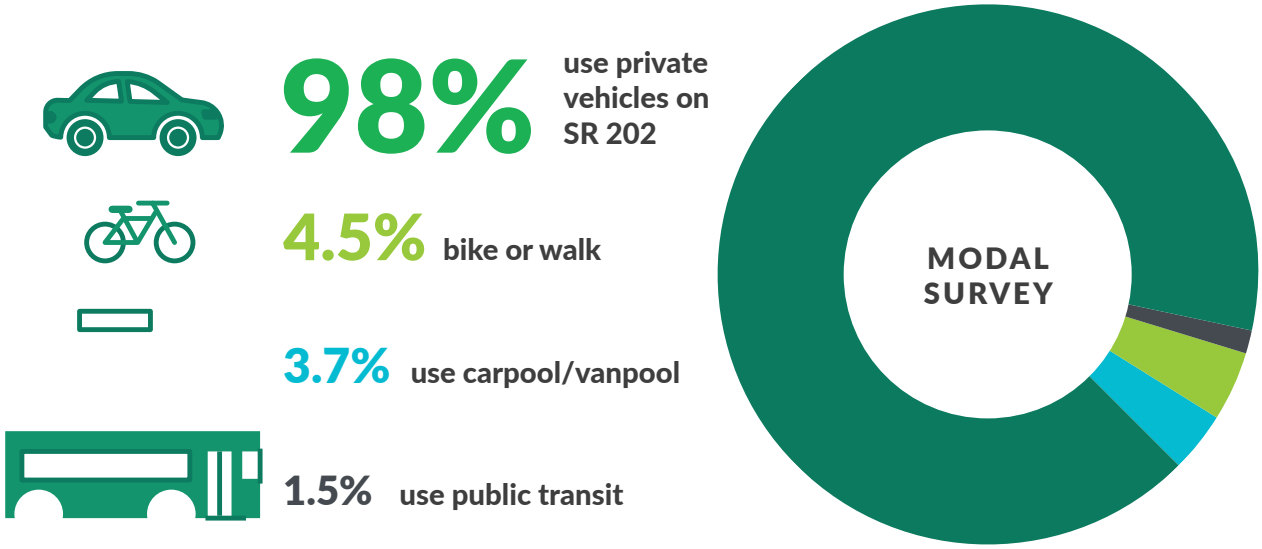


FIGURE 2: SURVEY – MODAL SPLIT

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.

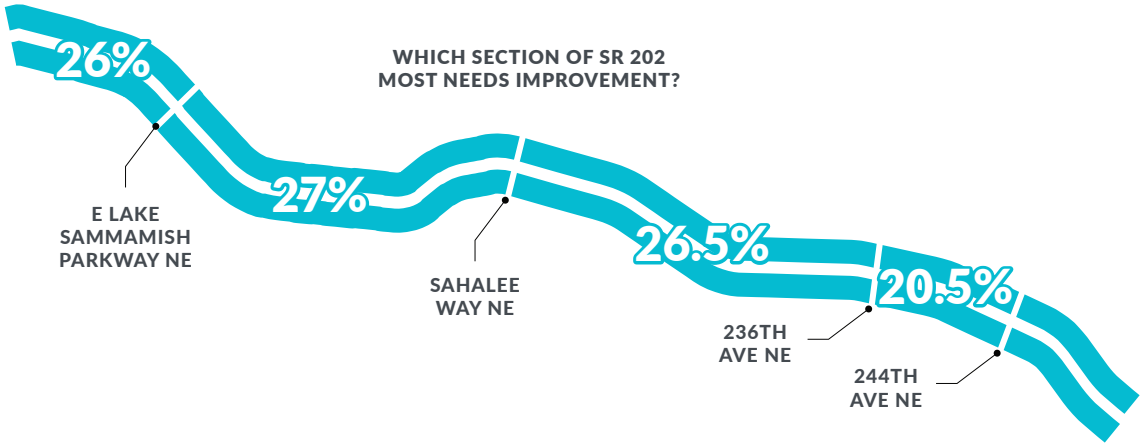


FIGURE 3: SURVEY – IMPROVEMENT LOCATIONS

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.

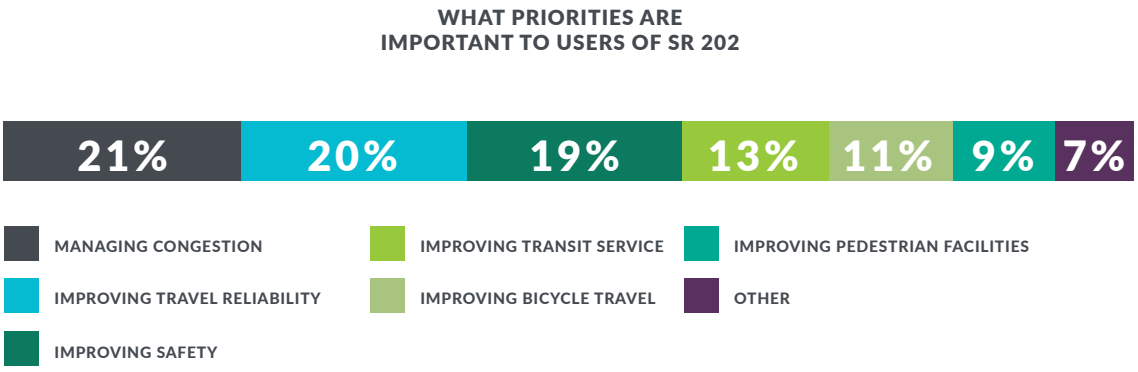


FIGURE 4: SURVEY – IMPROVEMENT PRIORITIES

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.

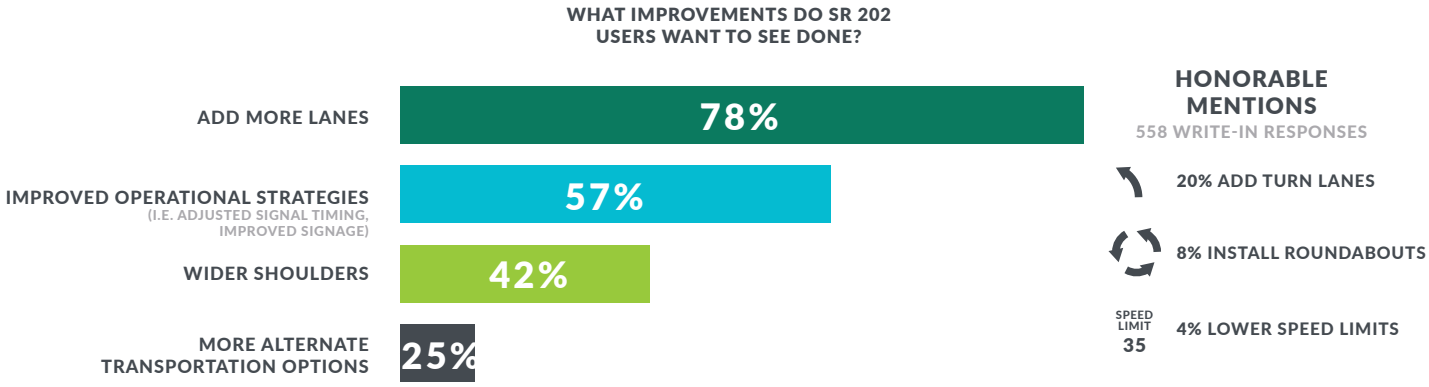


FIGURE 5: SURVEY – SUGGESTED IMPROVEMENTS

5 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 east 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 of 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. The AM and PM peak hour traffic volumes analyzed are 7-8 AM and 5-6 PM. While these hours may not be representative of peak congestion, they do capture the hour with the greatest number of vehicles traveling through the intersections.

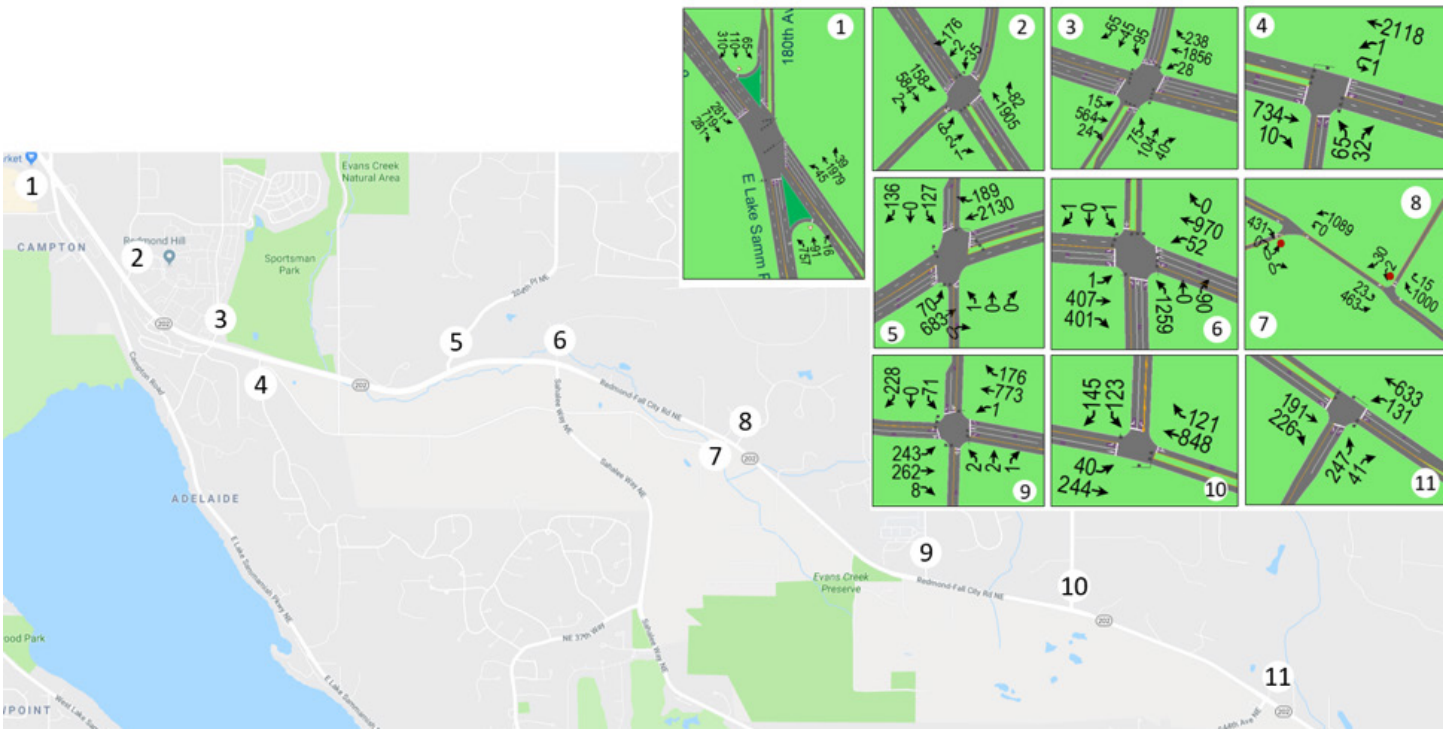


FIGURE 6: EXISTING 2018 AM PEAK HOUR VOLUMES

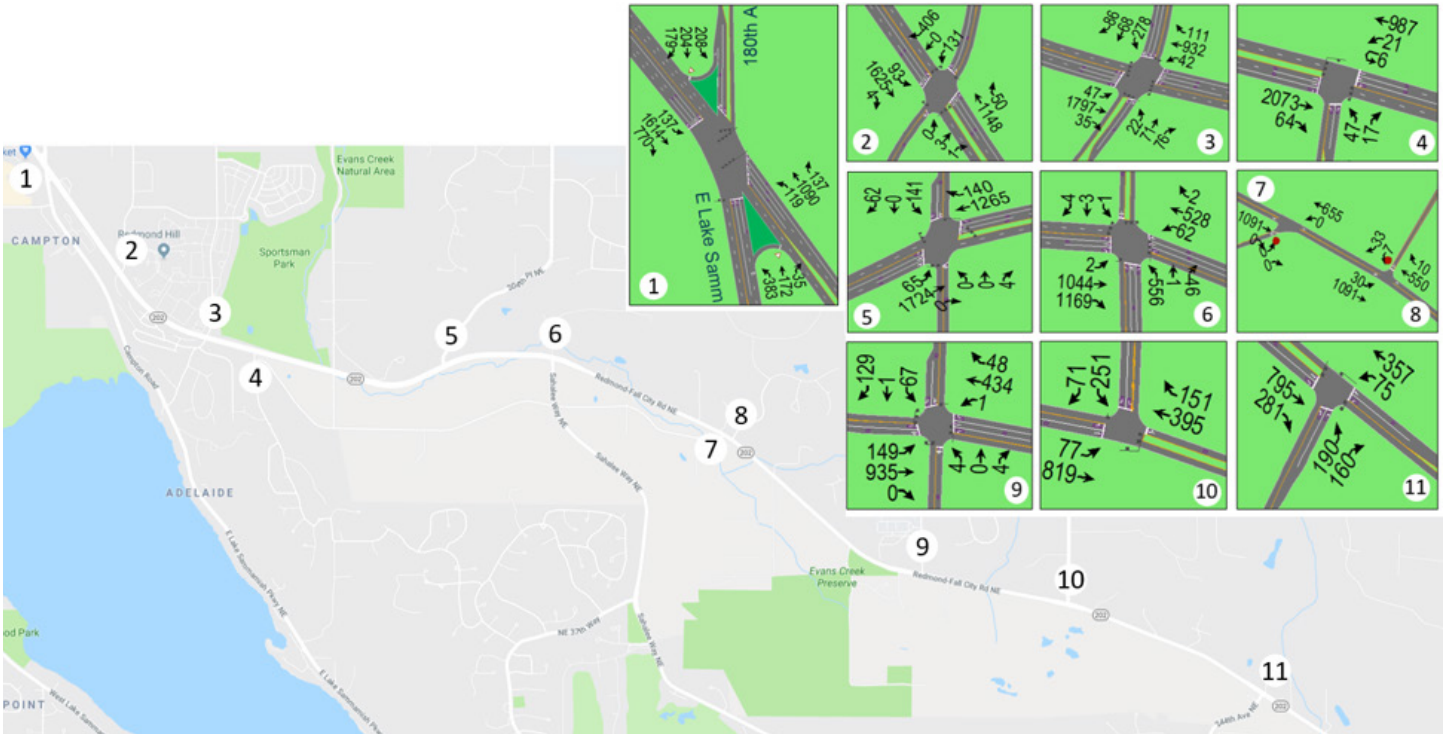


FIGURE 7: EXISTING 2018 PM PEAK HOUR VOLUMES

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. In Figure 8 below, intersections shaded in black or red have failing levels of service for vehicular traffic.

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.

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/ East Lake Sammamish Pkw	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	100.5	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 Dr 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	52.5	939	A	0	11
SR 202/NE 50th St	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE	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 travel demand heading eastbound SR 202, which causes 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/ East Lake Sammamish Pkw	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 Dr 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	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/218th Ave NE	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.

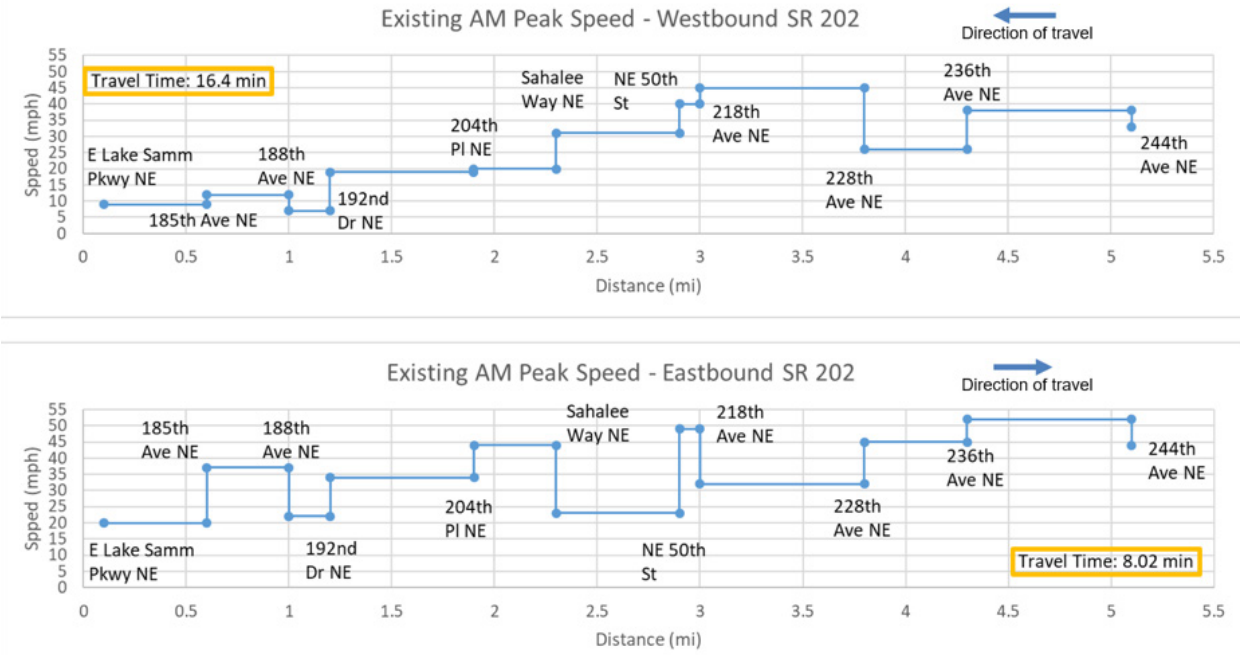


FIGURE 10: EXISTING (2018) AM PEAK SPEEDS AND TRAVEL TIMES

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. As evening commuters return east, congestion is most pronounced eastbound from the SR-520 ramp to E Lake Sammamish Parkway, with queues extending onto the SR-520 mainline. Figure 11 below displays the average travel times and speeds for the PM peak.

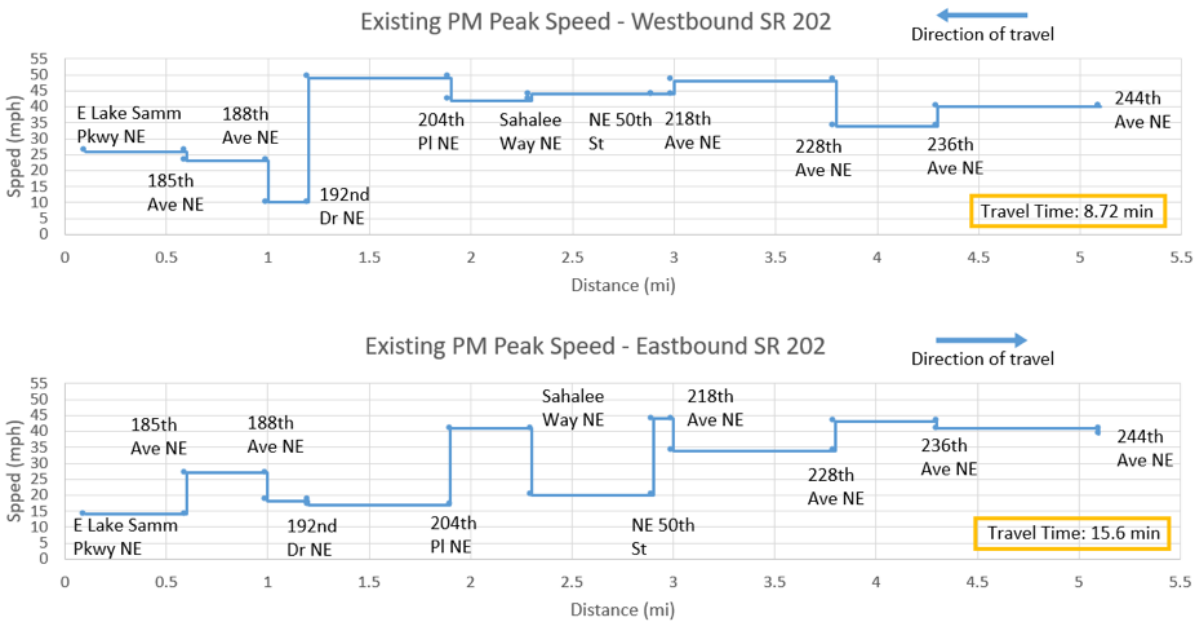


FIGURE 11: EXISTING (2018) PM PEAK SPEEDS AND TRAVEL TIMES

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).

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.

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.

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											
Intersection	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.

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%
White	1,397,436	67%	3,470	56%
Black or African American	127,902	6%	67	1%
American Indian and Alaska Native	14,581	0.7%	15	0.002%
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	125,819	5.8%	114	2%
Hispanic or Latino Only	98,446	4.7%	899	14%
Limited English Proficiency	93,268	5%	335	6%
Impoverished Households	122,168	14%	121	6%

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.

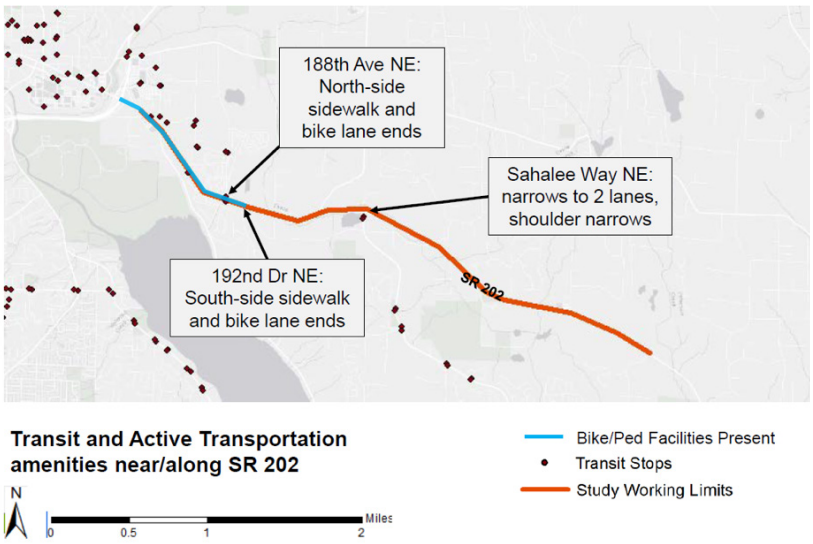


FIGURE 14: TRANSIT AND ACTIVE TRANSPORTATION FACILITIES

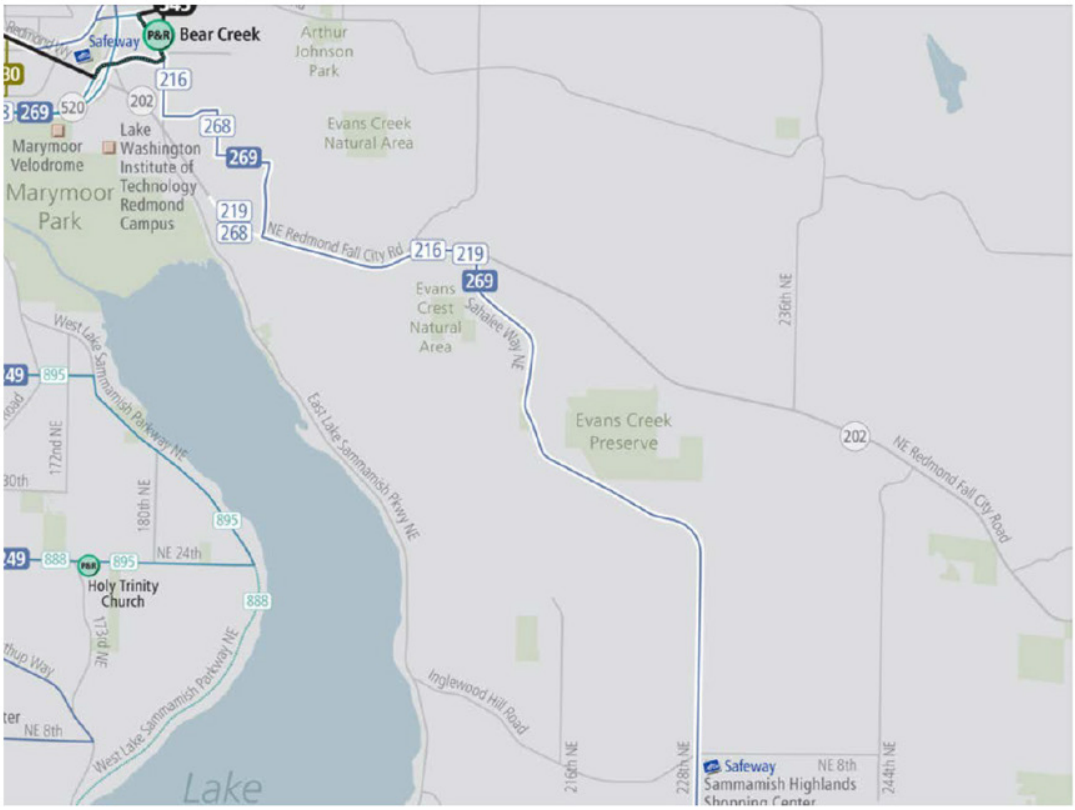
In the surrounding area, there are a number of facilities for people walking and biking to use. The East Lake Sammamish Trail runs parallel to SR 202 between NE 70th St and 187th Ave NE (where there are access points from local roads), at which point the separated path continues south along Lake Sammamish, 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 216, 219, 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.



Source: King County GIS System Map

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.

The tables below summarize the percentage of heavy trucks that compose the traffic volumes at each approach of the intersections within the study area. These data were collected as part of the field traffic counts conducted by WSDOT's traffic studies team.

HEAVY VEHICLE PERCENTAGE - AM PEAK				
Intersection	**Eastbound**	**Westbound**	**Northbound**	**Southbound**
SR 202/E Lake Sammamish Pkwy	1.6%	0.2%	1.6%	1.0%
SR 202/185th Ave NE	1.1%	1.0%	0.0%	0.5%
SR 202/188th Ave NE	2.0%	1.1%	2.3%	4.4%
SR 202/192nd Ave NE	3.4%	0.8%	3.1%	-
SR 202/204th Pl NE	3.2%	1.3%	-	0.0%
SR 202/Sahalee Way SE	1.1%	2.2%	0.3%	-
SR 202/ NE 50th St	4.2%	2.8%	0.0%	-
SR 202/218th Ave NE	1.2%	1.3%	-	0.0%
SR 202/228th Ave NE	2.3%	2.2%	0.0%	0.0%
SR 202/236th Ave NE	5.3%	1.9%	-	0.0%
SR 202/ 244th Ave NE	3.4%	2.9%	0.0%	-

TABLE 7: HEAVY VEHICLE PERCENTAGE – AM PEAK

HEAVY VEHICLE PERCENTAGE - AM PEAK				
Intersection	**Eastbound**	**Westbound**	**Northbound**	**Southbound**
SR 202/E Lake Sammamish Pkwy	0.3%	0.4%	0.2%	0.3%
SR 202/185th Ave NE	0.2%	0.1%	0.0%	0.2%
SR 202/188th Ave NE	0.1%	0.4%	1.8%	1.2%
SR 202/192nd Ave NE	0.3%	0.1%	0.0%	-
SR 202/204th Pl NE	0.8%	0.9%	-	0.0%
SR 202/Sahalee Way SE	0.3%	0.7%	0.5%	-
SR 202/ NE 50th St	0.9%	0.8%	0.0%	-
SR 202/218th Ave NE	0.9%	1.1%	-	0.0%
SR 202/228th Ave NE	0.9%	1.2%	0.0%	0.0%
SR 202/236th Ave NE	0.2%	0.9%	-	0.0%
SR 202/ 244th Ave NE	0.4%	1.4%	0.0%	-

TABLE 8: HEAVY VEHICLE PERCENTAGE – PM PEAK

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.

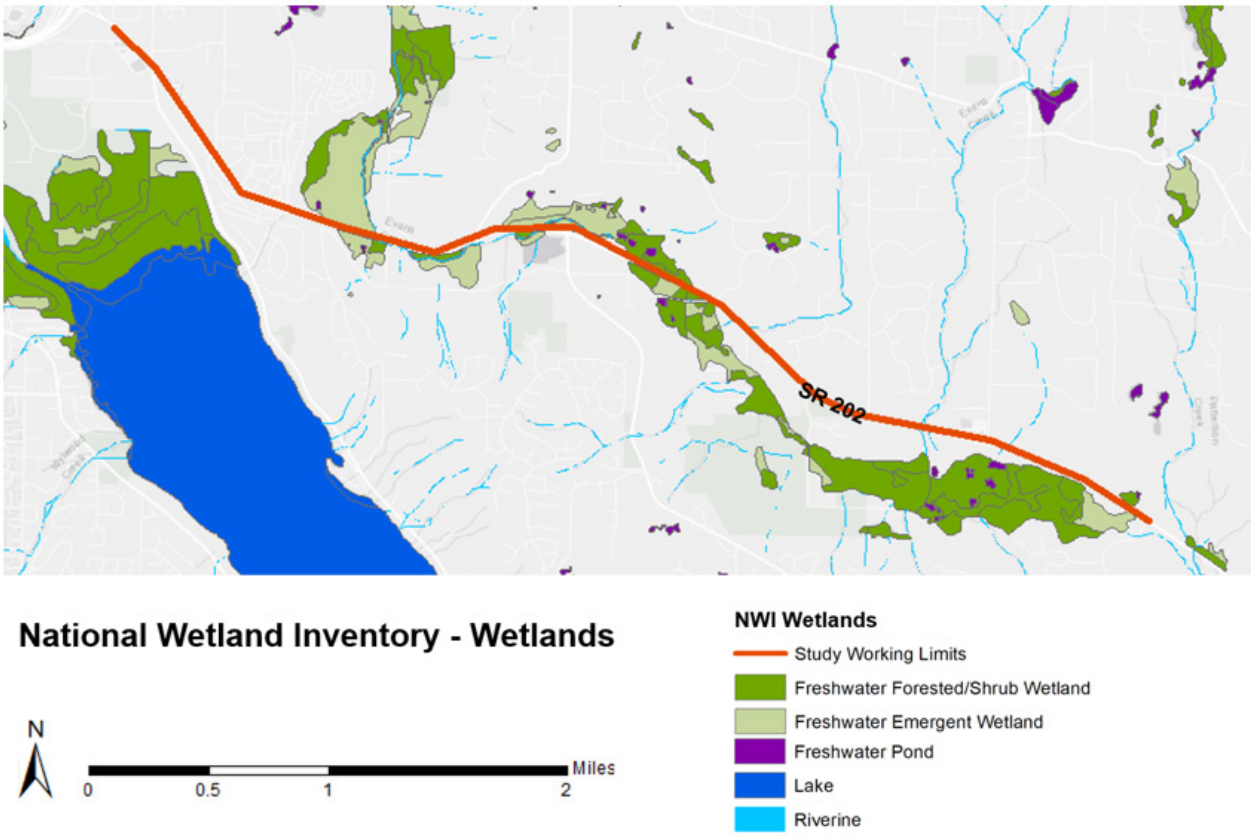


FIGURE 16: NATIONAL WETLAND INVENTORY – WETLANDS

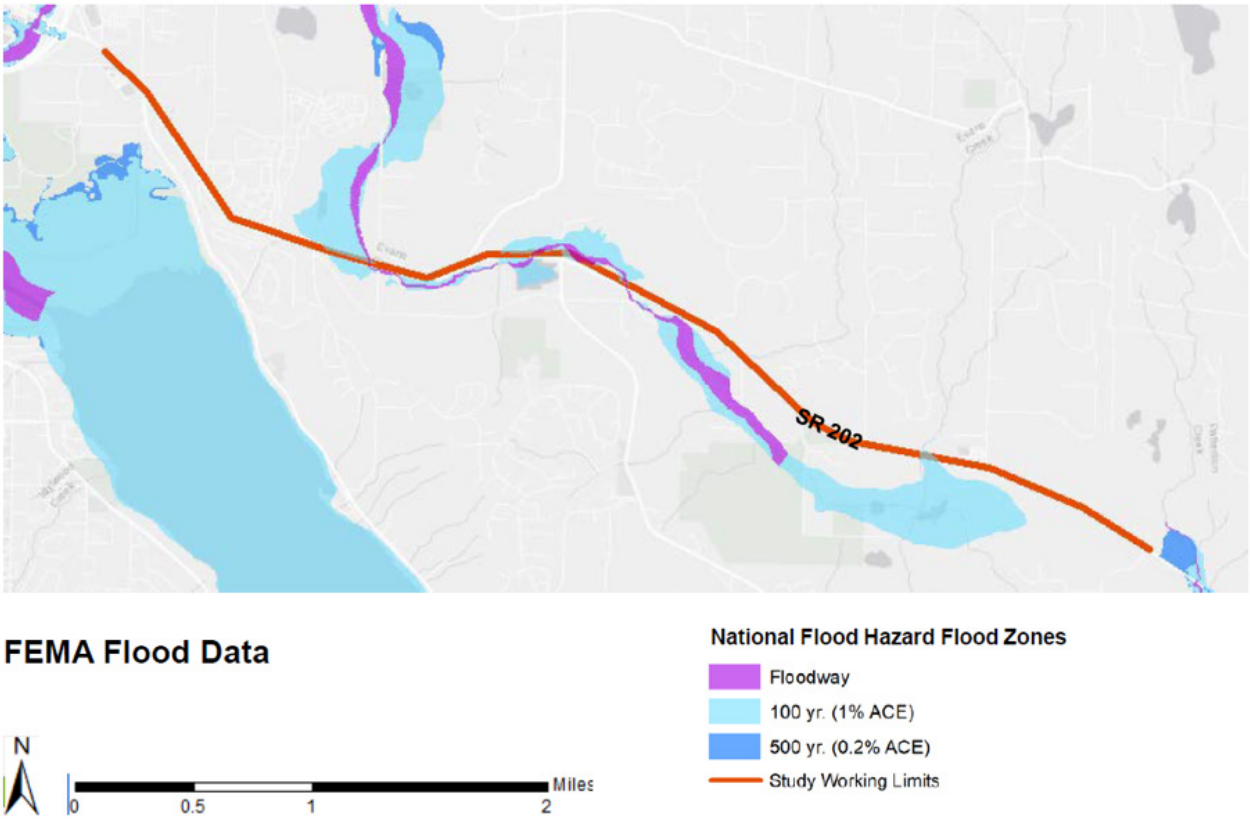


FIGURE 17: FEMA FLOOD DATA

There are 3 wetland mitigation sites within SR 202 study area (see Figure 19 below). WSDOT manages wetland mitigation sites as environmental assets when impacts to wetlands require the agency to mitigate Clean Water Act regulations. Any development proposal may require additional mitigation if wetlands are impacted. Impacts to managed wetland mitigation sites require further negotiation with regulating agencies.

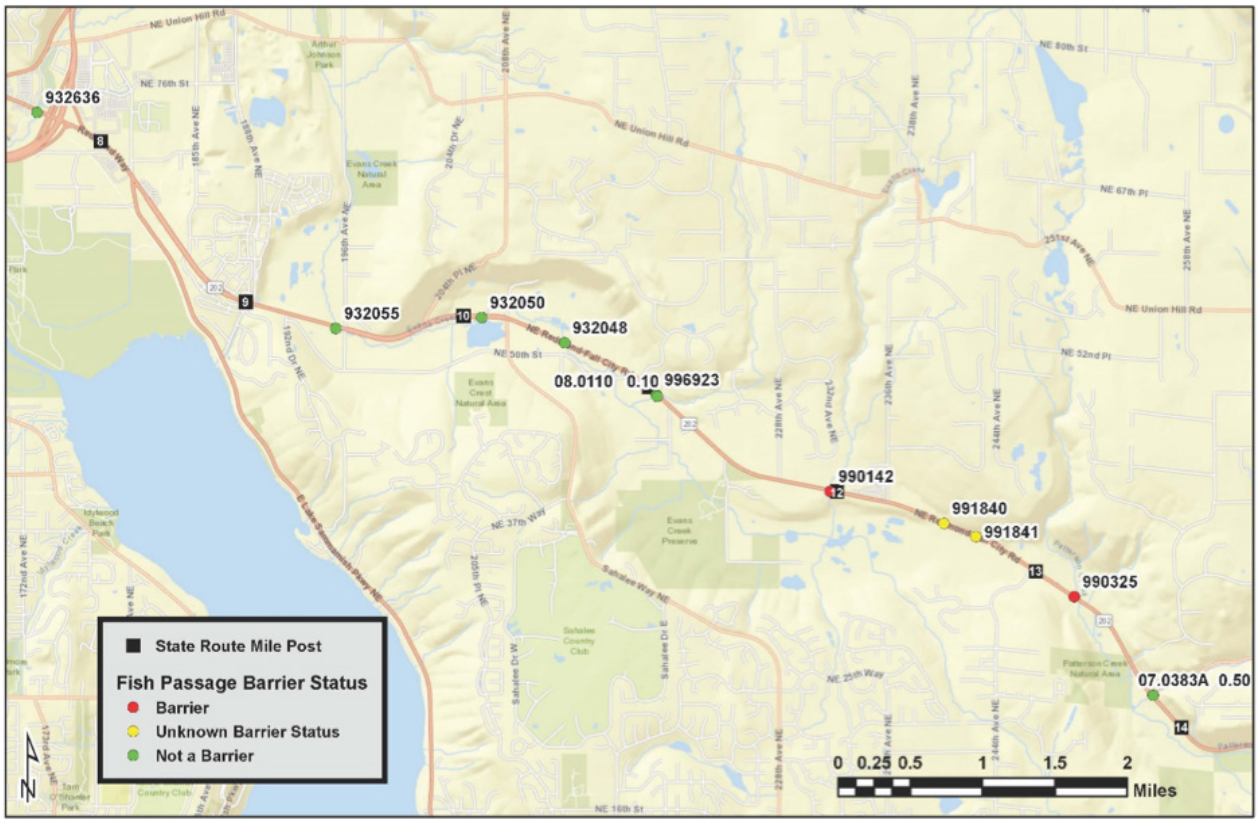


FIGURE 18: FISH PASSAGE INVENTORY

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.

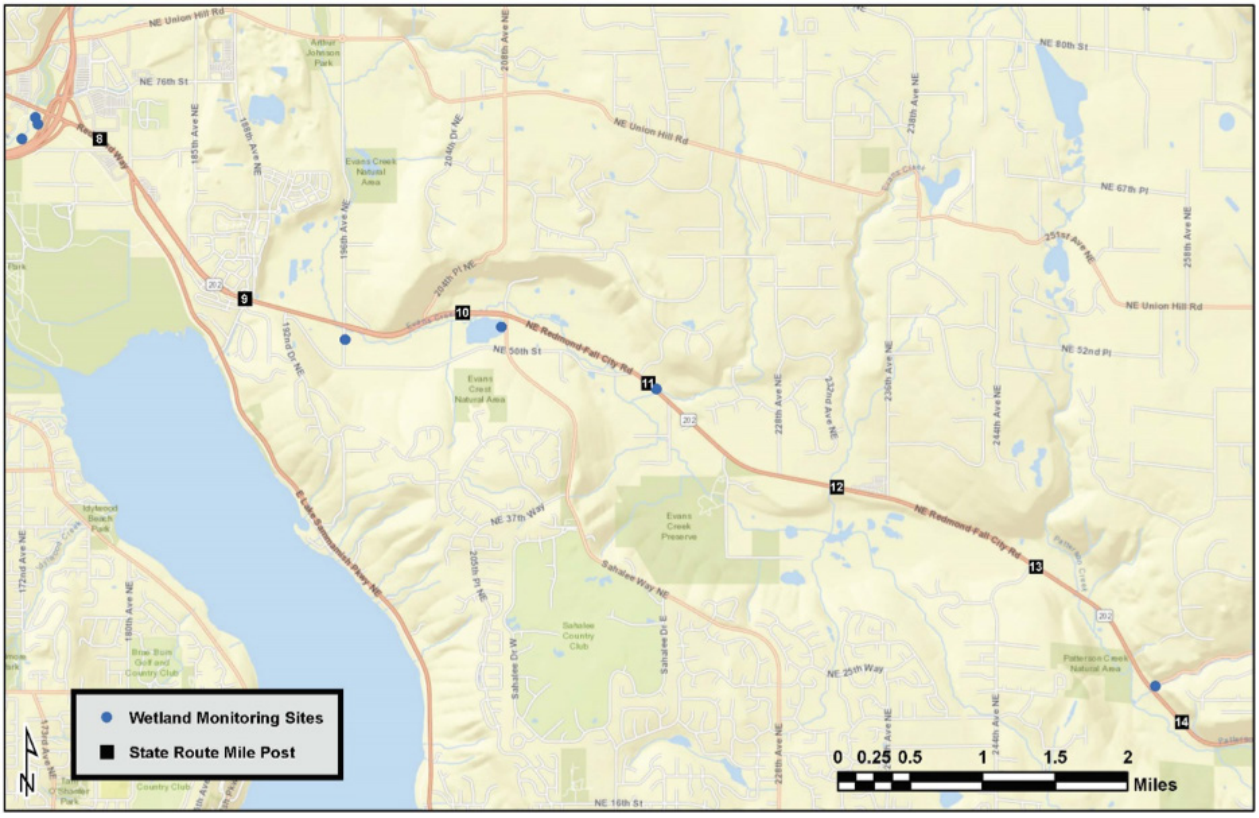


FIGURE 19: WETLAND MONITORING SITES ALONG SR 202

FIGURE 20: 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 9: SUMMARY OF DEER CARCASS REMOVAL AND DEER-VEHICLE COLLISION DATA FOR THE SR 202 CORRIDOR

FIGURE 21: HABITAT CONNECTIVITY INVESTMENT PRIORITY WILDLIFE-RELATED SAFETY RANKS FOR ONE MILE HIGHWAY SEGMENTS WITHIN THE CORRIDOR.
MEDIUM (ORANGE) AND LOW (BLUE) AND RANKS.

[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.

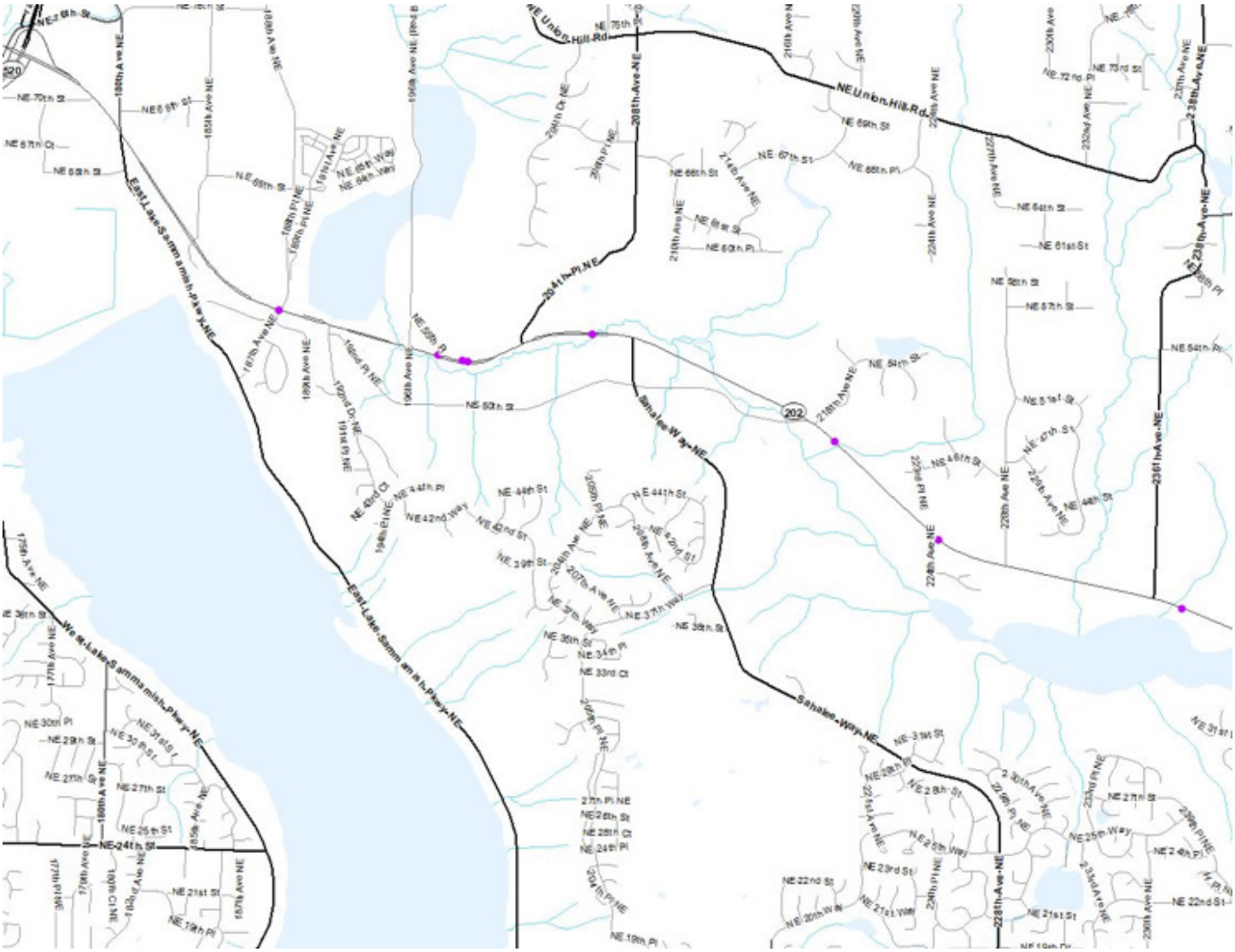


FIGURE 22: MAP IMAGE SHOWING LOCATIONS OF DEER-VEHICLE CRASHES, 2012-2016, BASED ON OFFICER COLLISION REPORTS.

FIGURE 23: 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.

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.

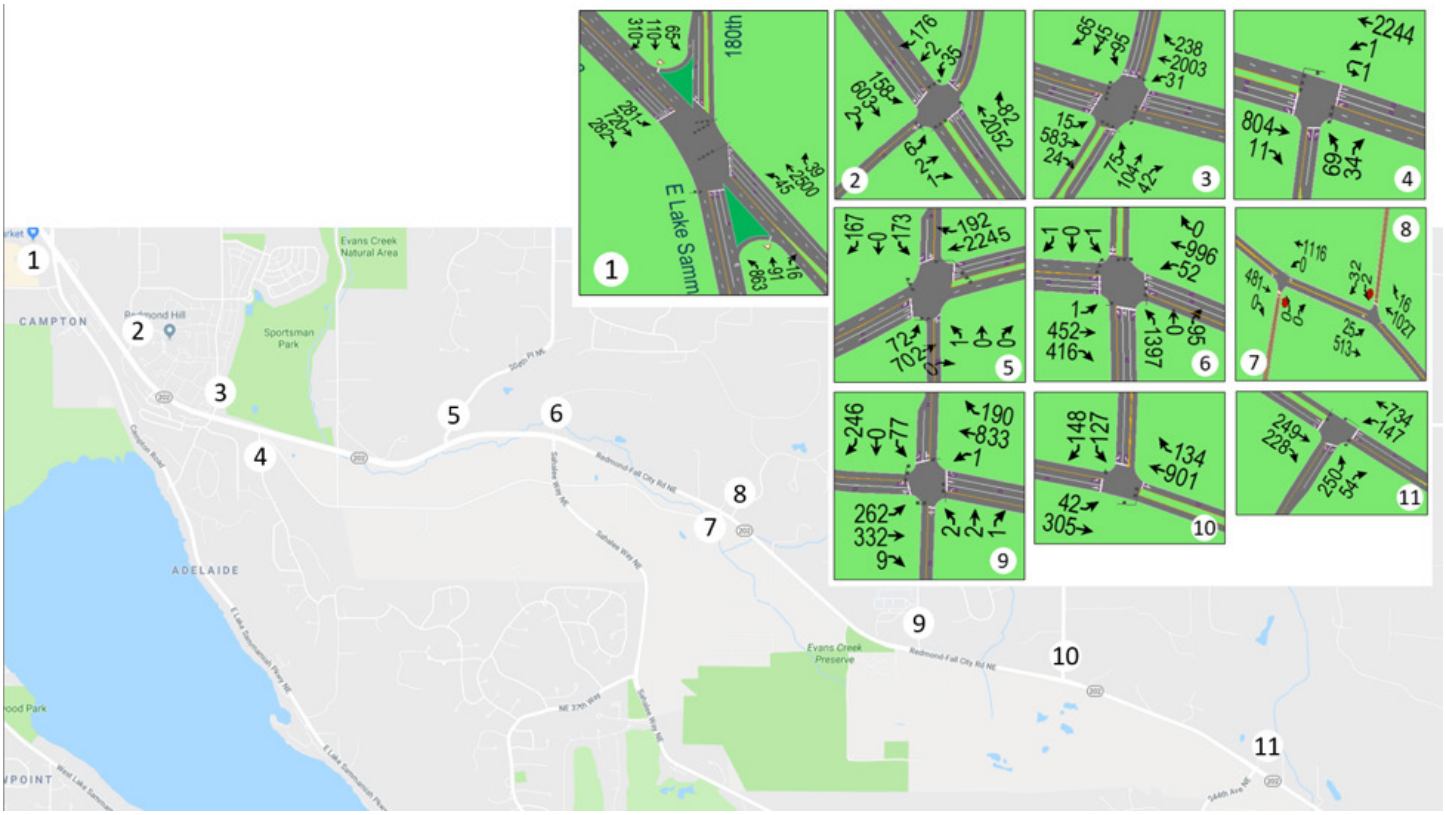


FIGURE 24: 2025 FUTURE YEAR AM PEAK ESTIMATED VOLUMES

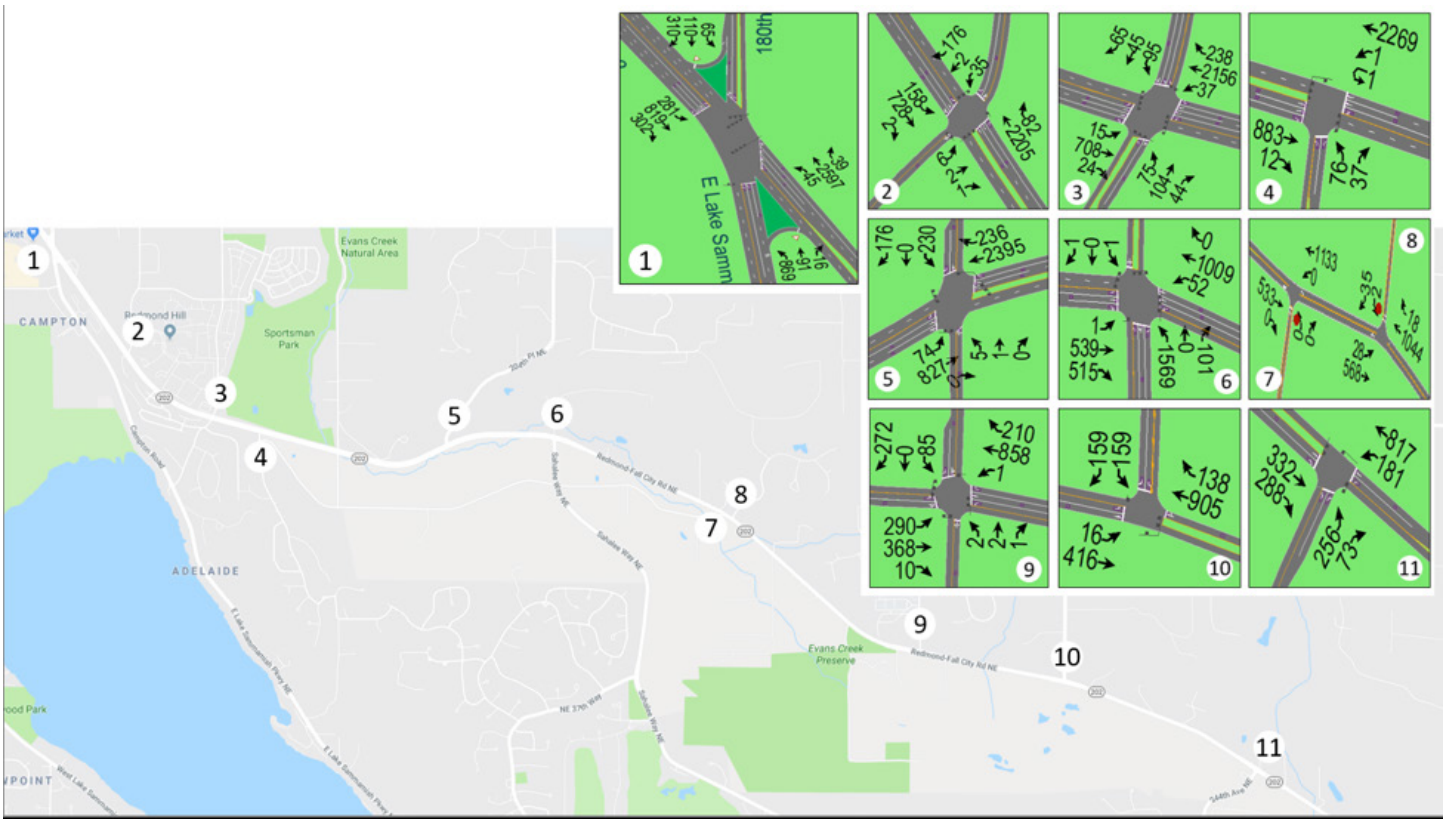


FIGURE 25: 2045 FUTURE YEAR AM PEAK ESTIMATED VOLUMES

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

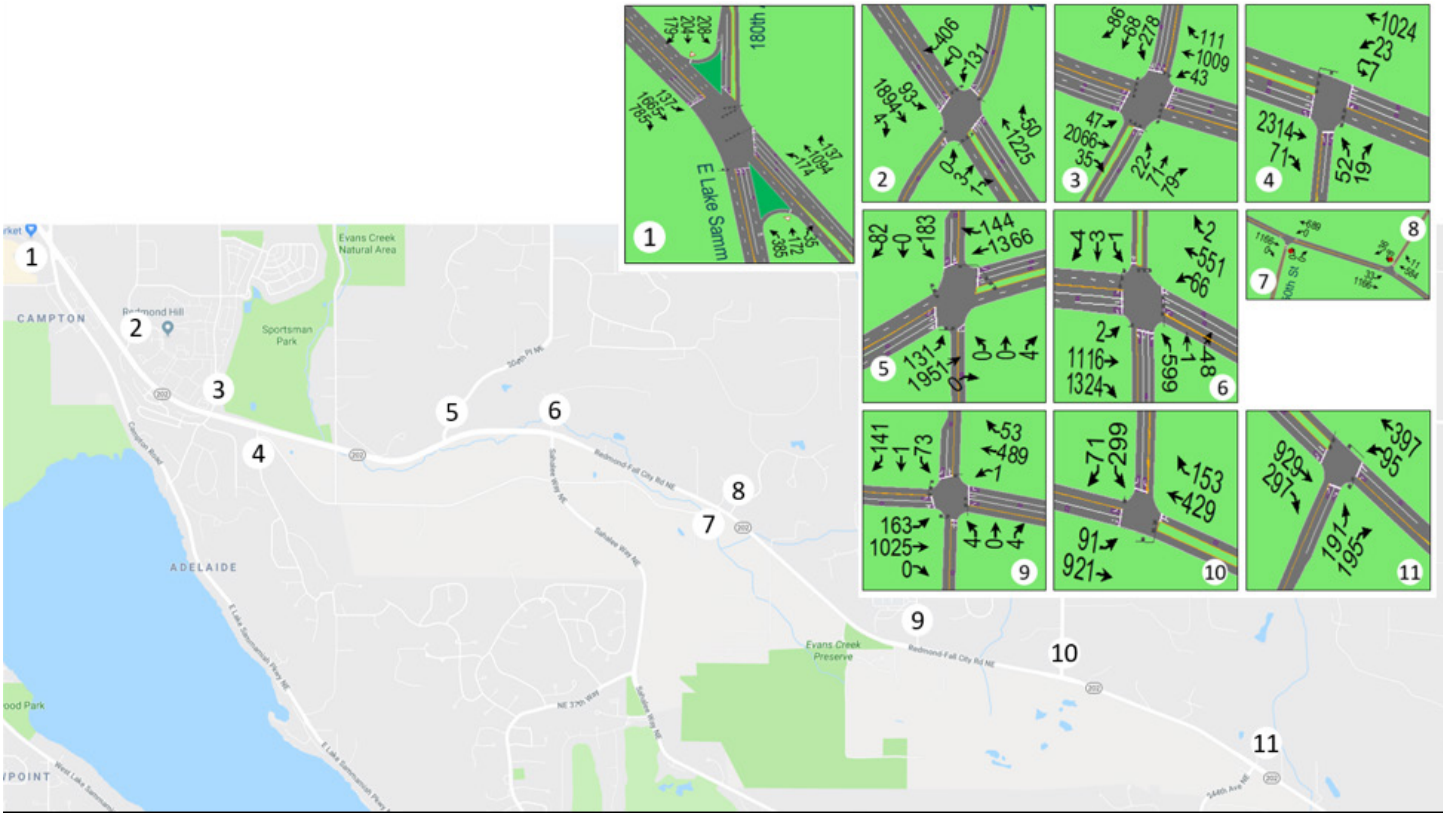


FIGURE 26: 2025 FUTURE YEAR PM PEAK ESTIMATED VOLUMES

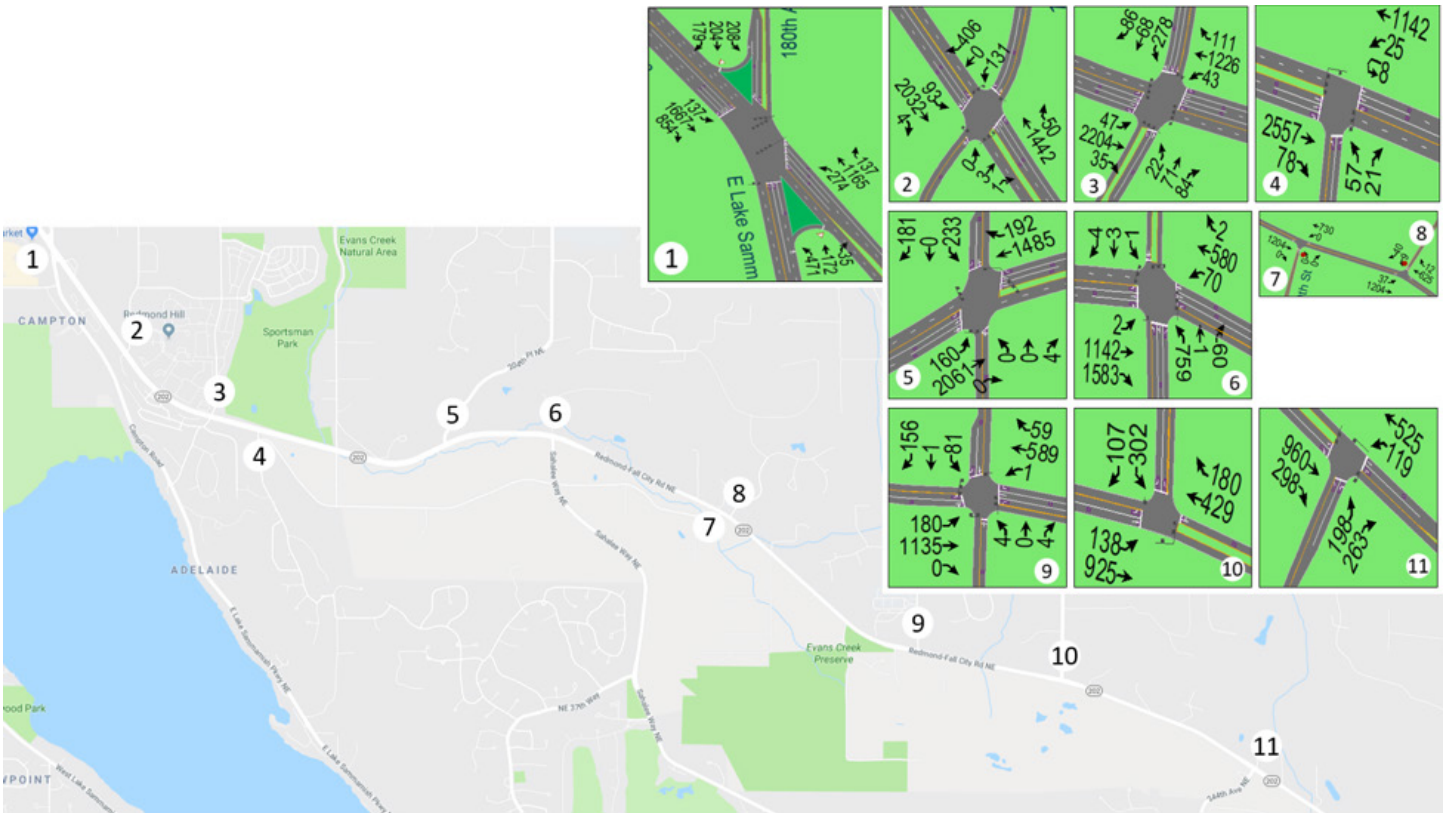


FIGURE 27: 2045 FUTURE YEAR PM PEAK ESTIMATED VOLUMES

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.

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/ East 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	1171.1	959	E	55.3	145	D	51.3	133
SR 202/192nd Dr 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	D	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	A	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 28: 2025 FUTURE YEAR AM PEAK INTERSECTION OPERATIONS

[1]Stop controlled intersections were analyzed separately

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/ East 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 Dr 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 29: 2045 FUTURE YEAR AM 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/ East Lake Sammamish Pkwy	Signal	F	E	75.8	744	D	49.9	296	F	168.1	522	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 Dr 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	B	31.2	417	C	22.9	146	E	60.8	273	-	-	-

FIGURE 30: 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/ East 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 Dr 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	71.6	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	-	-	-

FIGURE 31: 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 10 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 10: 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 section included in the comprehensive 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.

The East Lake Sammamish Trail North Extension (which will extend the current trail through the SR 202/520 Interchange and across the Bear Creek to connect with the Redmond Central Connector) will be constructed by Sound Transit as part of the Downtown Redmond Link Extension Project and will be completed by 2024.

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 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 11 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 effect8.6
Safety	Potential to Reduce Crash Potential
Feasibility	Cost

TABLE 11: 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, except for the eastbound and westbound left turn movements. 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 the northbound through and left-turn movement. 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.

For the 2045 PM Peak model, the eastbound left turn is leading and the westbound left turn is lagging. An additional 10 seconds was also added for both the eastbound and westbound left turn phases, which increases the overall cycle length by 10 seconds. The modeled 2045 PM Peak results show a 20 second decrease in delay eastbound, as well as a 10ft reduction in queue. 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.

The eastbound leg 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. Also, the roundabout would need to be designed to accommodate large trucks.

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.

  For the modeled 2045 PM Peak, southbound delay is estimated to decrease by 61 seconds, with a queue reduction of 310ft. 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.

  This long-term strategy would need a future study to quantify corridor performance with different road diet alternatives.

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.

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.

Cost estimates were generated using WSDOT's Planning Level Cost Estimating Tool (PLCE) in 2016 dollars. These estimates were developed with little to no design. Unknown factors could lead to changes in the estimates in the future. The range show below displays 10% below average estimated project cost (low range) and 20% above average estimated project cost (high range).

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 (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	Modify access and operations at NE 50th, such as restricting movements to right-in/right-out or modifying to one-way access.	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	WSDOTRedmond
Corridor Wide	Consider installing additional ITS/ driver information signage	N/A	Near-term	N/A	N/A	WSDOT Redmond Sammamish King County

TABLE 12: 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 (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

TABLE 13: 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 (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

TABLE 14: LONG-TERM (2045) STRATEGIES

Next Steps

The strategies identified in this study will enable WSDOT and other agencies to address identified performance issues along the study corridor. Funding is not currently available for any of the recommended strategies included in this report, therefore, grants, partnerships or other funding sources will need to be pursued. WSDOT pursues funding through a statewide priority process. Top investment priorities include preservation of existing assets such as pavement and bridges, safety, and removal of fish passage barriers.

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 Ullmer – King County Parks; Jim Ishimaru – King County Roads; 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.

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. 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

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.

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	100.5	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	-	-	-

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 2,425 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.

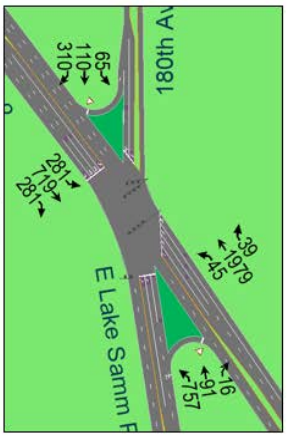
SR 202/E Lake Sammamish Pkwy NE

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

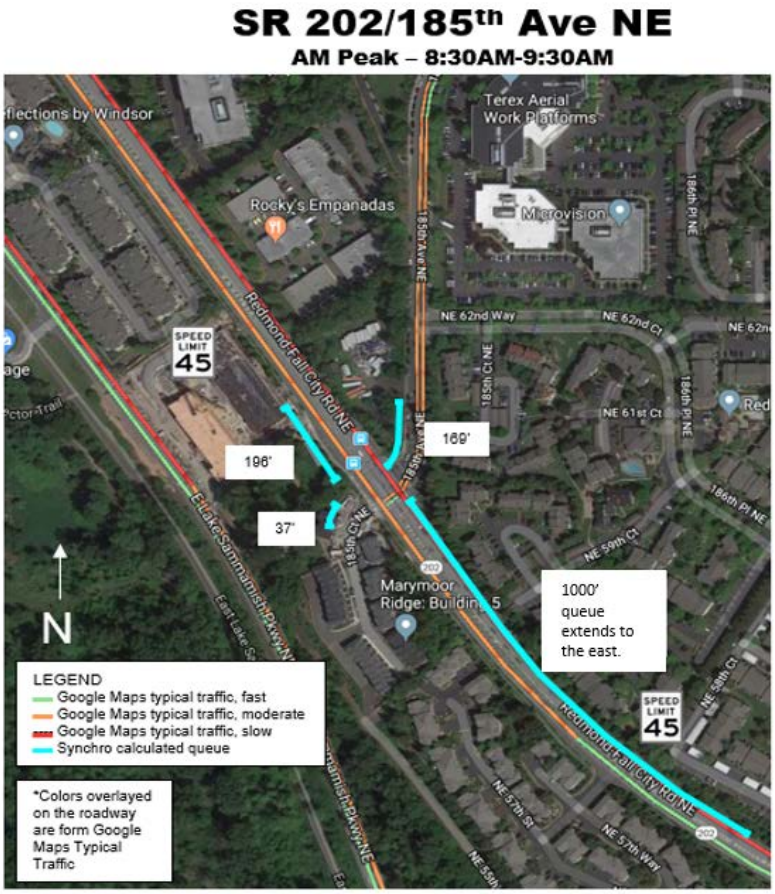
- The original turning movement/traffic count is shown above
- The synchro WB through movement was increased from 1979 vehicles to 2479 vehicles to calibrate and match the observed queue

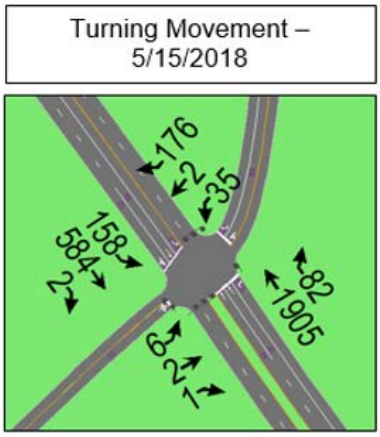
Turning Movement – 6/5/2018



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.



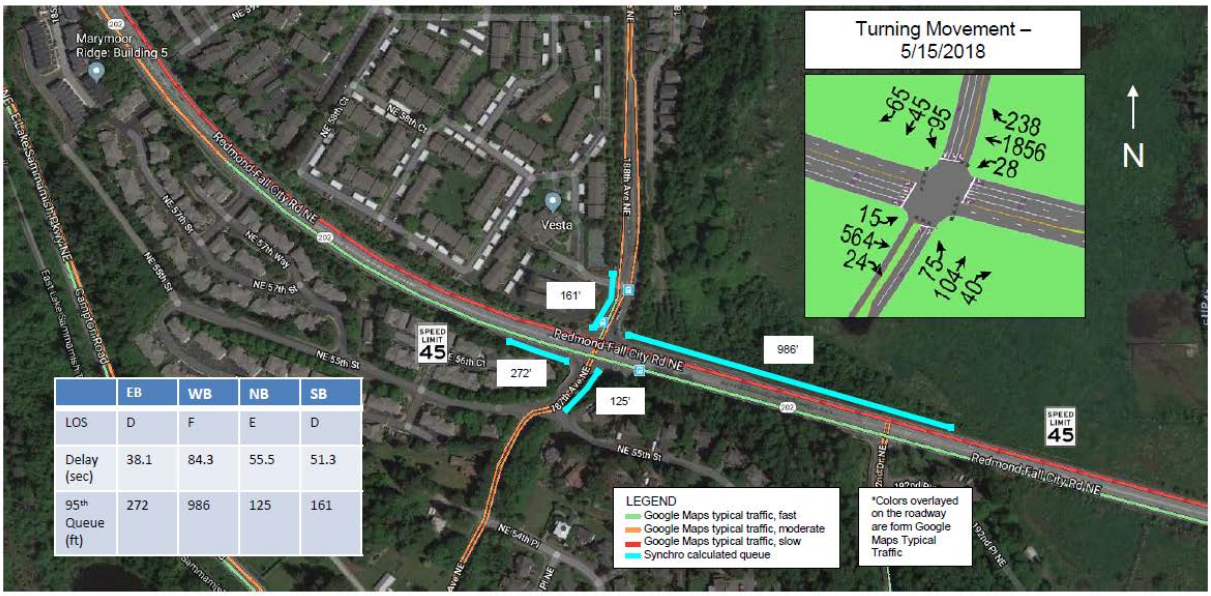


	EB	WB	NB	SB
LOS	B	F	D	B
Delay (sec)	17.7	100.5	45.0	16.3
95th Queue (ft)	196	1209	37	169

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.

SR 202/188th Ave NE
AM Peak – 8:30AM-9:30AM



	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

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 Pl NE

AM Peak – 7:00AM-8:00AM

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/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/NE 50th St and 218th Ave NE

AM Peak – 6:45AM-7:45AM

	EB	WB	NB	SB
LOS	A	A	-	D
Delay (sec)	1.7	0	-	18
95th Queue (ft)	5	0	-	26.2

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 202/228th Ave NE

AM Peak – 6:45AM-7:45AM

	EB	WB	NB	SB
LOS	D	D	-	C
Delay (sec)	49.7	47.2	-	34.9
95th Queue (ft)	236	545	-	213

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	49.6	310	F	167.5	563	F	138.5	568
SR 202/187th Ave NE	Signal	D	D	36.3	332	C	25.1	340	D	43.2	14	E	71.5	371
SR 202/188th Ave NE	Signal	F	F	93	646	D	51.1	425	F	109.3	158	F	300.4	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	21.2	145	E	63.3	338	D	47.5	40
SR 202/ NE 50th St[1]	Two-Way Stop	B	A	0	0	A	0	0	A	0	0	-	-	-
SR 202/212th Ave NE[1]	Two-Way Stop	C	A	1.5	3	A	0	0	-	-	-	D	26.2	23
SR 202/288th Ave NE	Signal	C	C	29.2	275	C	23.1	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).

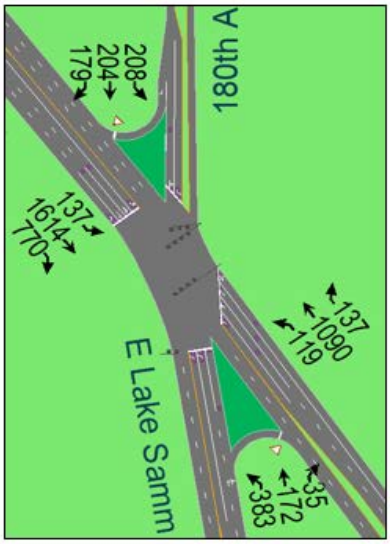
The northbound traffic on East Lake Sammamish Parkway approaching the SR 202 intersection experiences an average of almost three minutes (167.5 seconds) delay per vehicle with a queue backup of over 500 feet. This northbound approach leg of East Lake Sammamish Parkway currently operates at a LOS of F 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



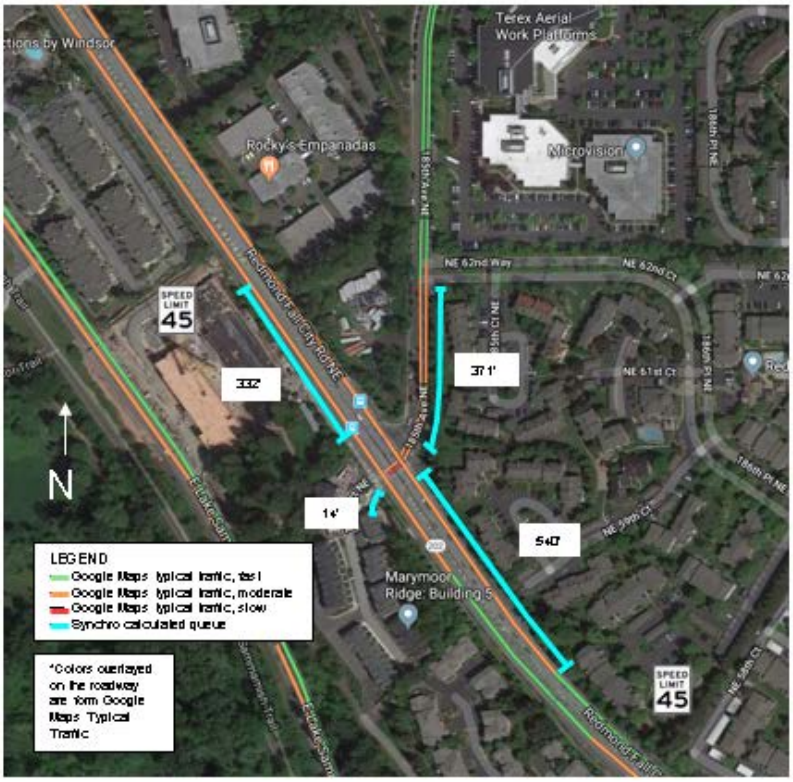
	EB	WB	NB	SB
LOS	E	D	F	F
Delay (sec)	57.7	49.6	167.5	138.5
95th Queue (ft)	670	310	563	568

SR 202/185th Avenue NE Intersection

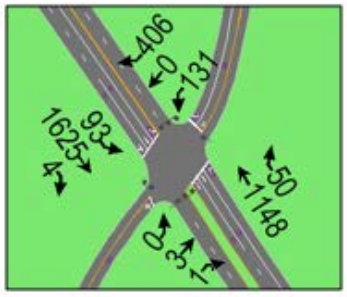
SR 202 at the 185th Avenue NE intersection in Redmond experiences its afternoon peak hour from 3:30 to 4:30pm, based upon highest volumes at this intersection.

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.

SR 202/185th Ave NE
PM Peak – 3:30PM-4:30PM



Turning Movement – 5/15/2018



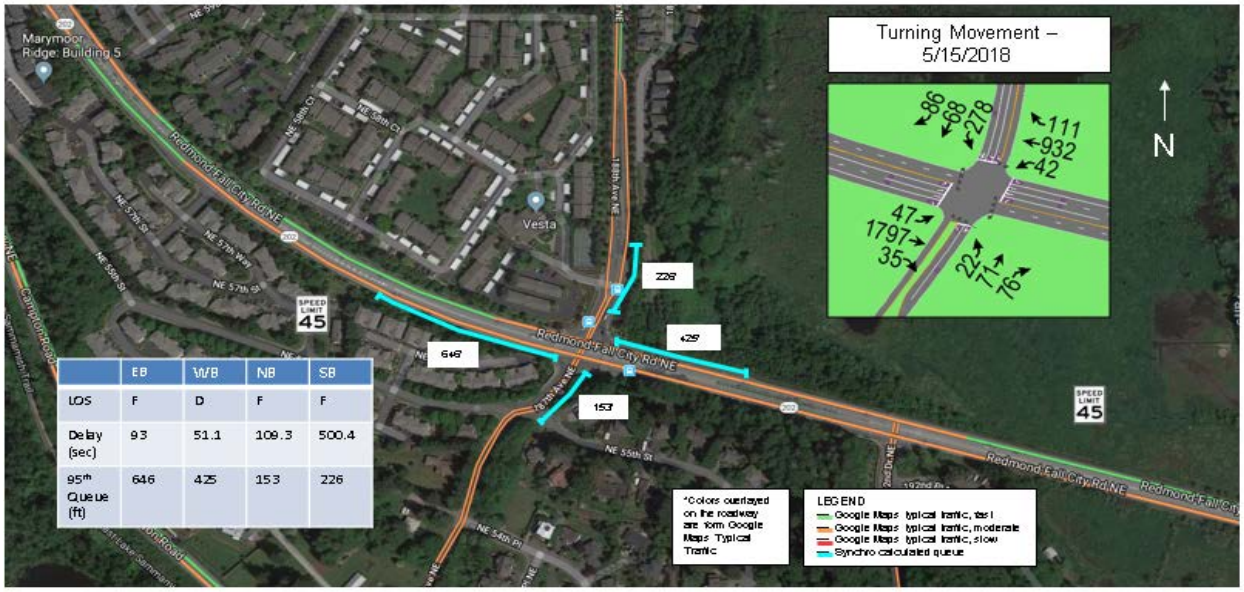
	EB	WB	NB	SB
LOS	D	C	F	E
Delay (sec)	36.3	25.1	48.8	71.5
95th Queue (ft)	332	540	14	371

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/NE 50th St and 218th Ave NE

PM Peak – 3:30PM-4:30PM

	EB	WB	NB	SB
LOS	A	A	-	D
Delay (sec)	1.5	0	-	26.8
95th Queue (ft)	3	0	-	23

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 202/228th Ave NE

PM Peak – 4:15PM-5:15PM

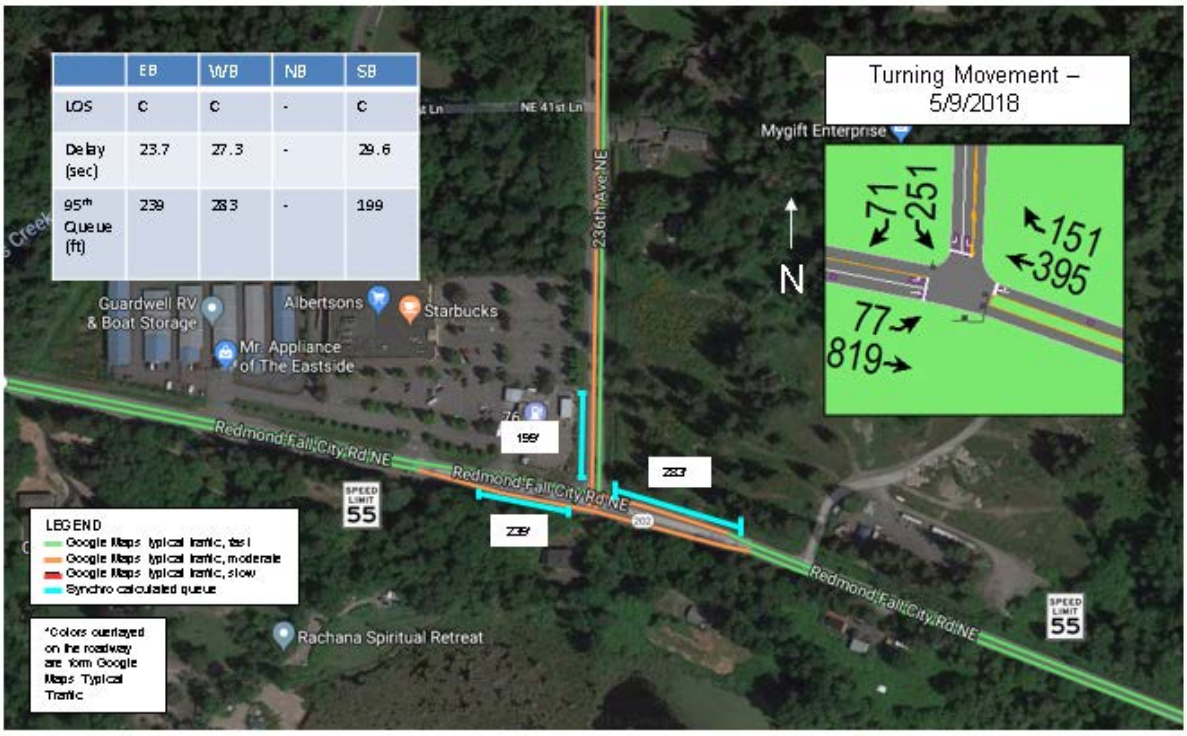
SR 202/236th Avenue NE Intersection

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 202/236th Ave NE

PM Peak – 4:30PM-5:30PM



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 202/244th Ave NE

PM Peak – 4:30PM-5:30PM

	EB	WB	NB	SB
LOS	C	B	D	-
Delay (sec)	24	19.1	52.3	-
95th Queue (ft)	262	131	264	-

SR 202 Corridor Travel Times during Morning and Evening Peak Periods

The analysis of existing traffic conditions for the SR 202 corridor study 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

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

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

Existing PM Peak SimTraffic

Arterial Level of Service: EB SR 202

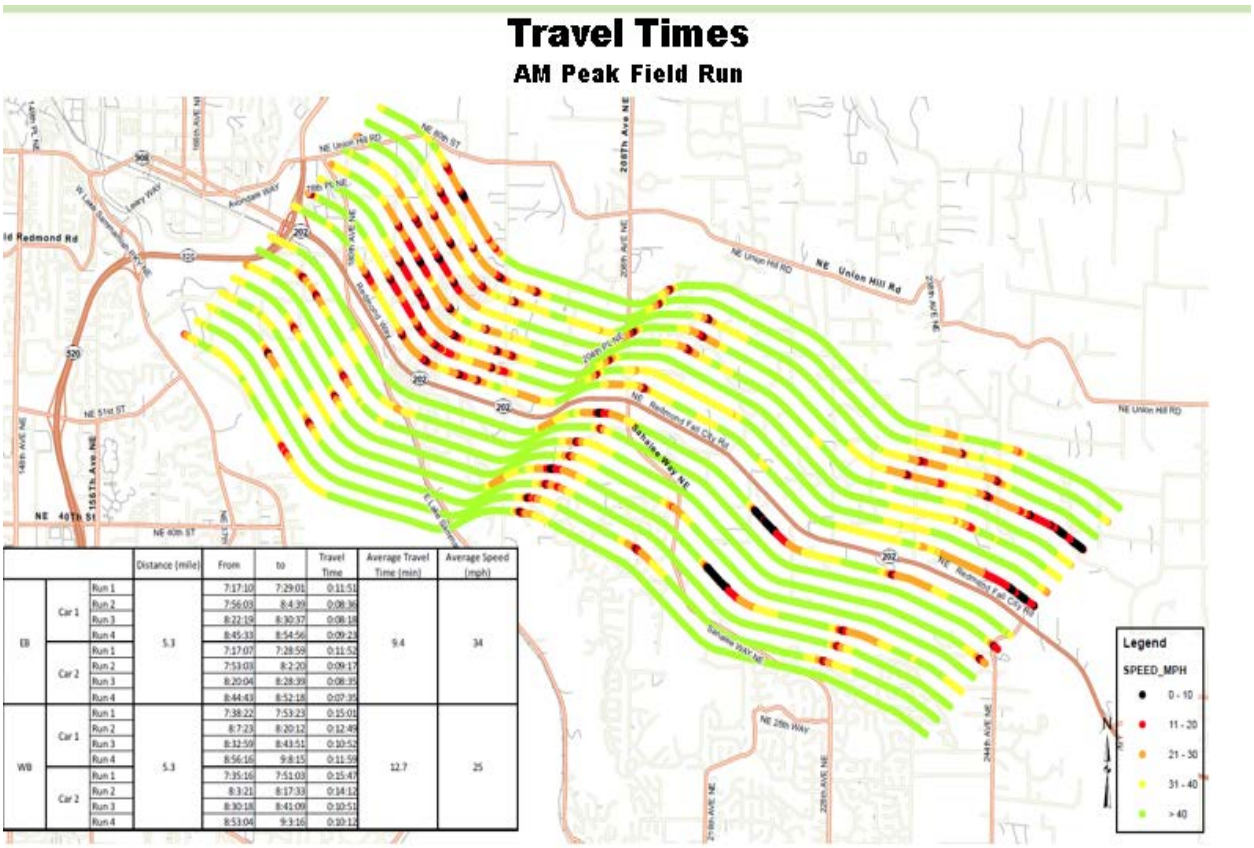
Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
E Lake Samm Pkwy NE	21	36.4	301.2	0.1	10
185th Ave NE	22	30.6	66.3	0.5	25
188th Ave NE	23	61.4	91.5	0.4	15
192nd Dr NE	24	24.4	35.8	0.2	17
204th Pl NE	25	20.2	61.1	0.7	40
Sahalee Way SE	26	74.0	107.3	0.4	14
NE 50th St	27	13.9	53.0	0.6	42
218th Ave NE	28	2.4	6.4	0.1	32
228th Ave NE	29	17.2	69.5	0.8	42
236th Ave NE	30	14.4	44.5	0.5	41
244th Ave NE	31	26.0	72.3	0.8	37
Total		321.0	909.0	5.0	28

Arterial Level of Service: WB SR 202

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
244th Ave NE	31	7.1	22.8	0.2	38
236th Ave NE	30	20.3	68.0	0.8	40
228th Ave NE	29	21.0	53.0	0.5	34
218th Ave NE	28	9.7	62.1	0.8	47
NE 50th St	27	1.0	4.7	0.1	43
Sahalee Way SE	26	12.3	50.8	0.6	44
204th Pl NE	25	12.5	32.8	0.4	42
192nd Dr NE	24	11.6	50.9	0.7	48
188th Ave NE	23	47.0	59.7	0.2	10
185th Ave NE	22	32.1	61.4	0.4	23
180th Ave NE	21	31.6	64.6	0.5	25
Total		206.2	530.8	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.



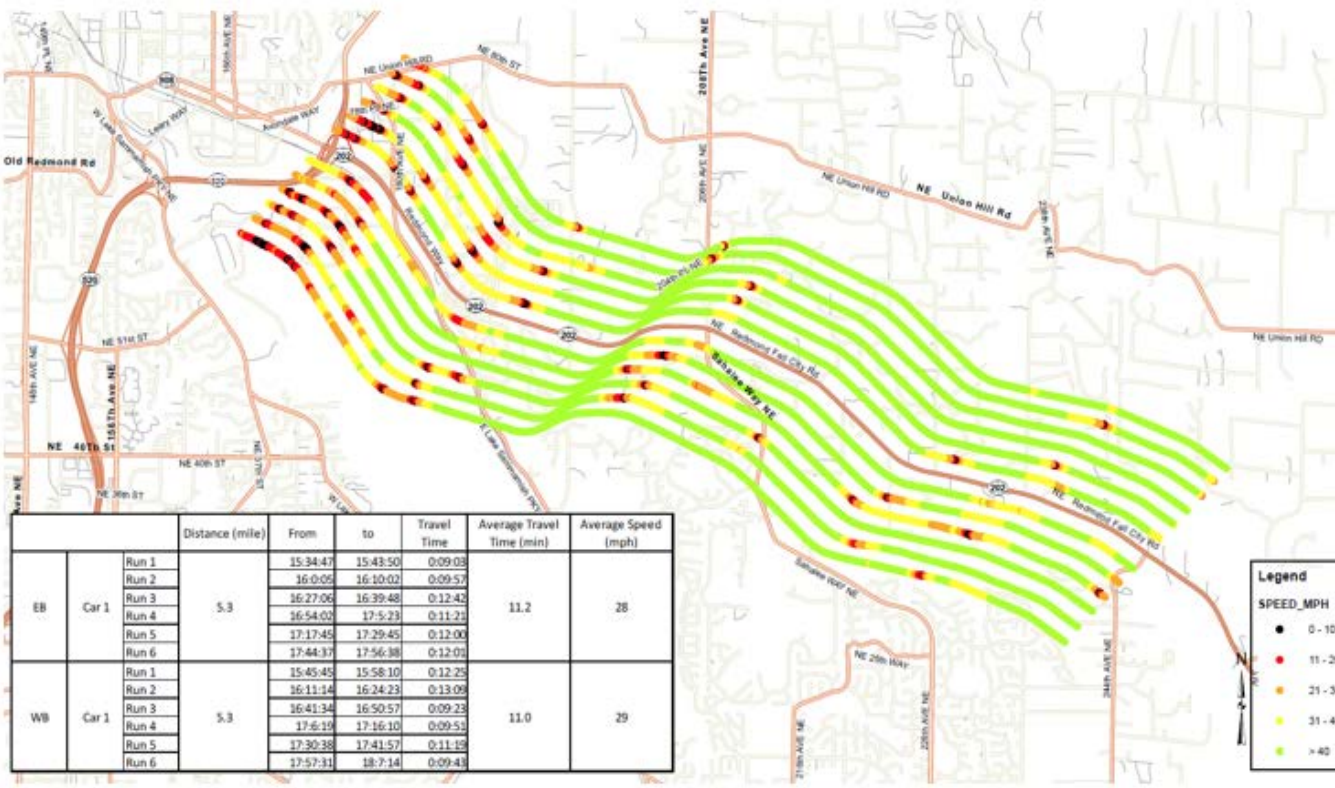
			Distance (mile)	From	to	Travel Time	Average Travel Time (min)	Average Speed (mph)
EB	Car 1	Run 1	5.3	7:17:10	7:29:01	0:11:51	9.4	34
		Run 2		7:56:03	8:4:39	0:08:36		
		Run 3		8:22:19	8:30:37	0:08:18		
		Run 4		8:45:33	8:54:56	0:09:23		
	Car 2	Run 1		7:17:07	7:28:59	0:11:52		
		Run 2		7:53:03	8:2:20	0:09:17		
		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	8:20:12	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.

Travel Times

PM Peak Field Run



			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.

			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	-	-	-

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

			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	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

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.

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	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	-	-	-

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.

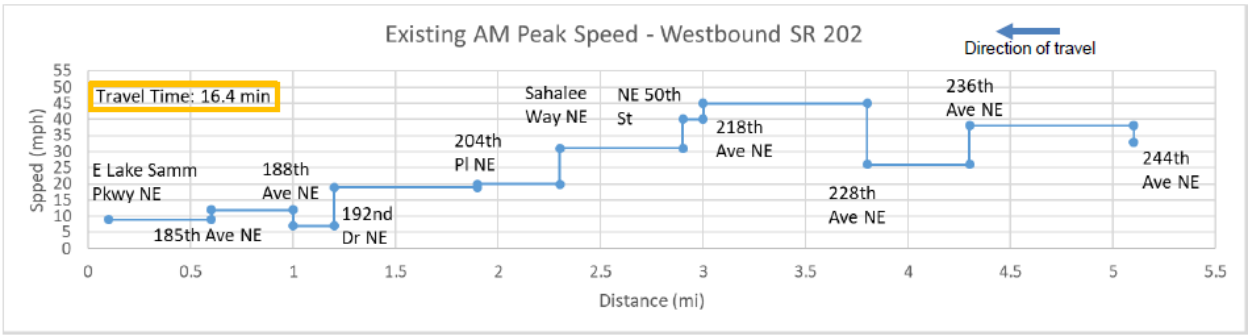
SR 202 Corridor Travel-Time Performance Summary: 2025 and 2045

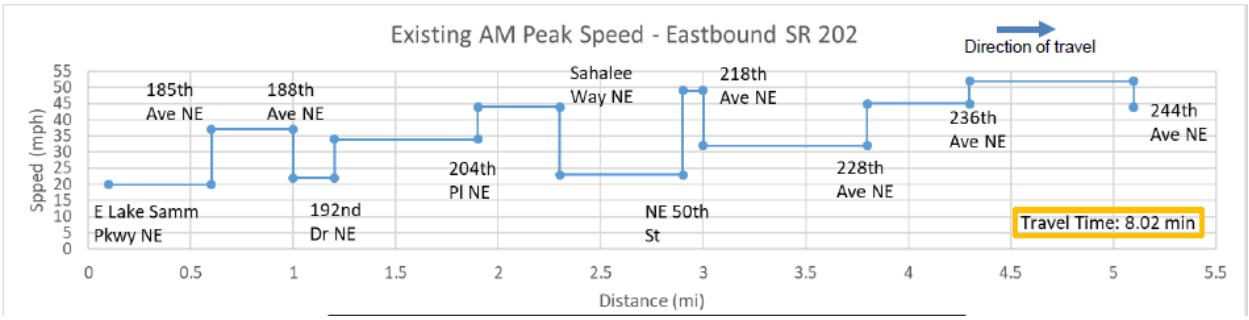
The baseline 2025 and 2045 morning and afternoon peak analyses efforts included an assessment of travel-time performance across the SR 202 from the East Lake Sammamish Parkway Intersection to the 244th Avenue NE intersection in both directions. This travel-time performance analysis was conducted using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

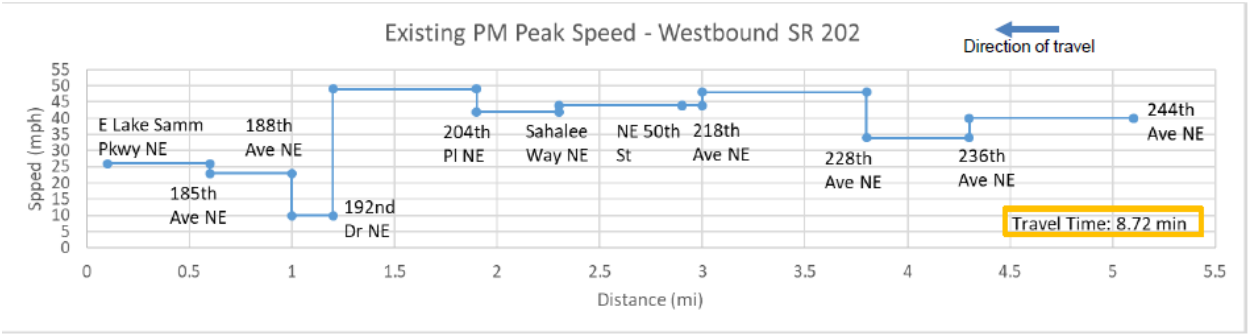
During the existing AM peak period, the average travel time in the westbound direction of travel is slightly over 16 minutes from 244th Avenue NE to the East Lake Sammamish Parkway Intersection. This is approximately five miles in total distance. The eastbound average travel time during the AM peak from East Lake Sammamish Parkway to 244th Avenue NE is approximately eight minutes.

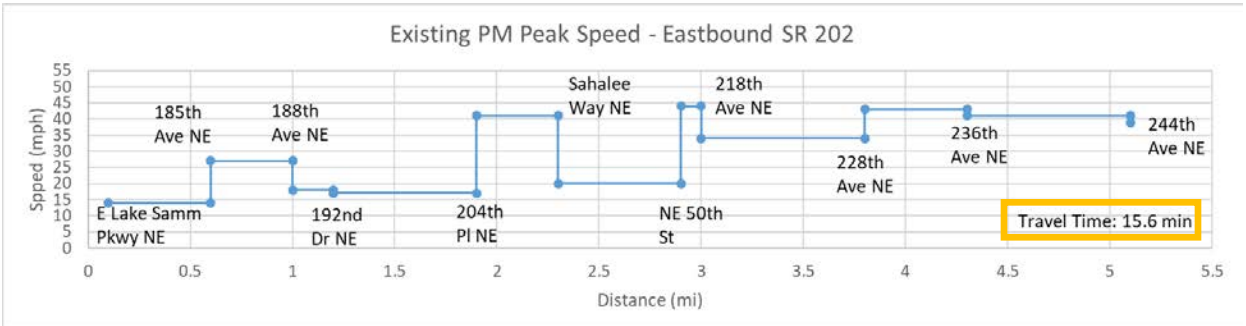
SimTraffic Arterial Speed
Existing AM Peak





SimTraffic Arterial Speed
Existing PM Peak



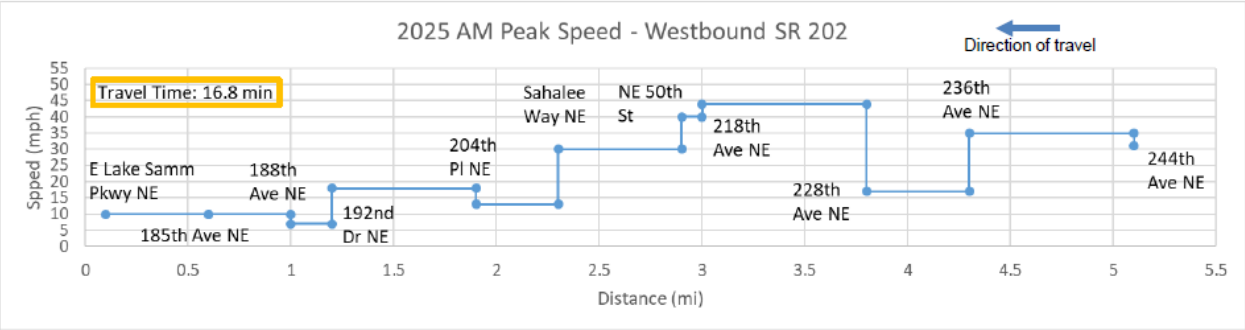


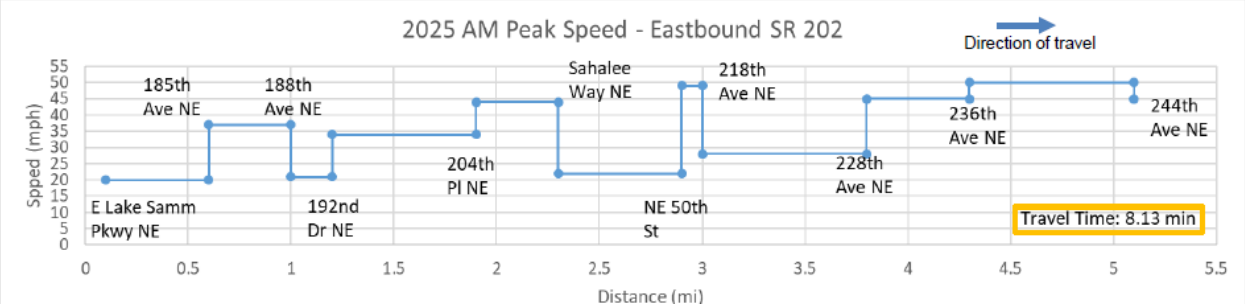
During the existing PM peak period, the average travel time from East Lake Sammamish Parkway NE to 244th Avenue NE is almost 26 minutes for this five-plus mile trip. In the westbound direction of travel, the average travel time is almost nine minutes.

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

SimTraffic Arterial Speed

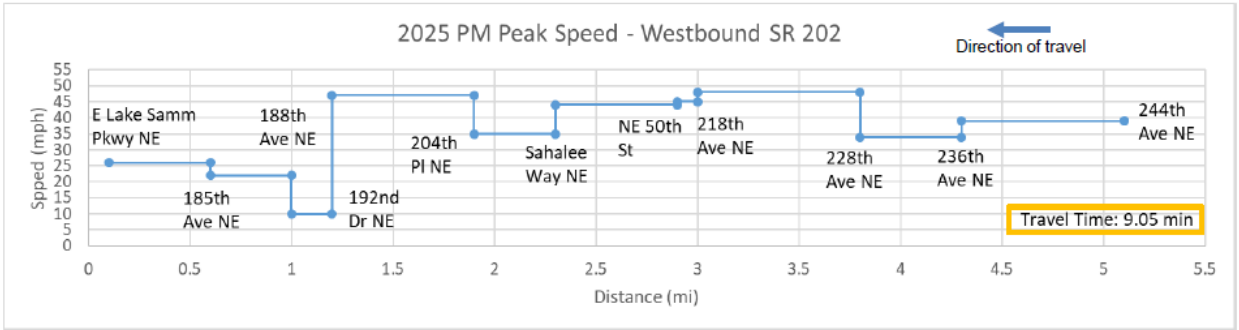
2025 AM Peak

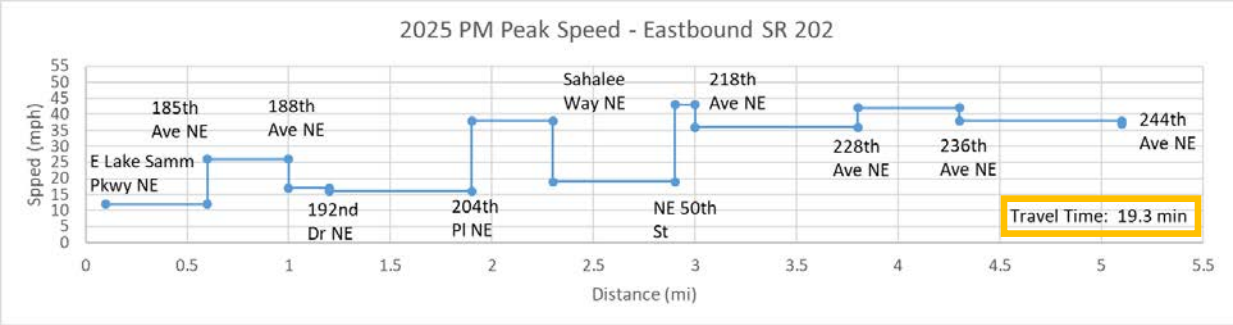




SimTraffic Arterial Speed

2025 PM Peak

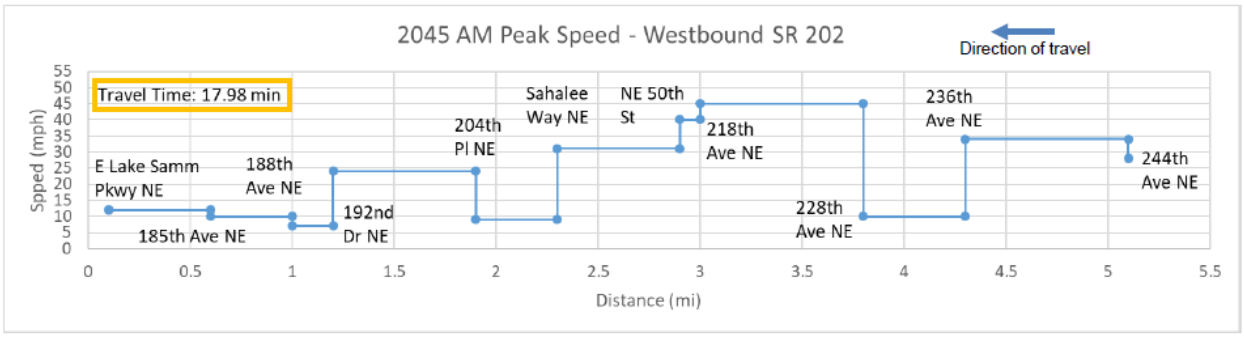


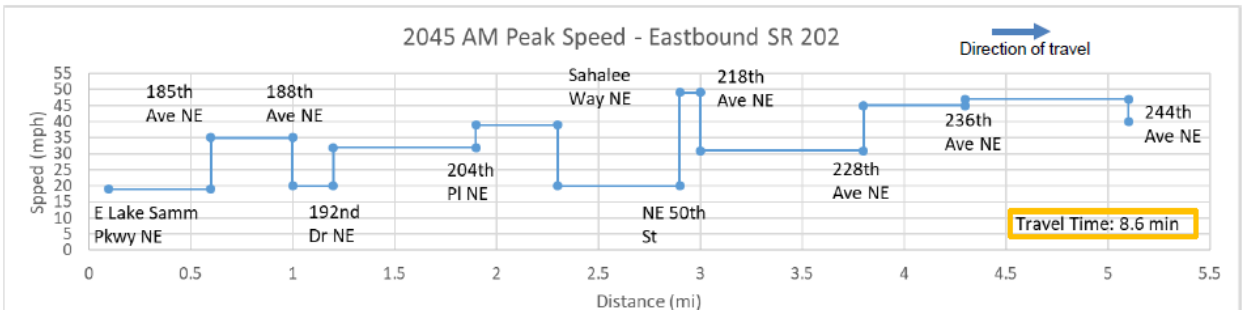


SR 202 2045 AM/PM Peak Travel-Time Performance

SimTraffic Arterial Speed

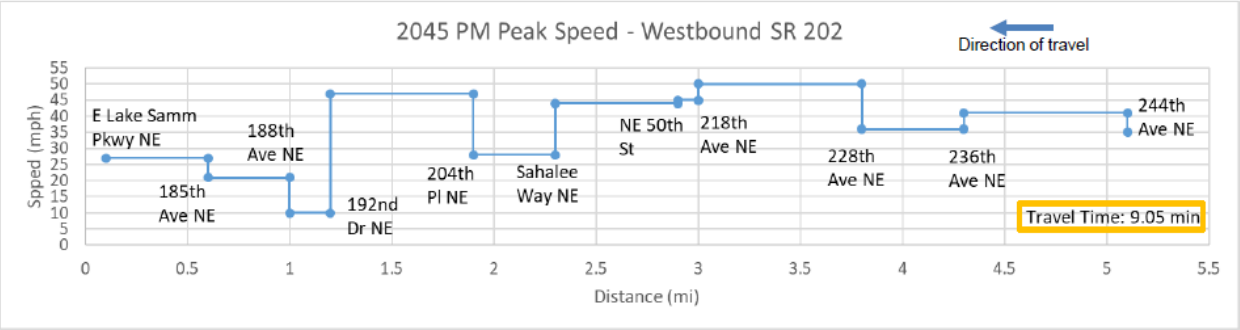
2045 AM Peak

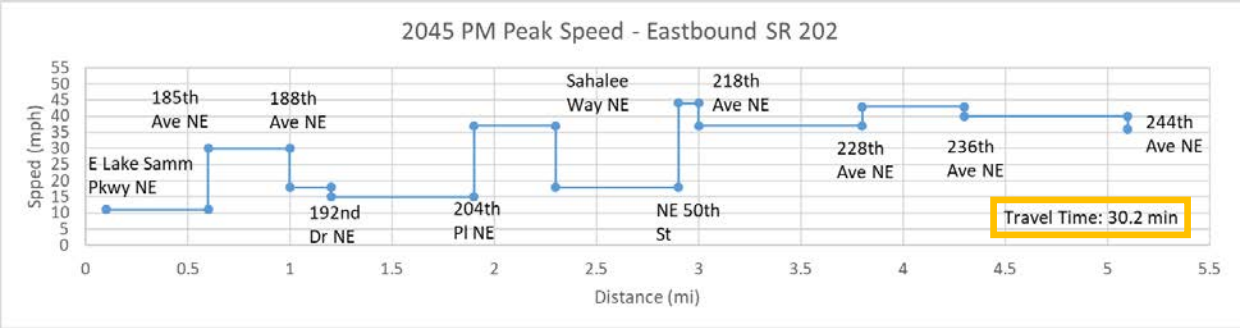




SimTraffic Arterial Speed

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	100.5	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

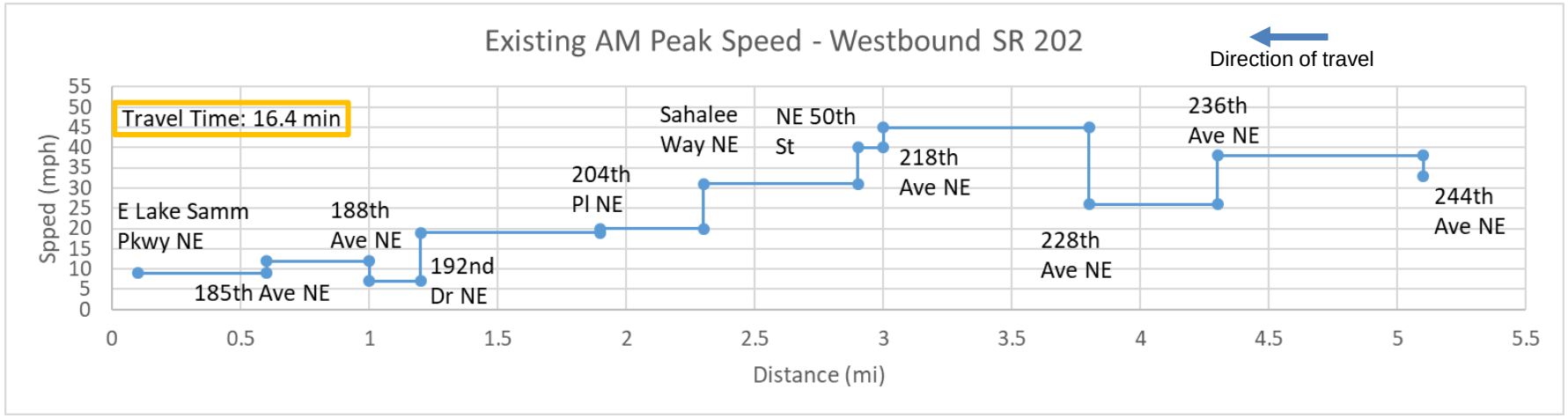
Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	C	32.7	330	F	153.1	1632	F	438	508	D	45.5	383
SR 202/185th 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	-	-	-

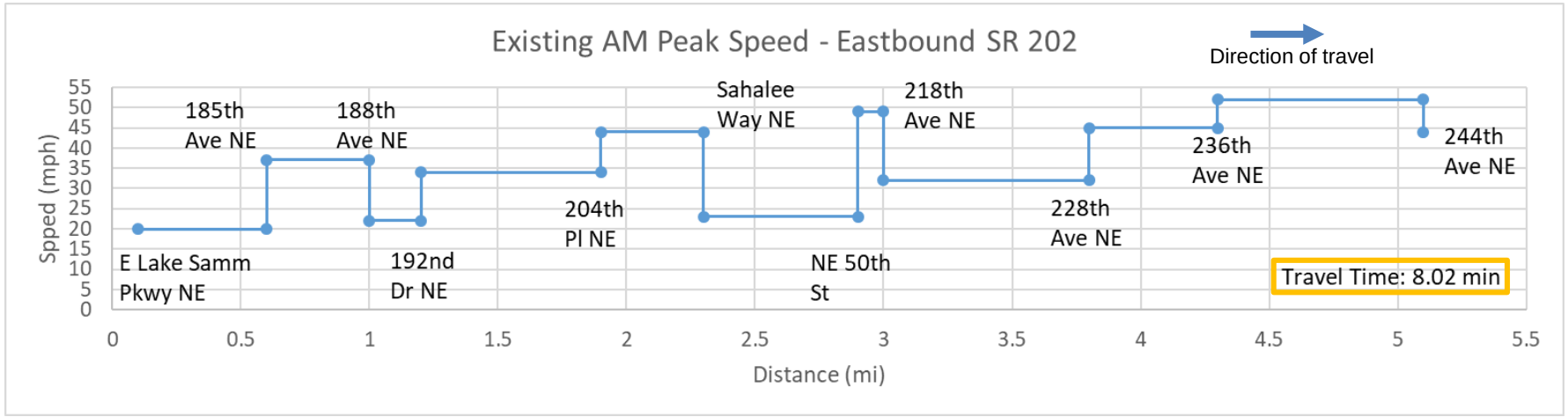
[1]Stop controlled intersections were analyzed separately

Arterial Analysis - Existing

SimTraffic Arterial Speed

Existing AM Peak

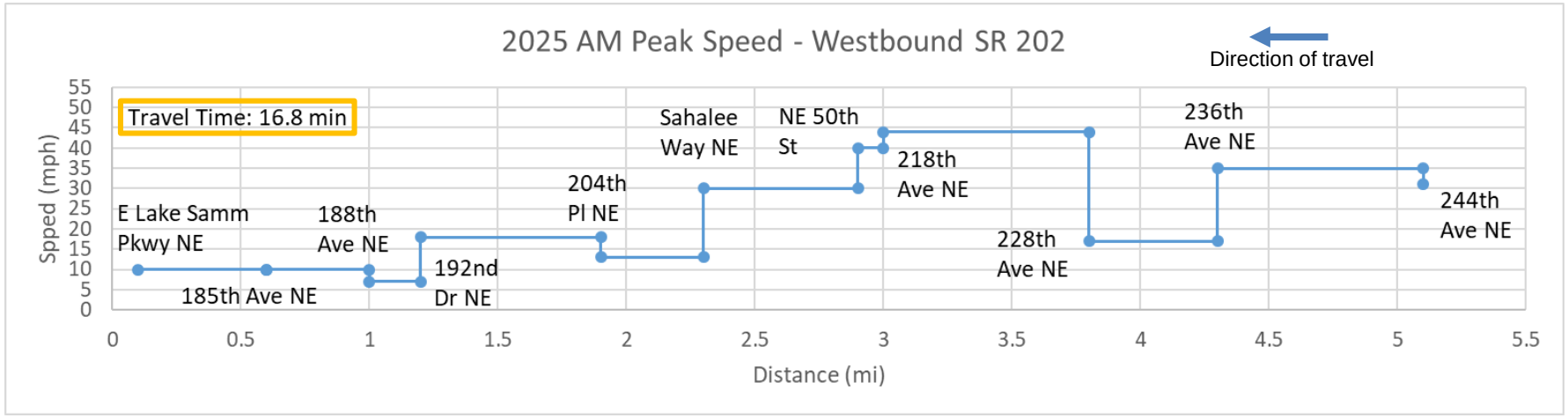


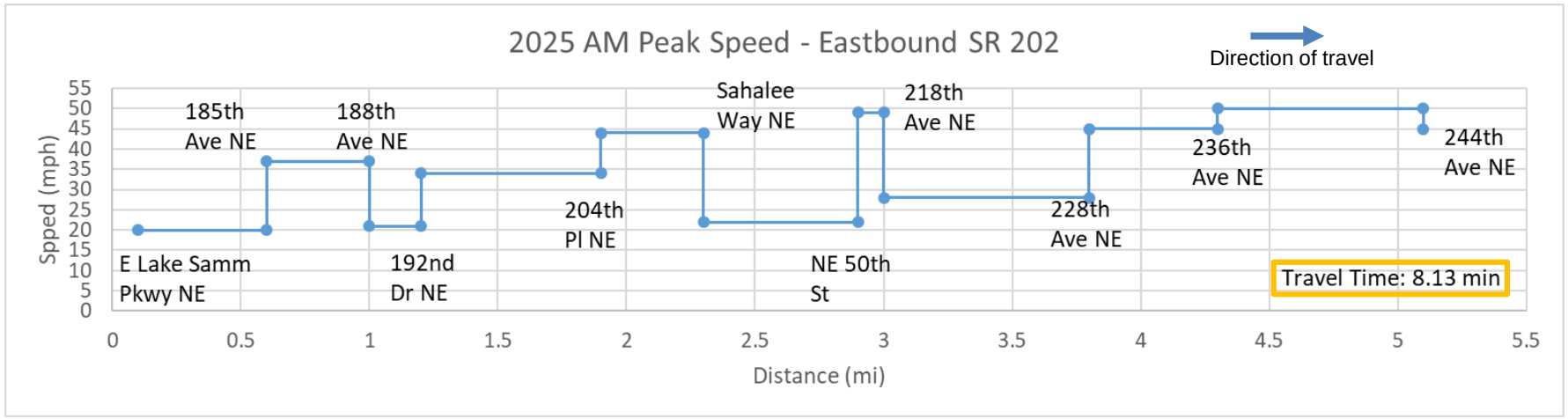


Arterial Analysis - Future

SimTraffic Arterial Speed

2025 AM Peak

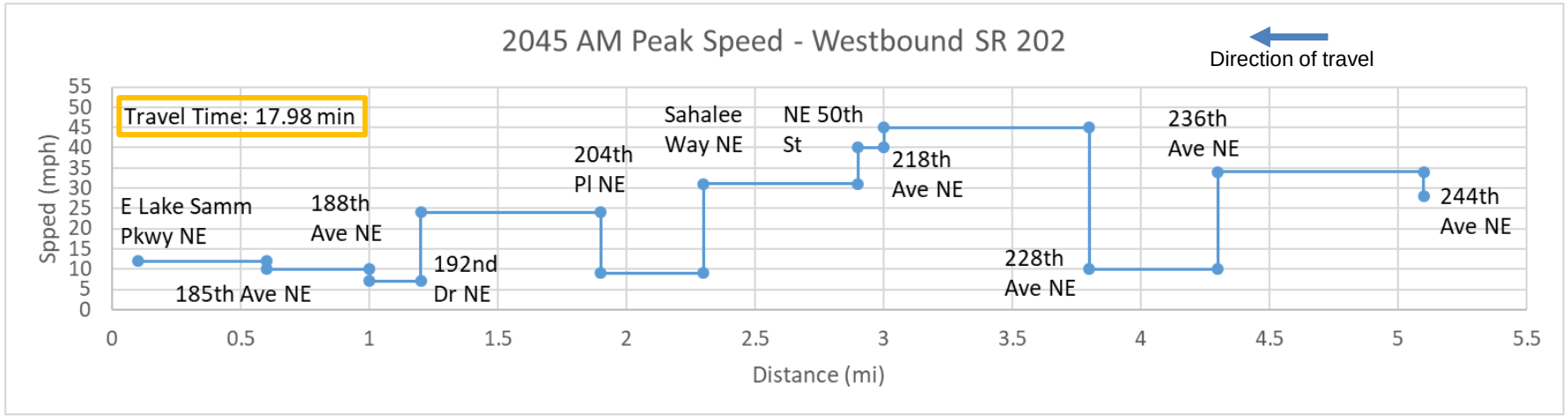


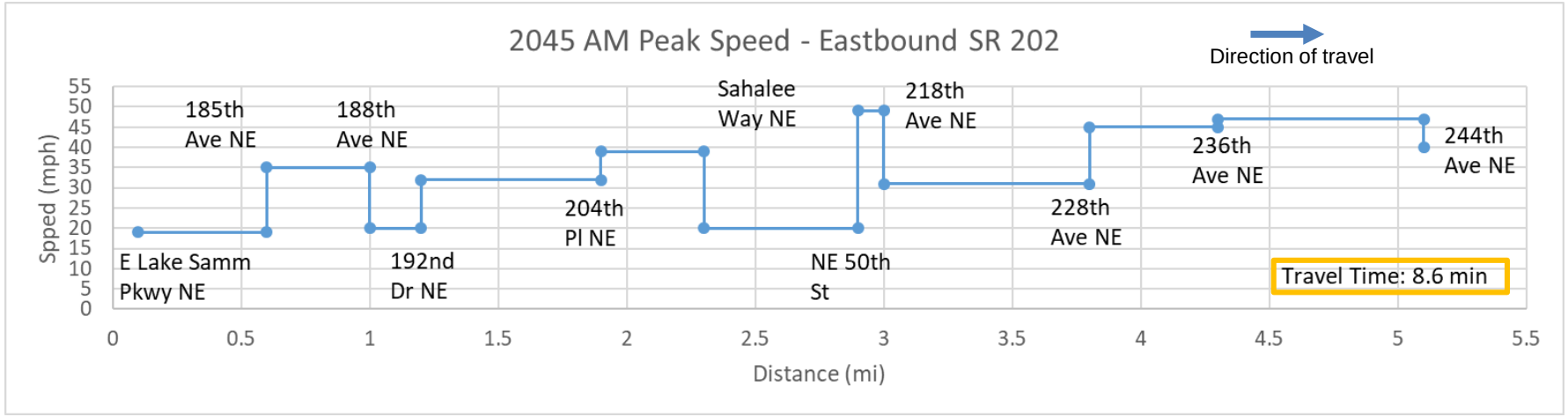


Arterial Analysis - Future

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

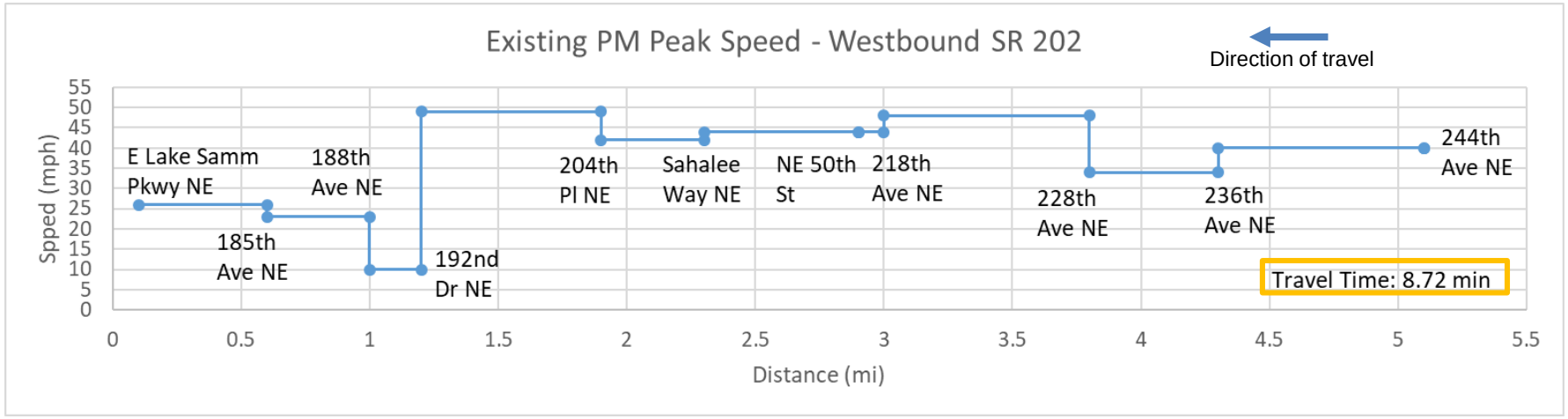
Intersection	Traffic Control	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
			LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	F	F	122.4	721	D	49.5	280	F	205.5	557	F	138.5	644
SR 202/185th 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	-	-	-

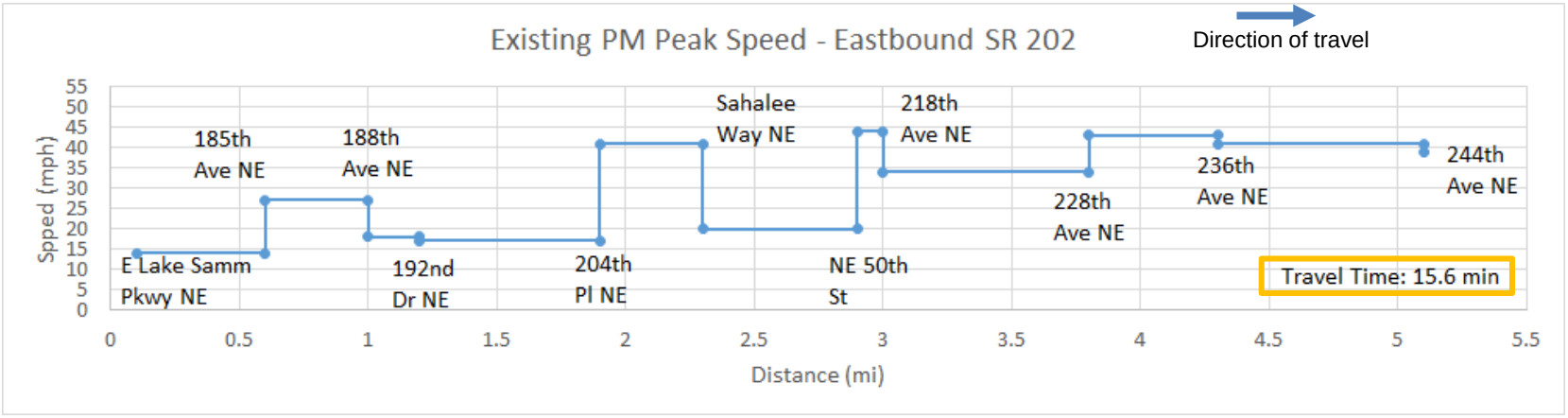
[1]Stop controlled intersections were analyzed separately

Arterial Analysis - Existing

SimTraffic Arterial Speed

Existing PM Peak

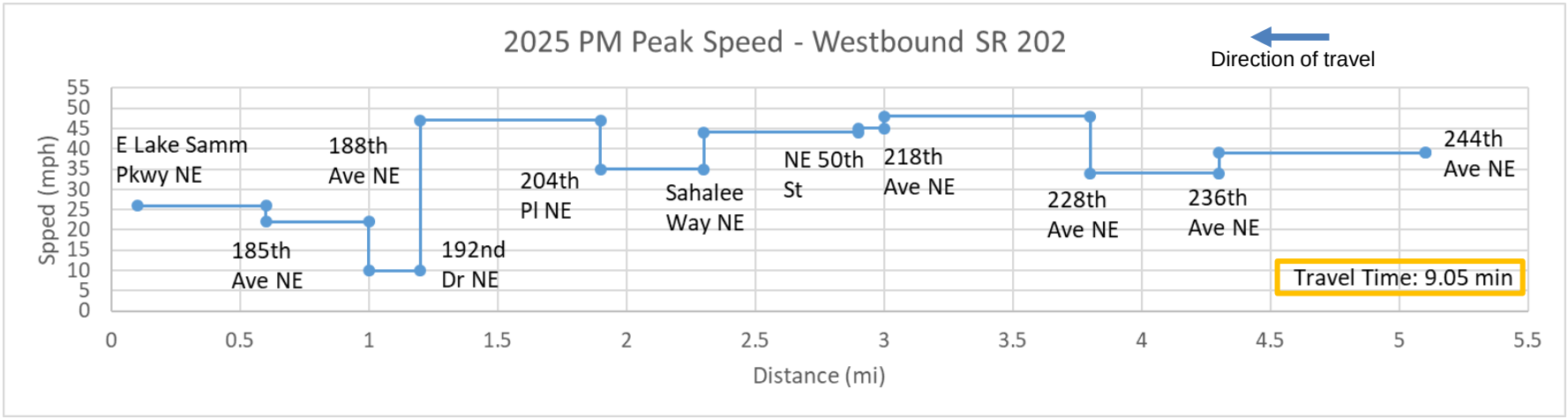


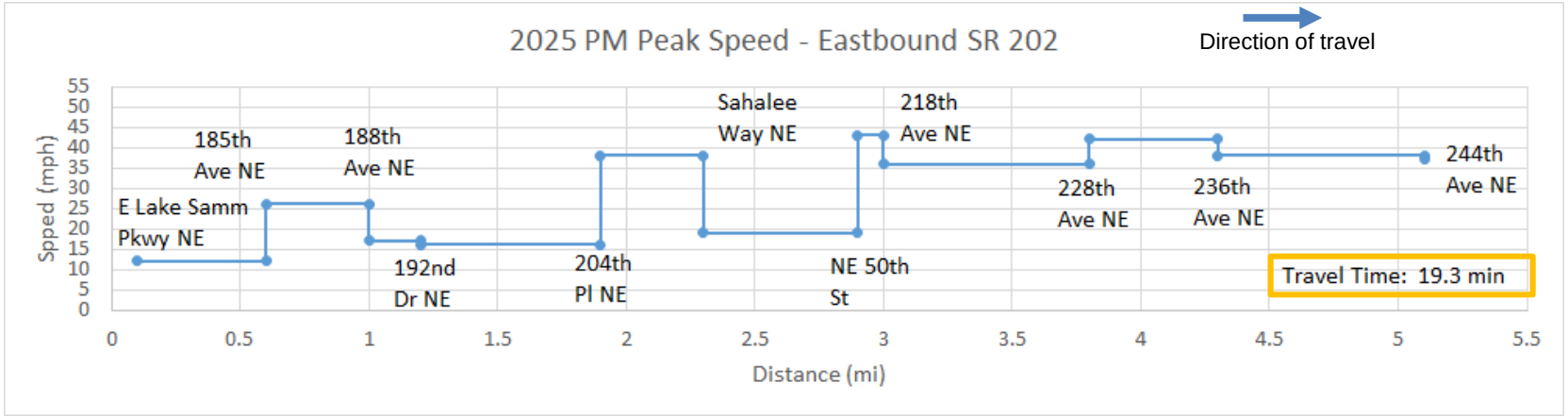


Arterial Analysis - Future

SimTraffic Arterial Speed

2025 PM Peak

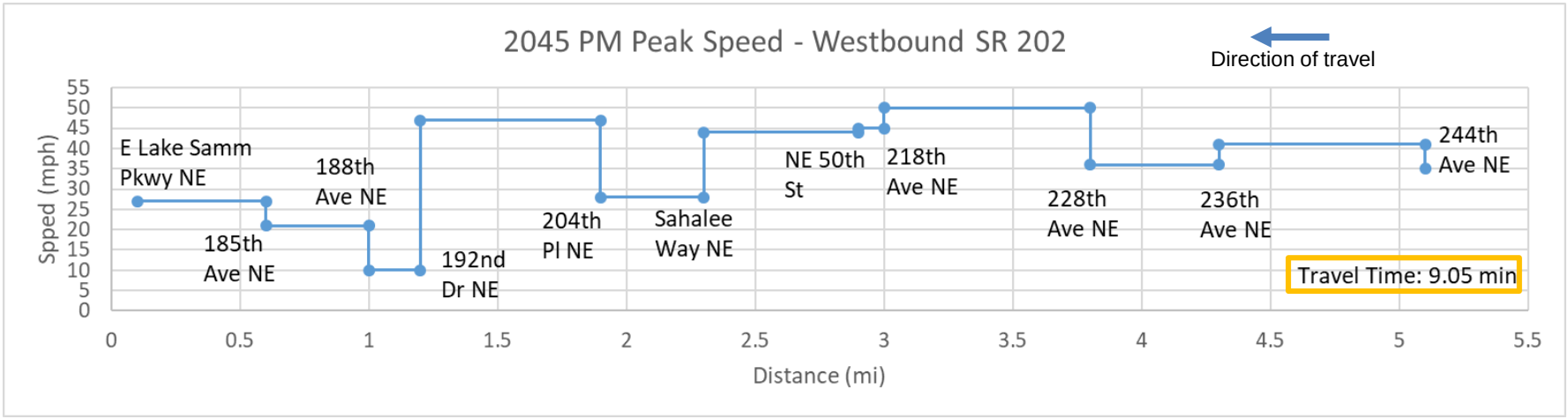


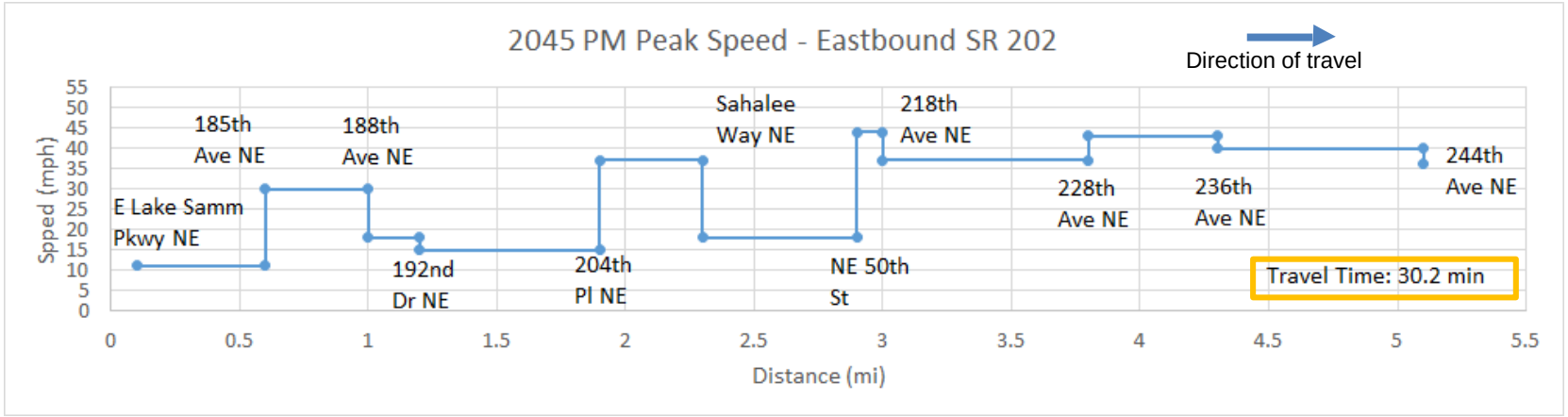


Arterial Analysis - Future

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

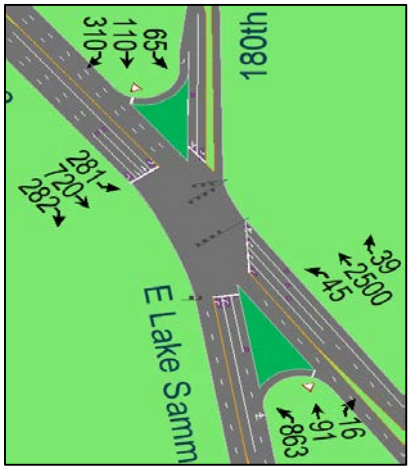
	2025	2045
Intersection LOS	F	F

		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’

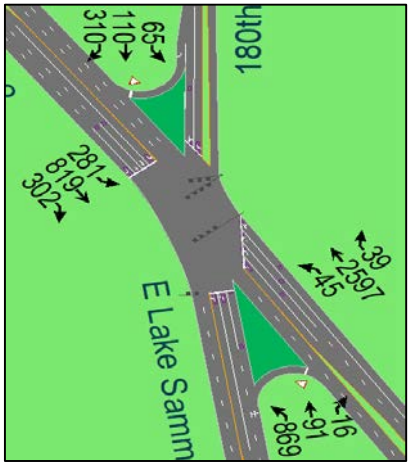
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*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



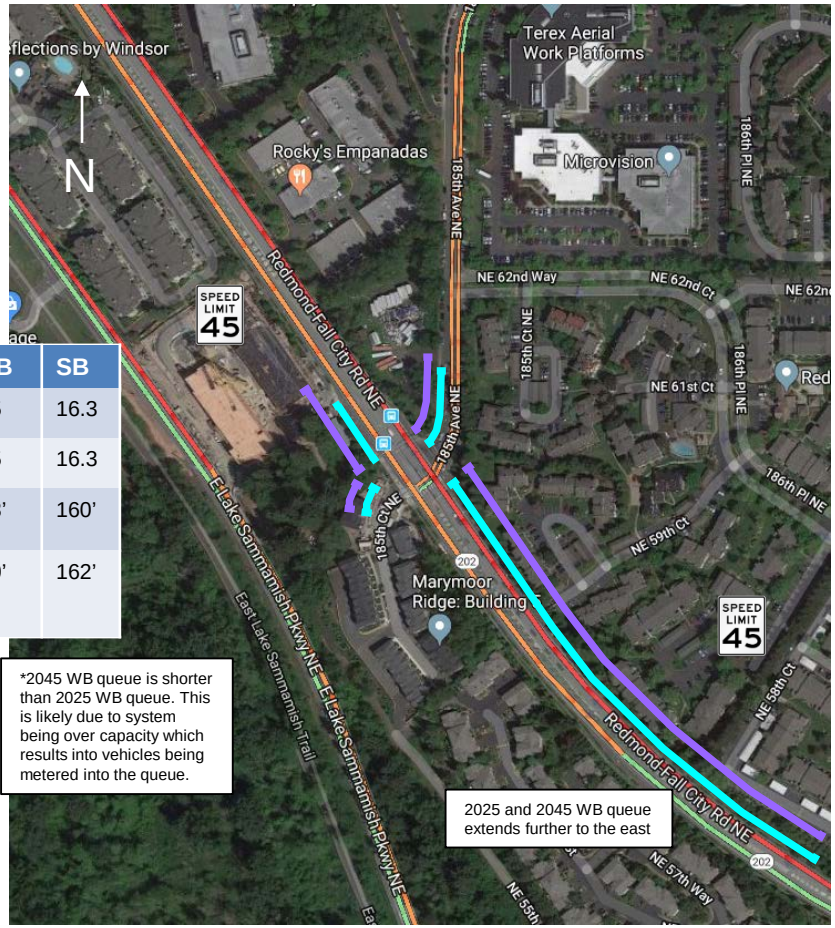
Intersection Analysis - Future

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’

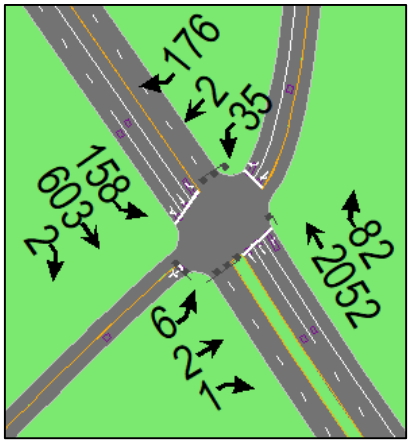


LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

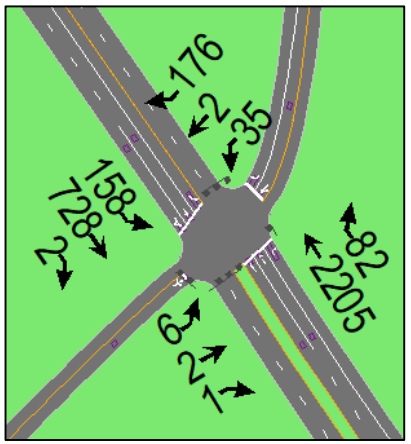
*2045 WB queue is shorter than 2025 WB queue. This is likely due to system being over capacity which results into vehicles being metered into the queue.

2025 and 2045 WB queue extends further to the east

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’

Intersection Analysis - Future

SR 202/192nd Ave NE

2025/2045 AM Peak – 6:45AM-7:45AM

	2025	2045
Intersection LOS	D	E

		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’	-

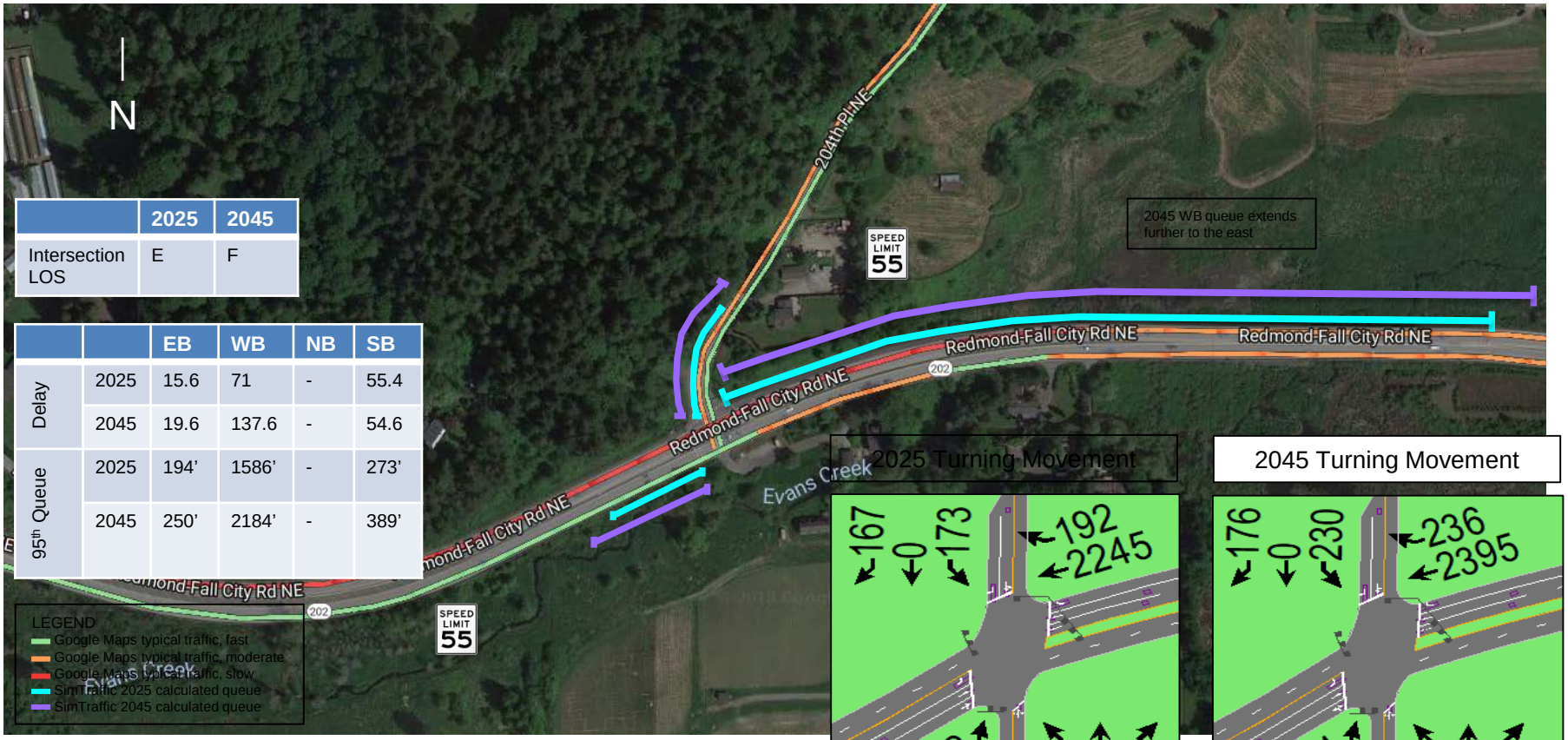
Intersection Analysis - Future

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’



2025 Turning Movement

2045 Turning Movement

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.

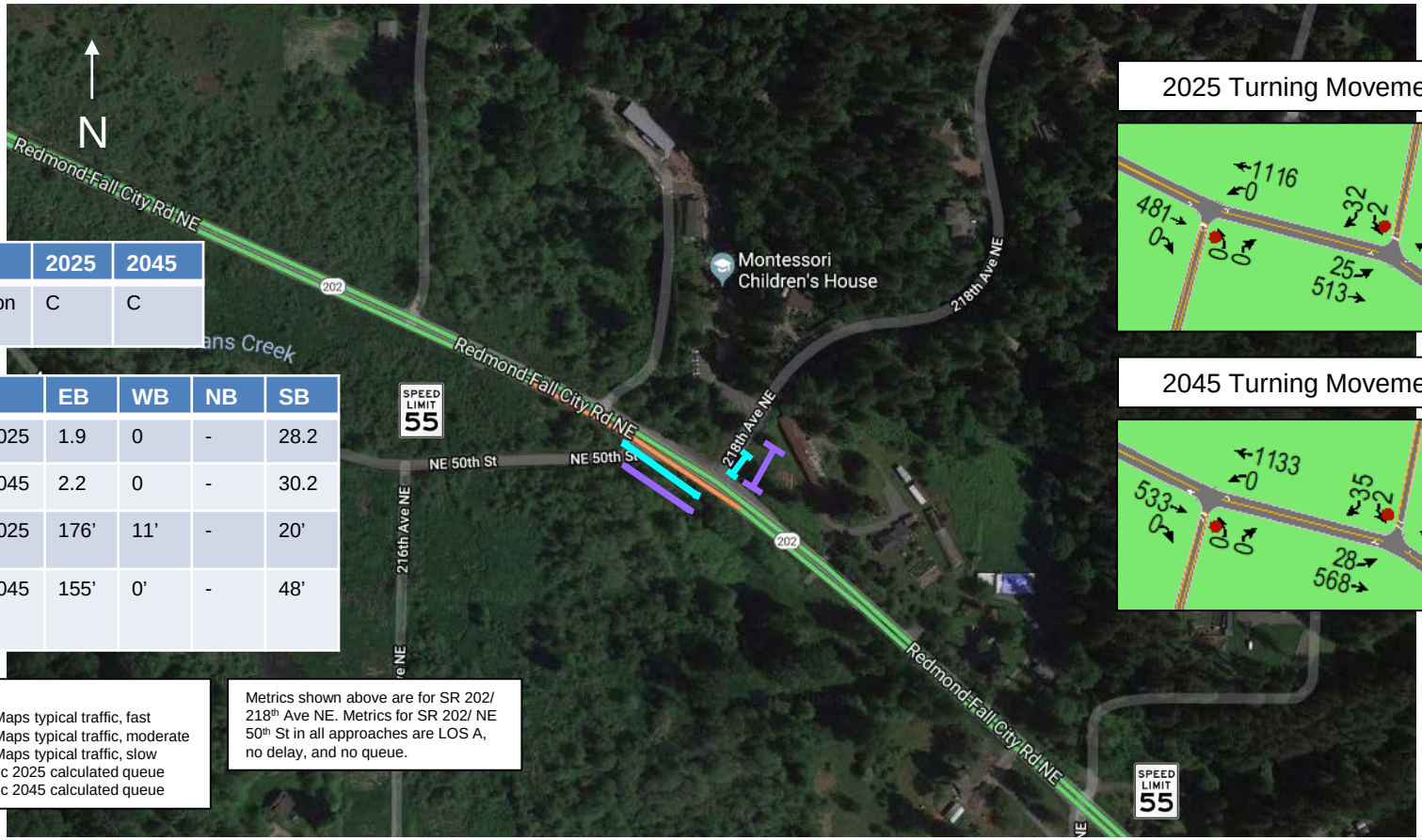
2025 Turning Movement

2045 Turning Movement

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.

2025 Turning Movement

2045 Turning Movement

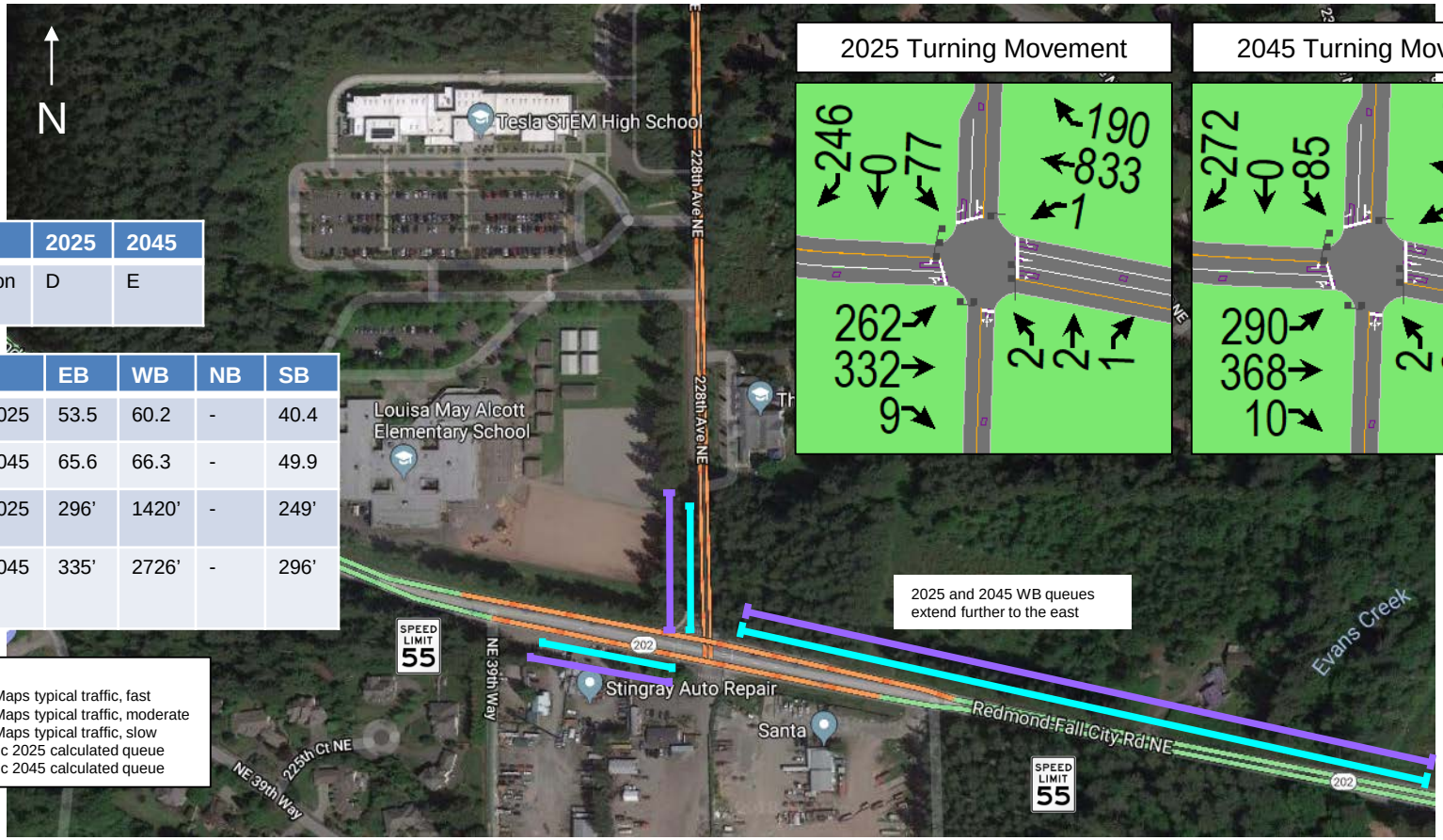
Intersection Analysis - Future

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

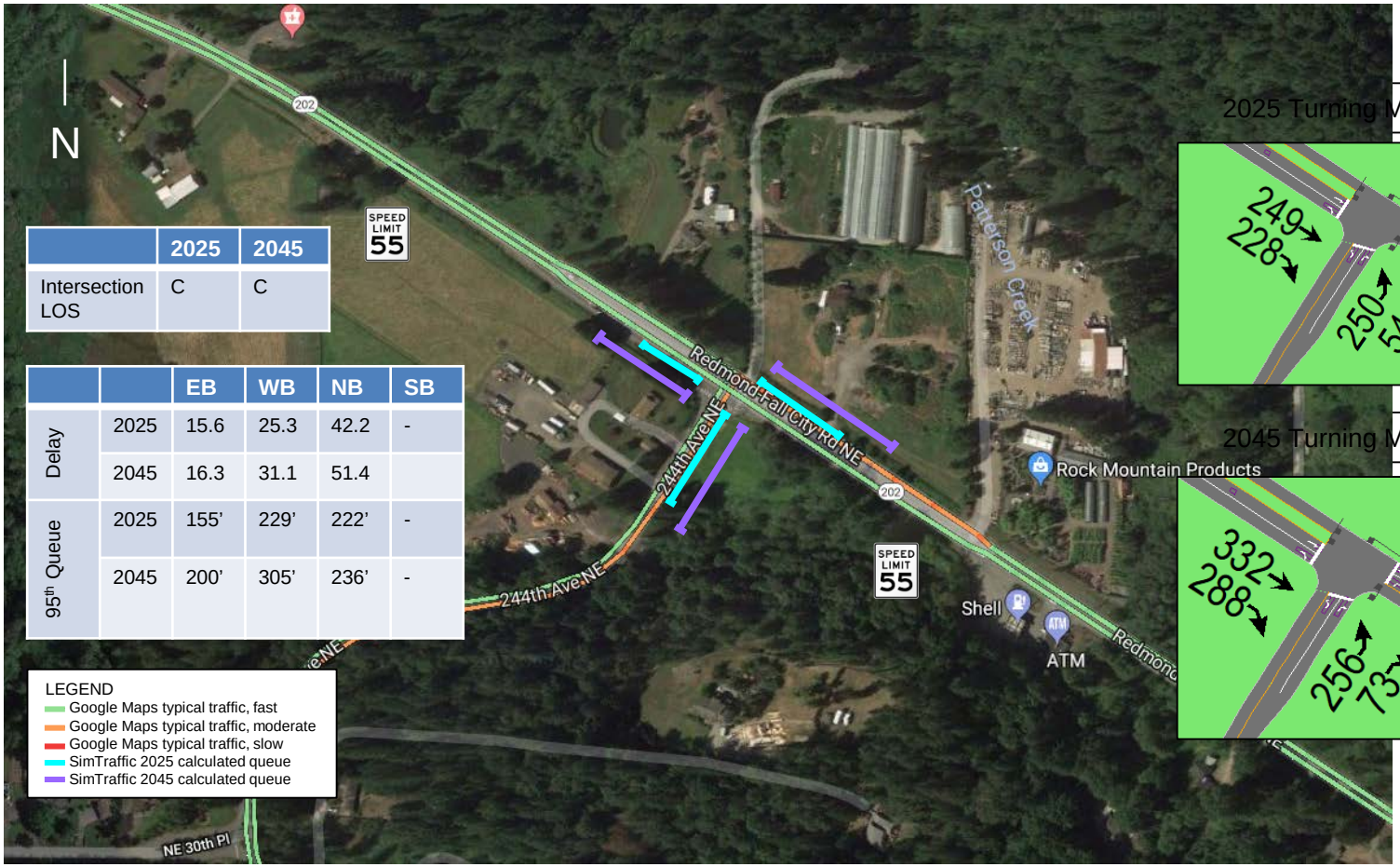
	2025	2045
Intersection LOS	C	C

		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

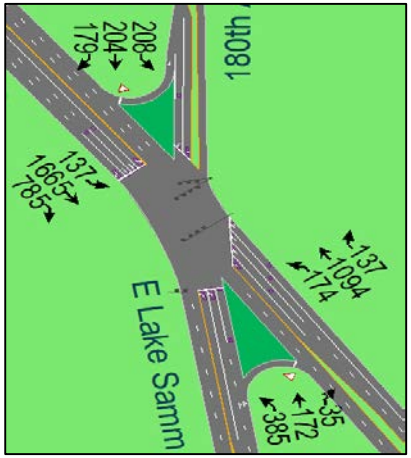
	2025	2045
Intersection LOS	F	F

		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’

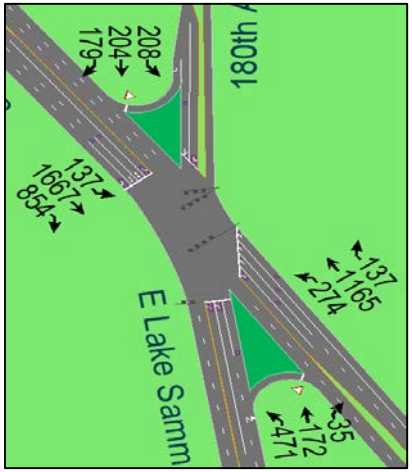
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*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



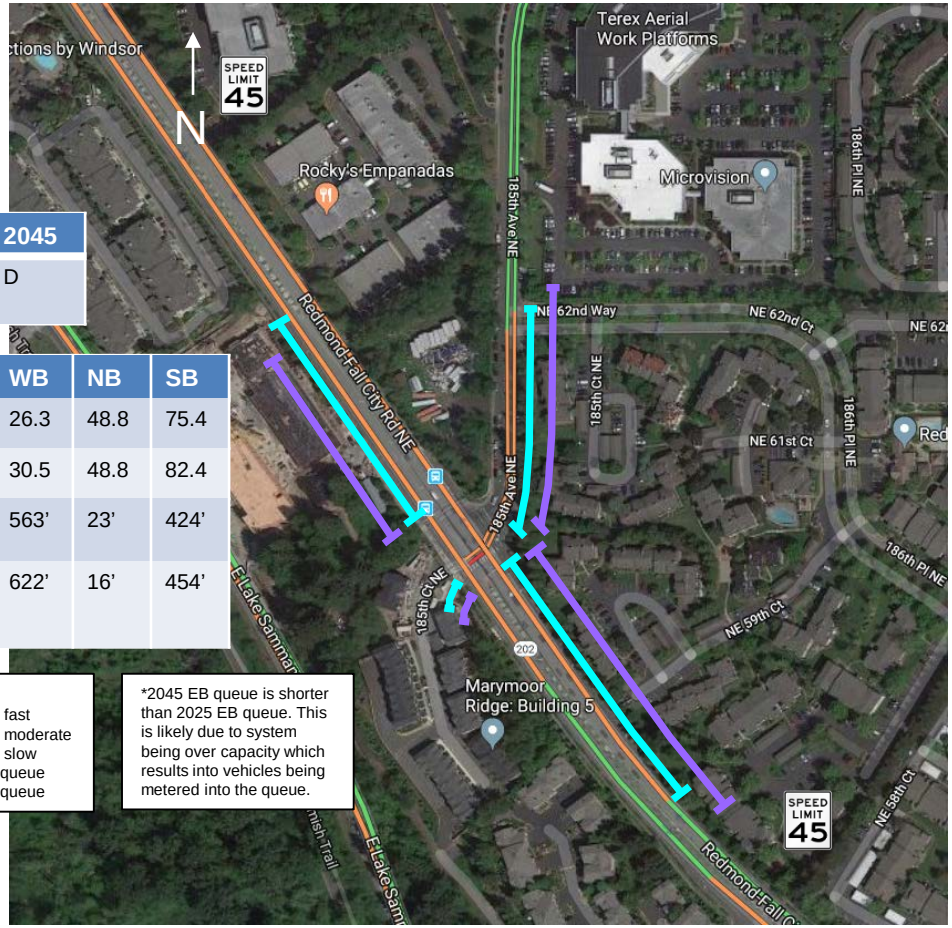
Intersection Analysis - Future

SR 202/185th Ave NE

2025/2045 PM Peak – 3:30PM-4:30PM

	2025	2045
Intersection LOS	D	D

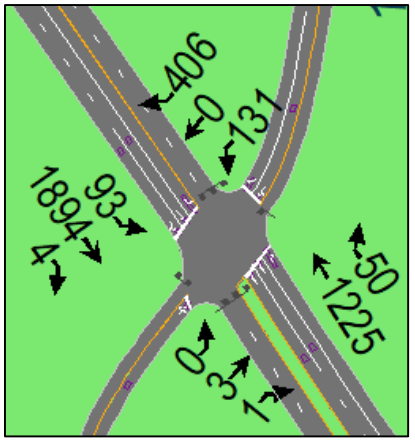
		EB	WB	NB	SB
Delay	2025	43	26.3	48.8	75.4
	2045	42.1	30.5	48.8	82.4
95th Queue	2025	407’	563’	23’	424’
	2045	365’	622’	16’	454’



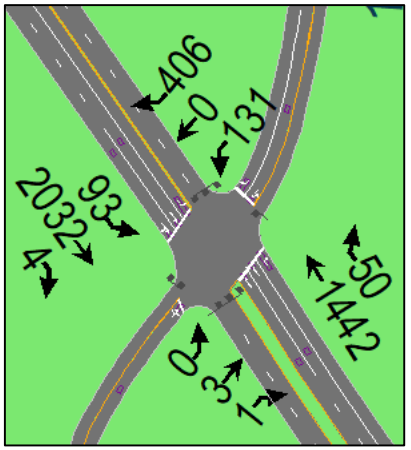
LEGEND
- Google Maps typical traffic, fast
- Google Maps typical traffic, moderate
- Google Maps typical traffic, slow
- SimTraffic 2025 calculated queue
- SimTraffic 2045 calculated queue

*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



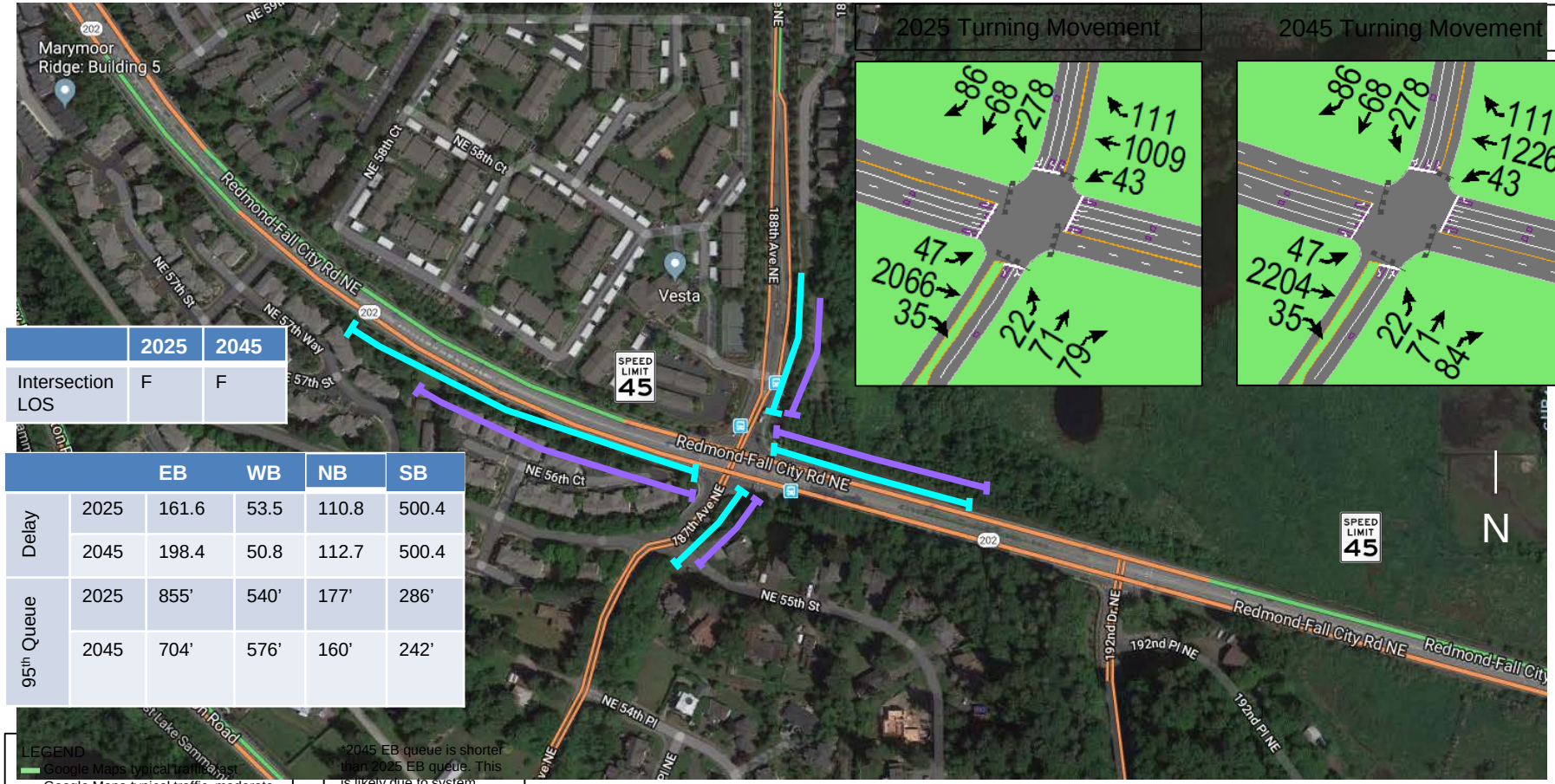
2045 Turning Movement



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.

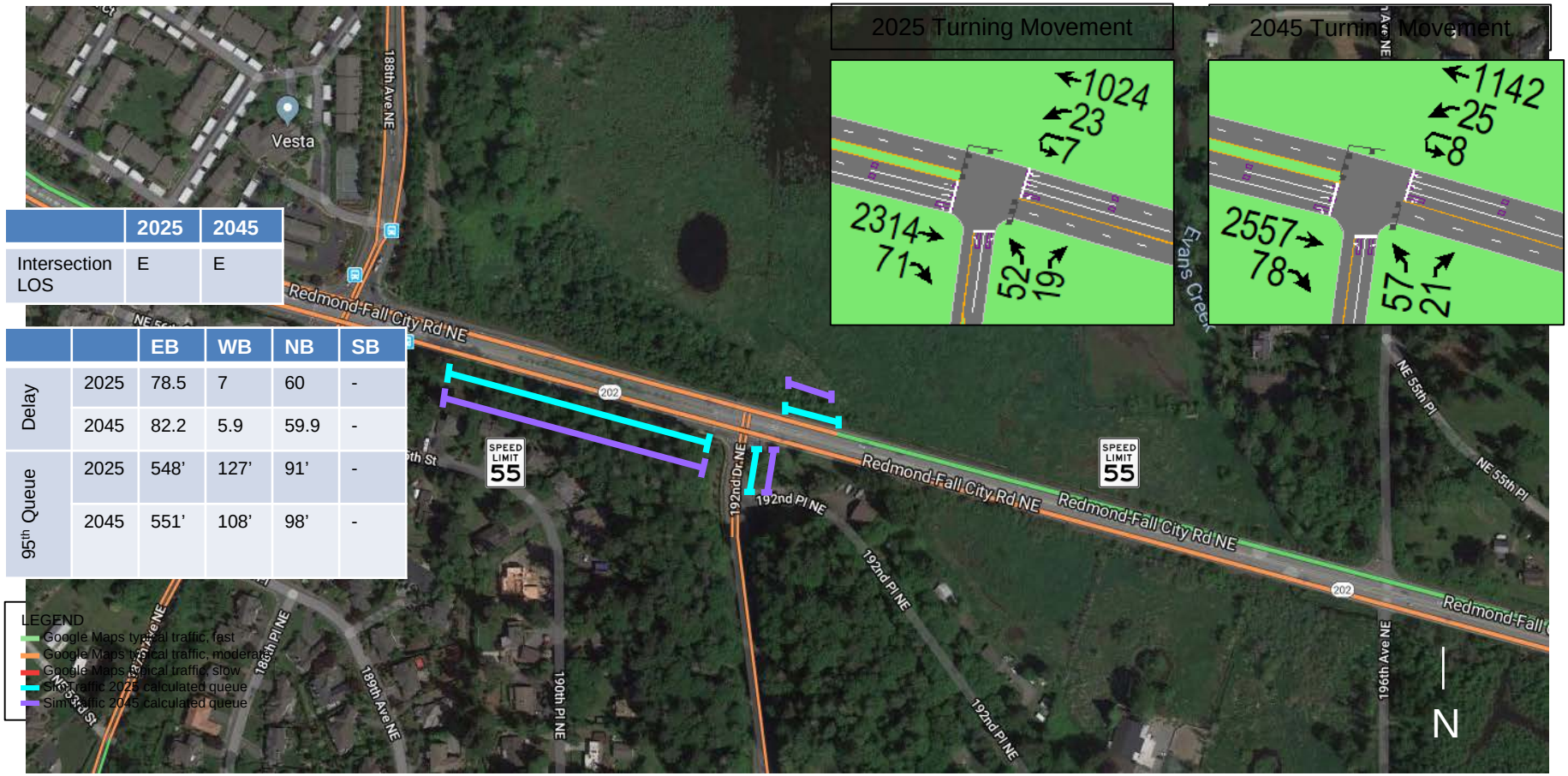
Intersection Analysis - Future

SR 202/192nd Ave NE

2025/2045 PM Peak – 4:15PM-5:15PM

	2025	2045
Intersection LOS	E	E

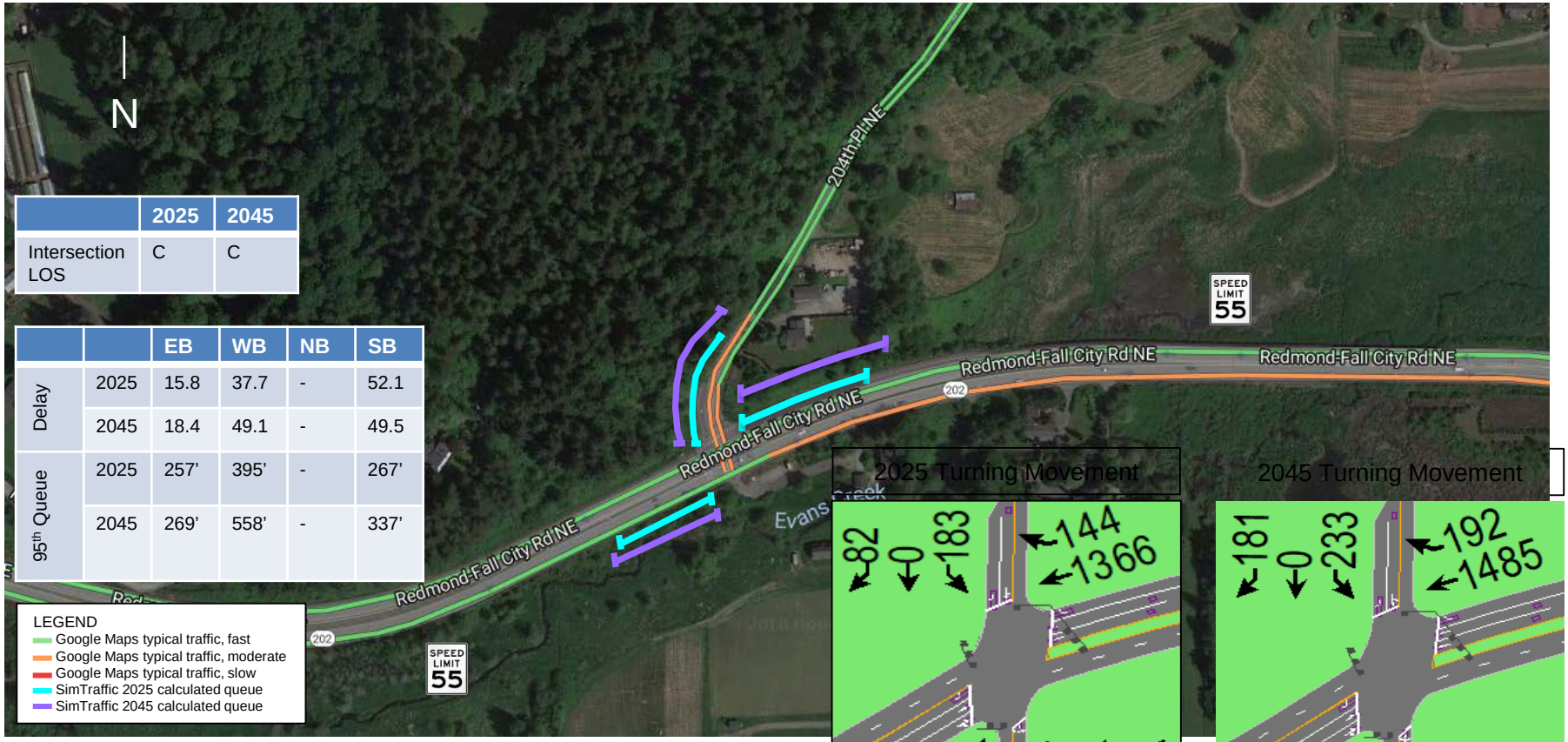
		EB	WB	NB	SB
Delay	2025	78.5	7	60	-
	2045	82.2	5.9	59.9	-
95th Queue	2025	548’	127’	91’	-
	2045	551’	108’	98’	-



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’

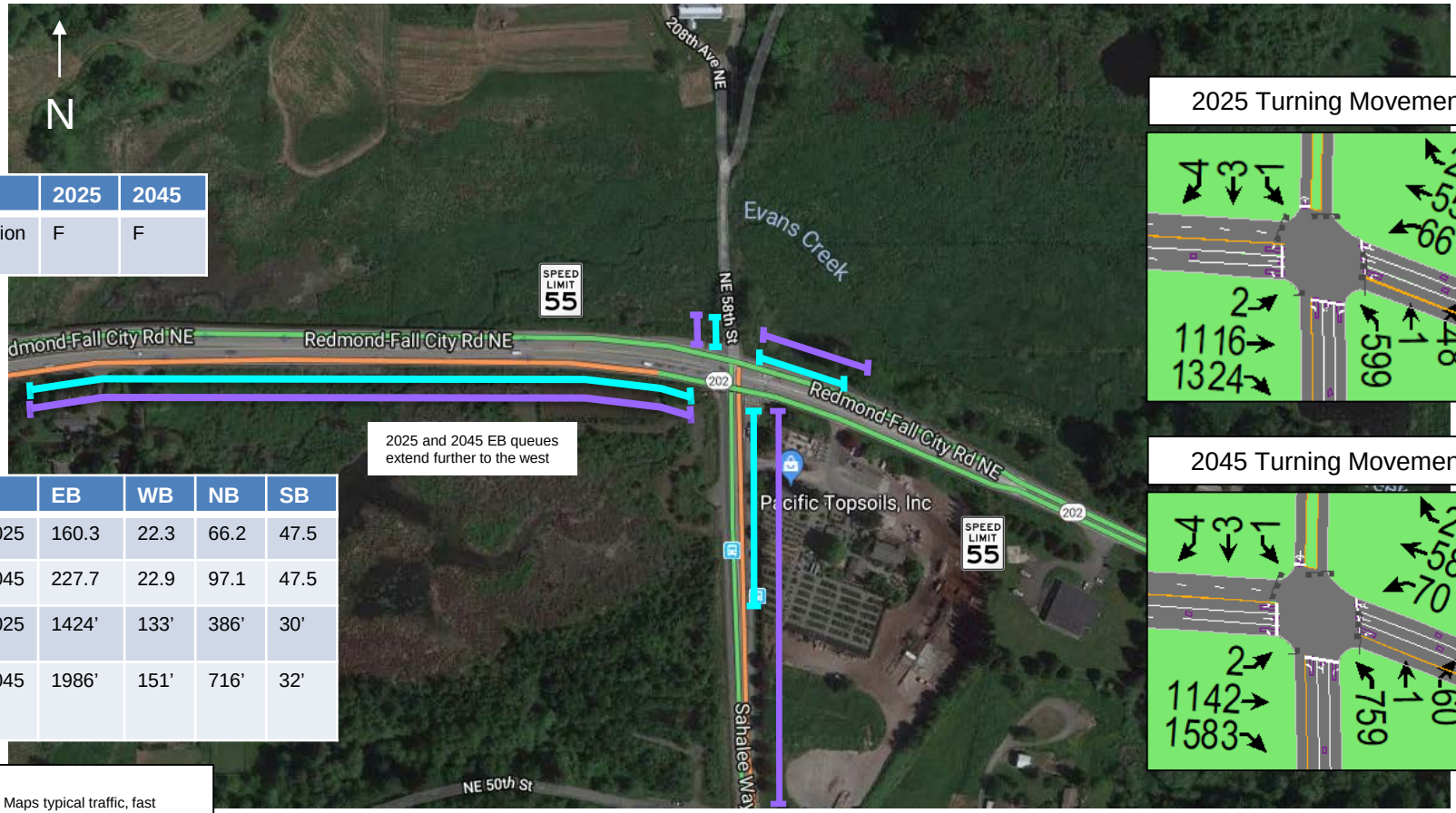
Intersection Analysis - Future

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

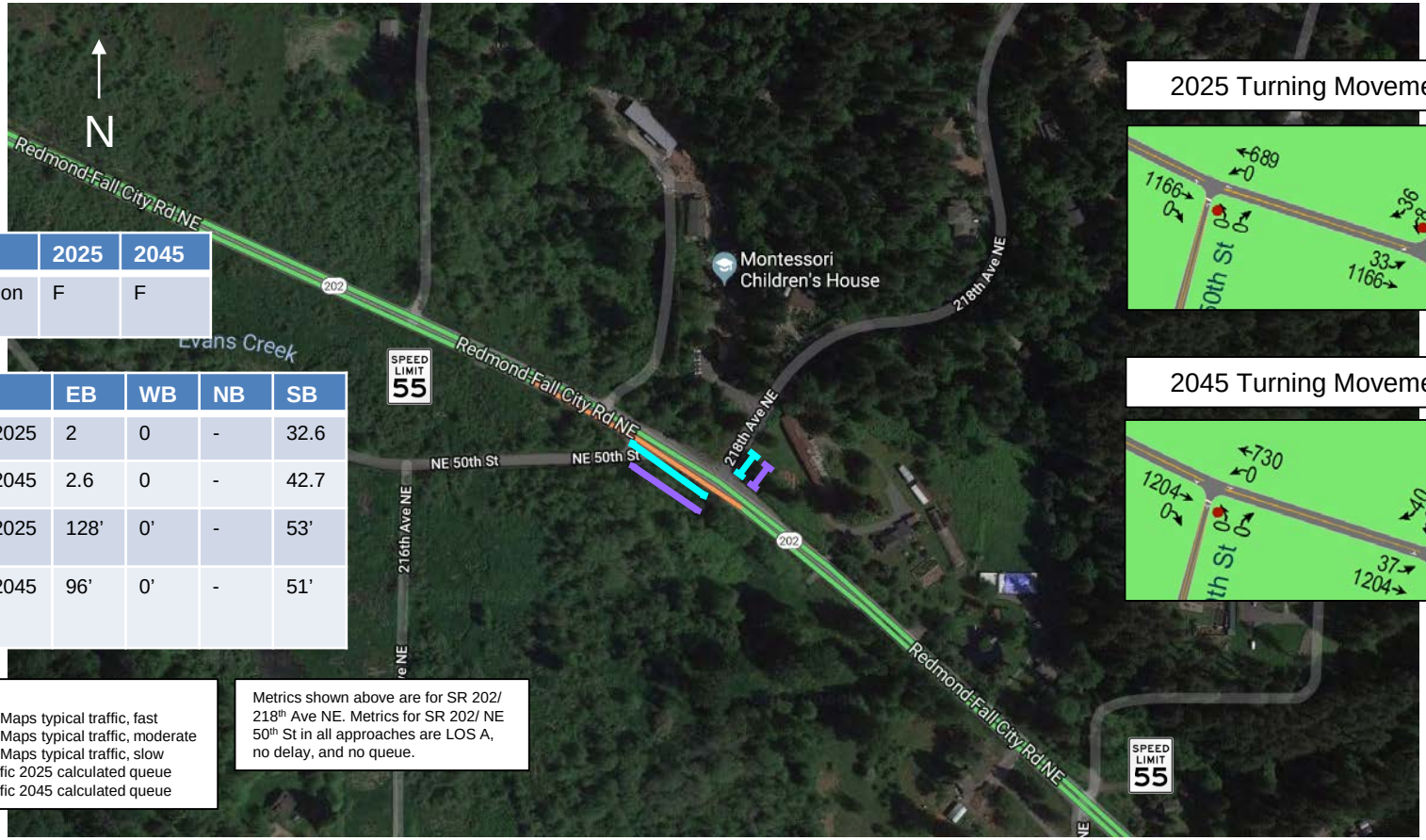
2025 Turning Movement

2045 Turning Movement

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.

2025 Turning Movement

2045 Turning Movement

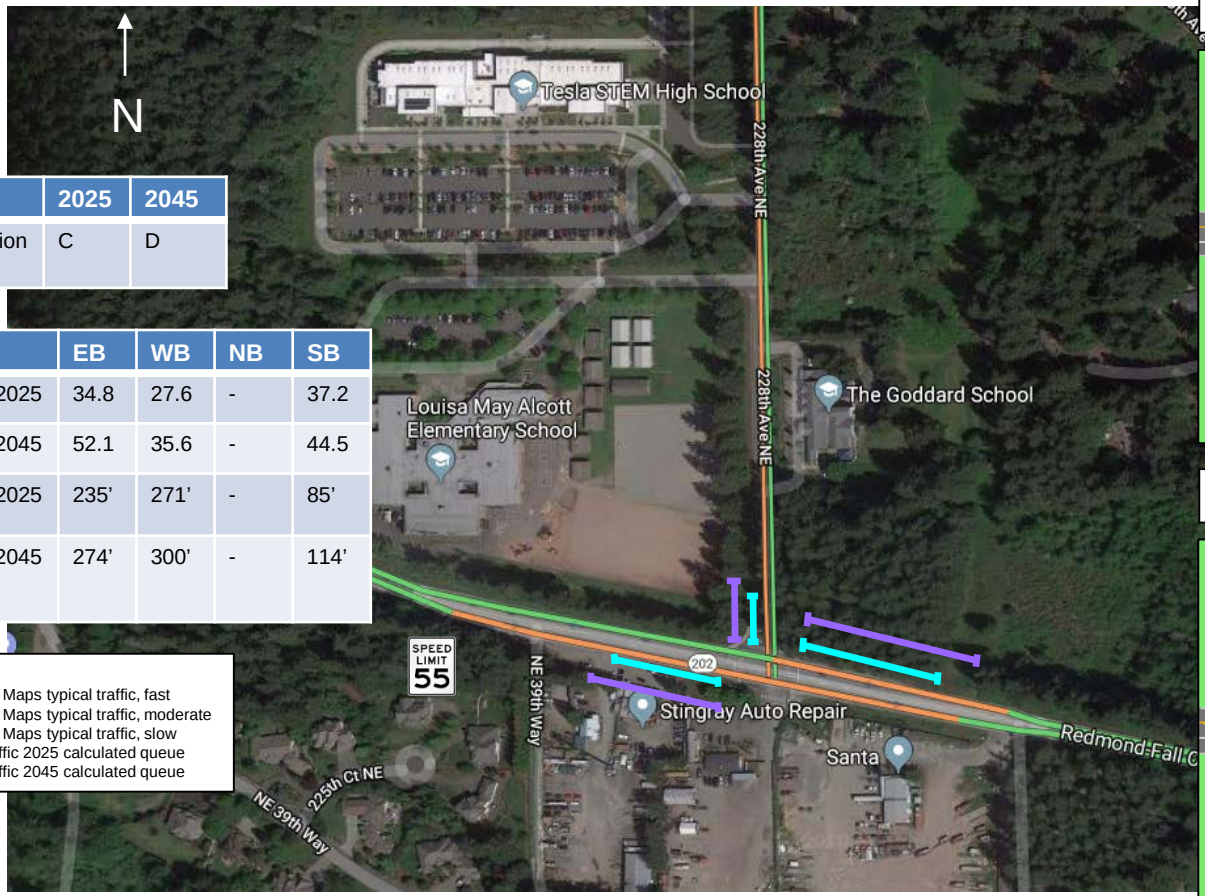
Intersection Analysis - Future

SR 202/228th Ave NE

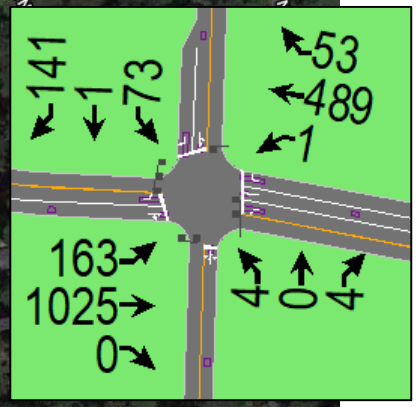
2025/2045 PM Peak – 4:15PM-5:15PM

	2025	2045
Intersection LOS	C	D

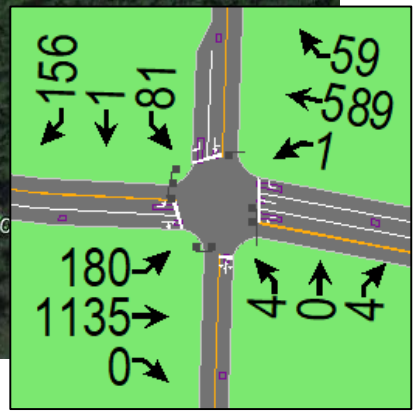
		EB	WB	NB	SB
Delay	2025	34.8	27.6	-	37.2
	2045	52.1	35.6	-	44.5
95th Queue	2025	235’	271’	-	85’
	2045	274’	300’	-	114’



2025 Turning Movement



2045 Turning Movement



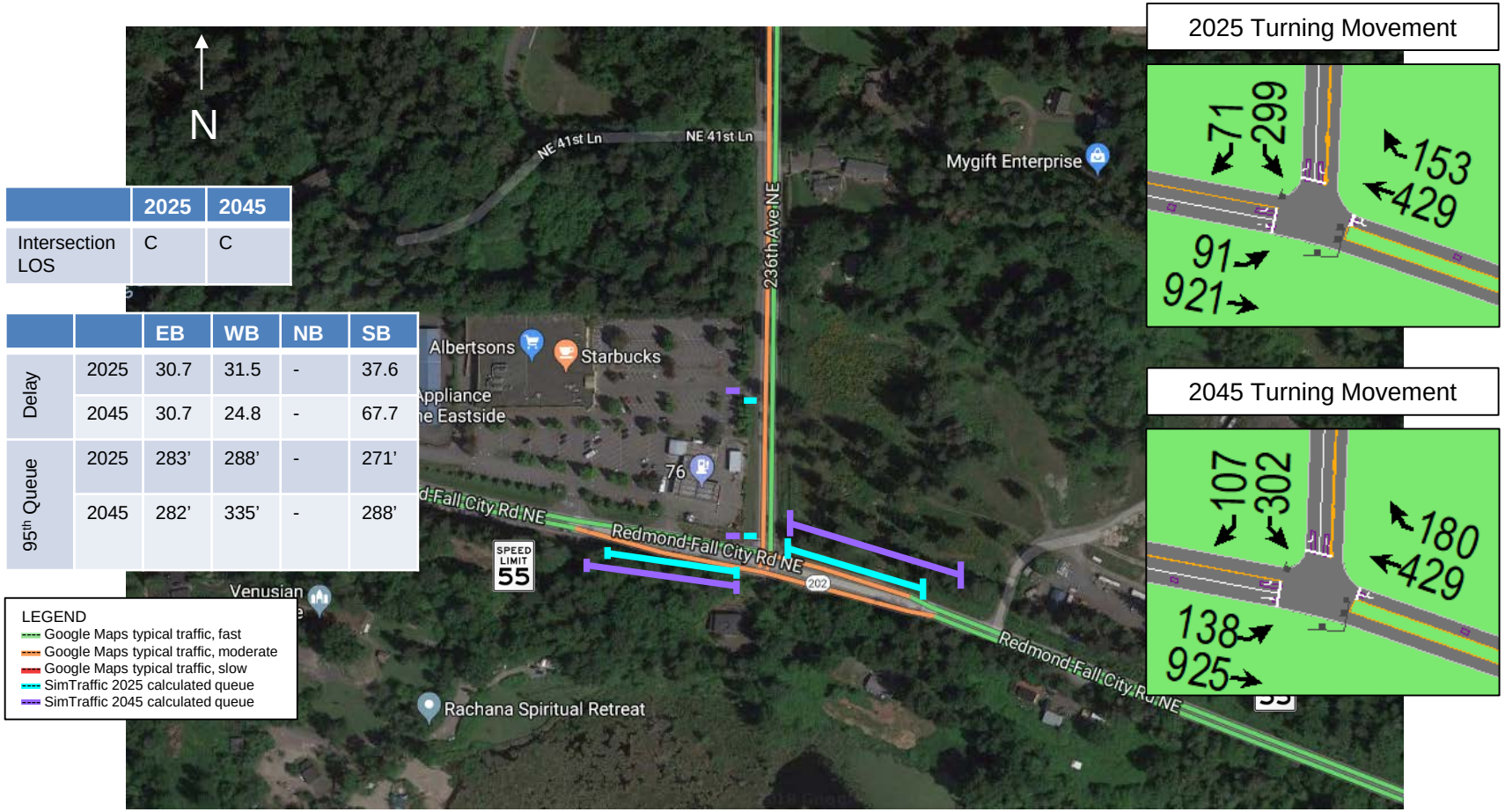
Intersection Analysis - Future

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

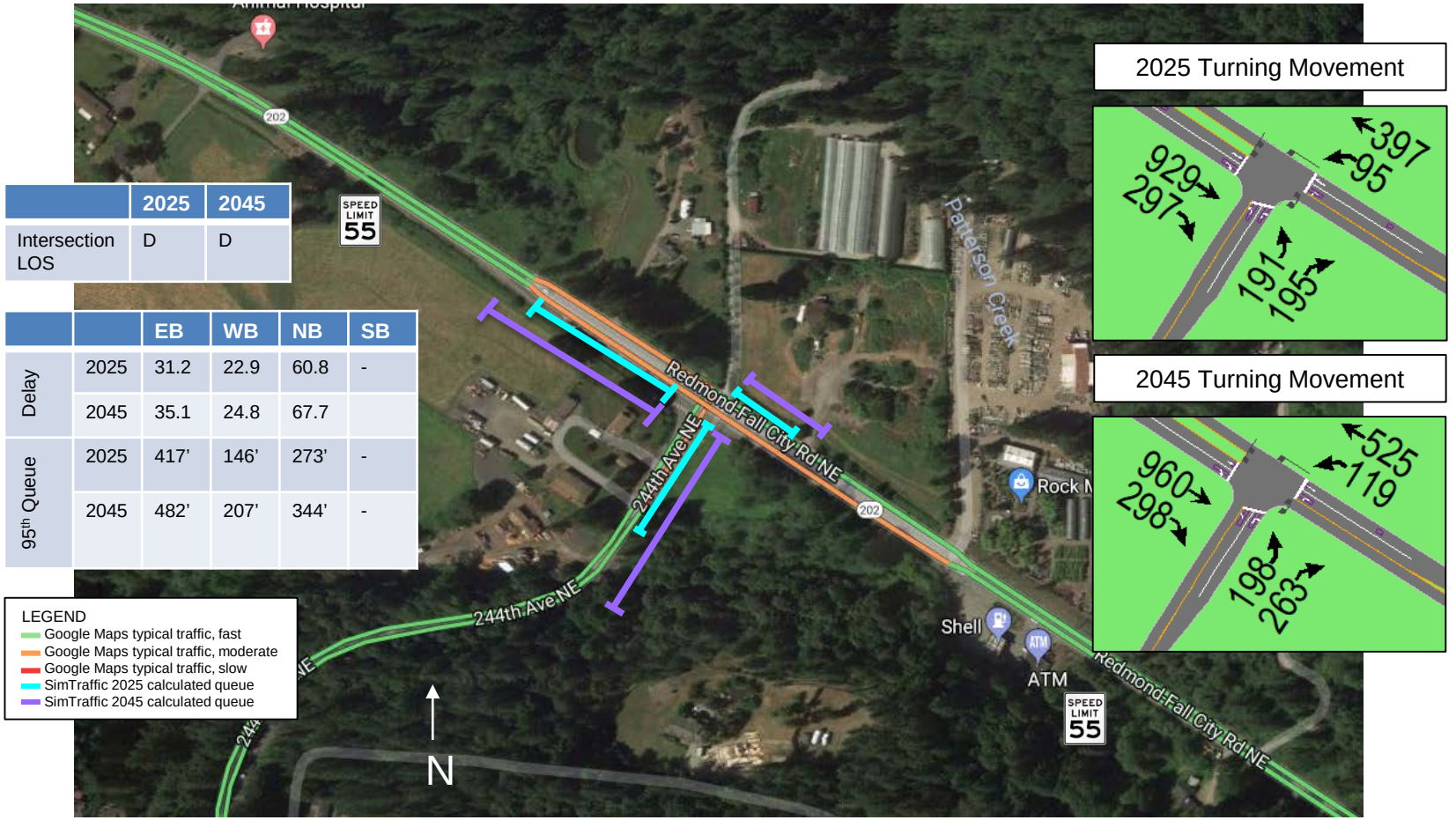
Intersection Analysis - Future

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	Yes
NE 50th St and 218th Ave NE	Modify access and operations, such as right-in/right-out or modifying to one-way access	3.5	3	3	3	3	4	2.5	3.14	22	Near-term	
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*

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 (Metered approaches)	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.

2025 AM Peak

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	-	-	-

2045 AM Peak

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	-	-	-

2025 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	D	C	29.5	373	D	39.7	348	E	66.2	891	-	-	-

2025 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	-	-	-

2045 E Lake Samm and Sahalee Way Alternatives AM Peak Summary

2045 AM Peak

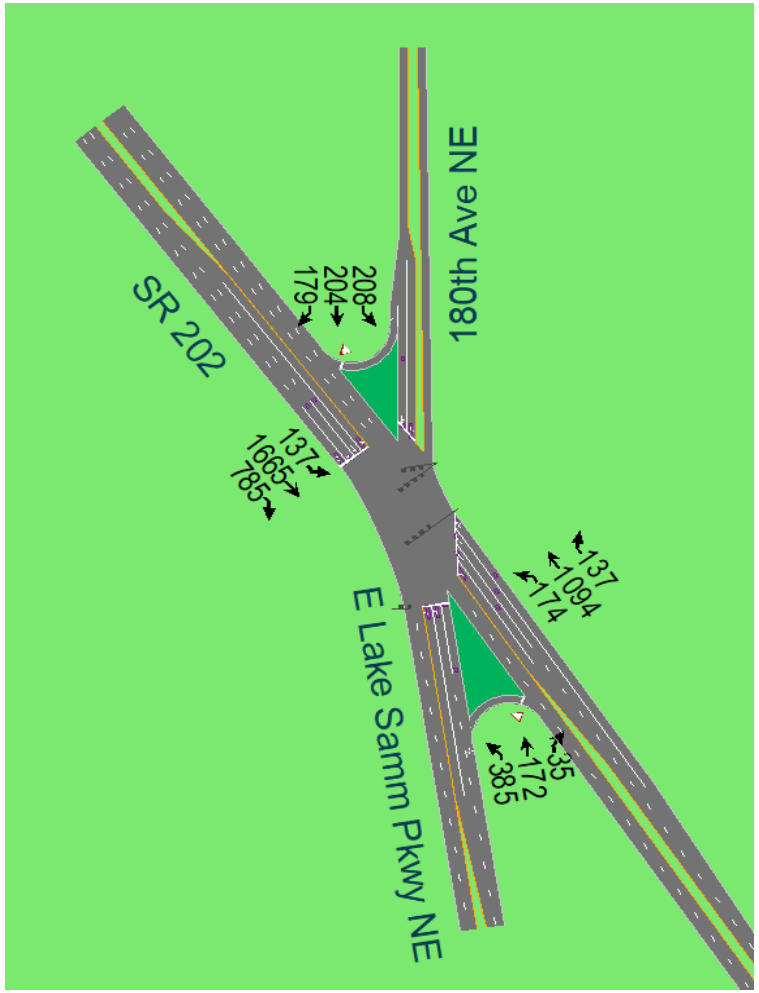
Intersection	Traffic Control	Alternative	Intersection LOS	Eastbound			Westbound			Northbound			Southbound		
				LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)	LOS	Delay (sec)	Queue (ft)
SR 202/E Lake Sammamish Pkwy	Signal	Existing	F	C	32.7	330	F	153.1	1632	F	438	508	D	45.5	383
	Signal	NB Triple Left to Double Left w/ Through/Right	F	C	32.7	340	F	153.1	1951	F	581.1	664	D	45.5	403
SR 202/Sahalee Way SE	Signal	Existing	E	D	37.1	448	D	39.9	357	F	98.9	878	A	0	15
	Roundabout	Option A	B	A	4.1	75.3	A	4.7	61.4	C	20.1	352.2	-	-	-
	Roundabout	Option B (EB Metered)	B	B	16.4	568	B	17.1	254.1	B	17.7	452.8	-	-	-
	Roundabout	Option C (EB Metered)	F	F	94.4	2627.5	A	4.7	19.3	F	692.1	15161.3	-	-	-
	Signal	Extended WB Storage	E	D	37.1	526	D	39.9	369	F	98.9	878	-	-	-
	Signal	Second EBRT Lane	E	C	33.2	521	D	39.9	368	F	98.9	881	-	-	-

2045 E Lake Samm and Sahalee Way Alternatives PM Peak Summary

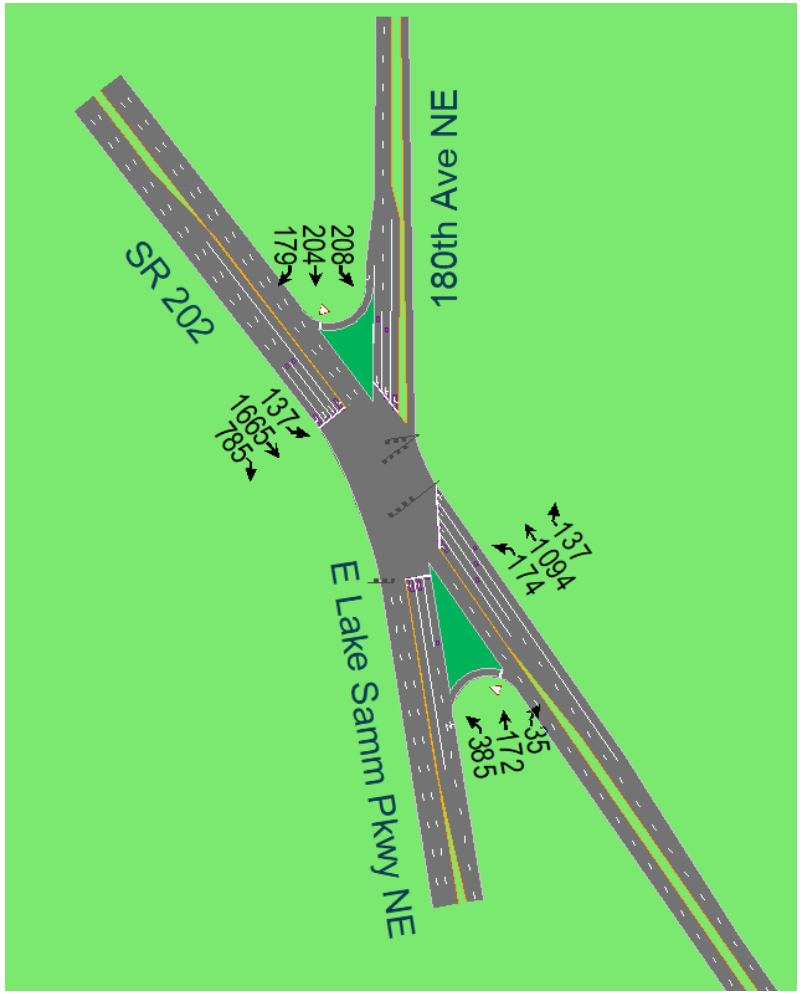
2045 PM Peak

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	F	122.4	721	D	49.5	280	F	205.5	557	F	138.5	644
	Signal	A) Added SB Through Lane	F	F	121.4	690	D	49.5	306	F	191.2	547	E	77.4	334
	Signal	B) Move middle crosswalk to east leg	F	F	82.6	696	E	62.1	2347	F	83.8	512	F	253.8	611
	Signal	C) A + B	F	F	104	659	D	44.7	414	F	92.7	587	F	136.4	657
SR 202/Sahalee Way SE	Signal	Existing	F	F	227.7	1986	C	22.9	151	F	97.1	716	D	47.5	32
	Roundabout	Option A	B	A	5.7	304.9	A	4.9	10.9	E	72.3	548	-	-	-
	Roundabout	Option B (Meter Off)	C	A	5	314.7	A	7.9	62.8	F	122	921.3	-	-	-
	Roundabout	Option C (Meter Off)	F	F	1909	58083.6	A	4.7	9.6	B	15.9	124.4	-	-	-
	Signal	Extended WB Storage	F	F	227.7	2129	C	22.9	140	F	97.1	694	-	-	-
	Signal	Second EBRT Lane	F	F	96.6	902	C	22.9	143	F	97.1	774	-	-	-

E Lake Samm: Existing

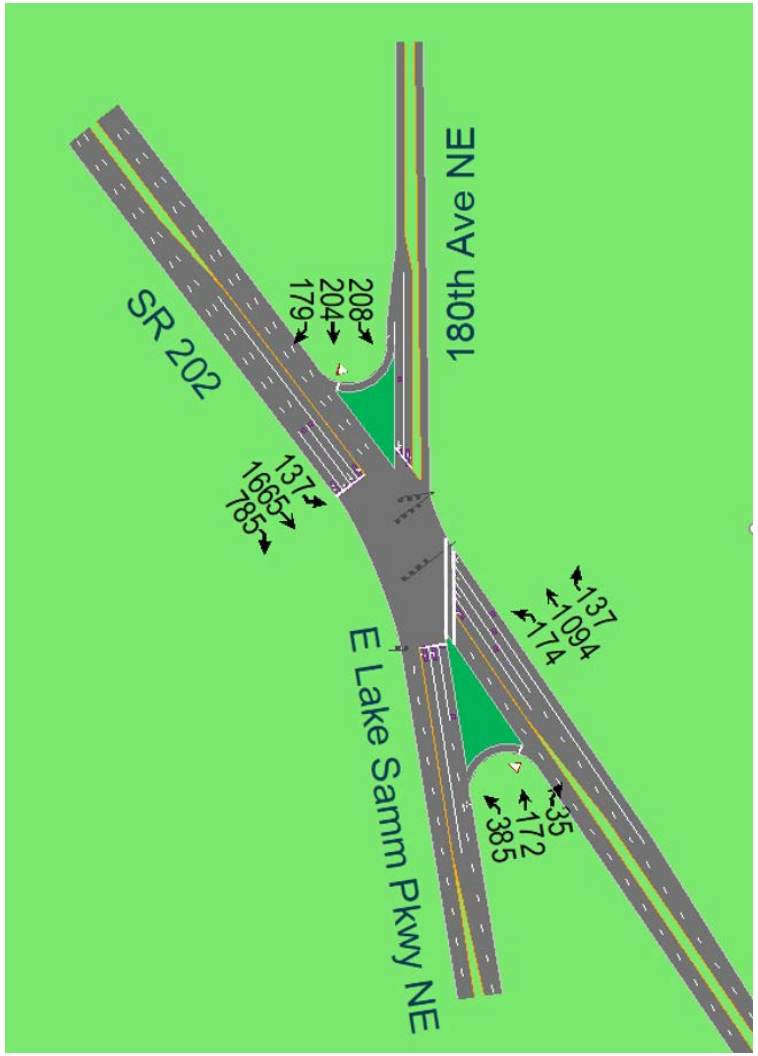


E Lake Samm Option A: Added SB Through Lane



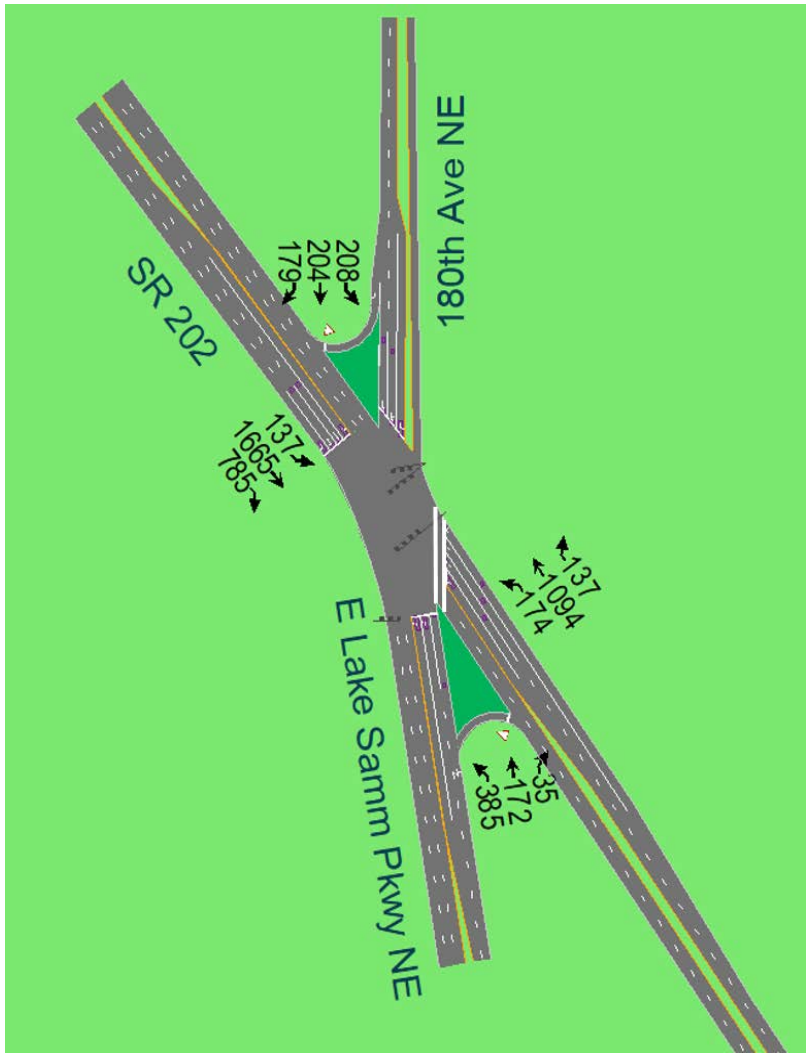
-Add a new southbound through lane
-SB configuration will become left, left/through, through, right turn slip lane
-2025 PM Peak SB delay improves by 61 seconds and improves queue by 187ft.
-No significant change in delay or queue in the EB, WB or NB directions.
-Overall intersection LOS remained at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

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



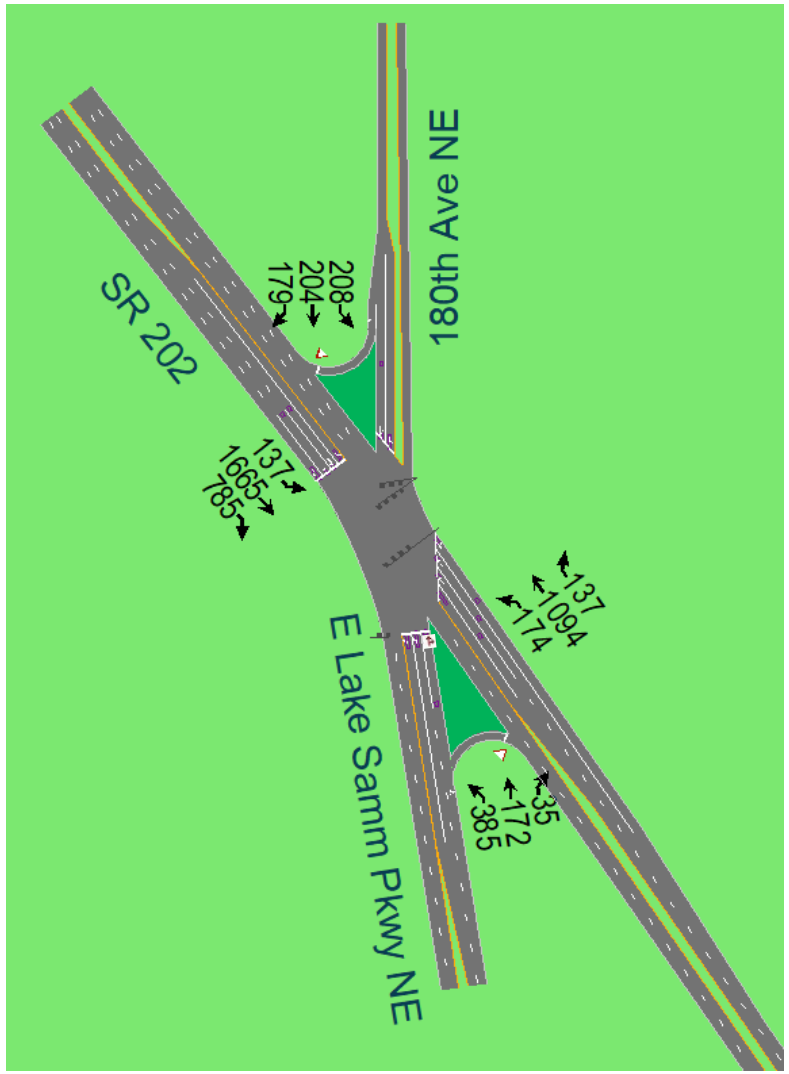
-Remove middle crosswalk and add it to the east leg.
-The new crosswalk will run with the NB movement.
-Removing the middle crosswalk decreased the cycle length from 180 to 145 seconds.
-Added 5 seconds to the EB/WB LT to account for the loss of the EB/WB LT phase when pedestrians would cross middle 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



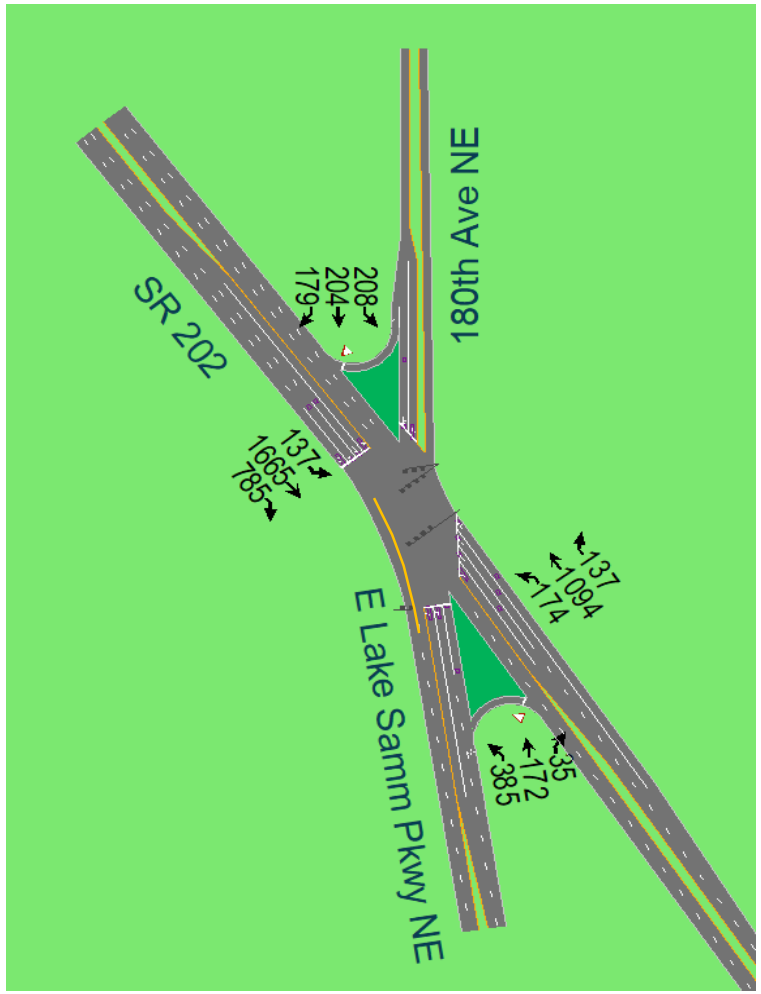
-Combine Alternatives A and B which includes a new SB through lane and moving the middle crosswalk to the east leg
-Removed 7 seconds from SB direction from 25 to 18 seconds
-Added 7 seconds to EB/WB through from 73 to 80 seconds.
-2025 PM Peak SB delay improves by 20 seconds and queuing increased by 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
-For 2045 PM Peak, the eastbound left turn is leading, while the westbound left turn is lagging.

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.

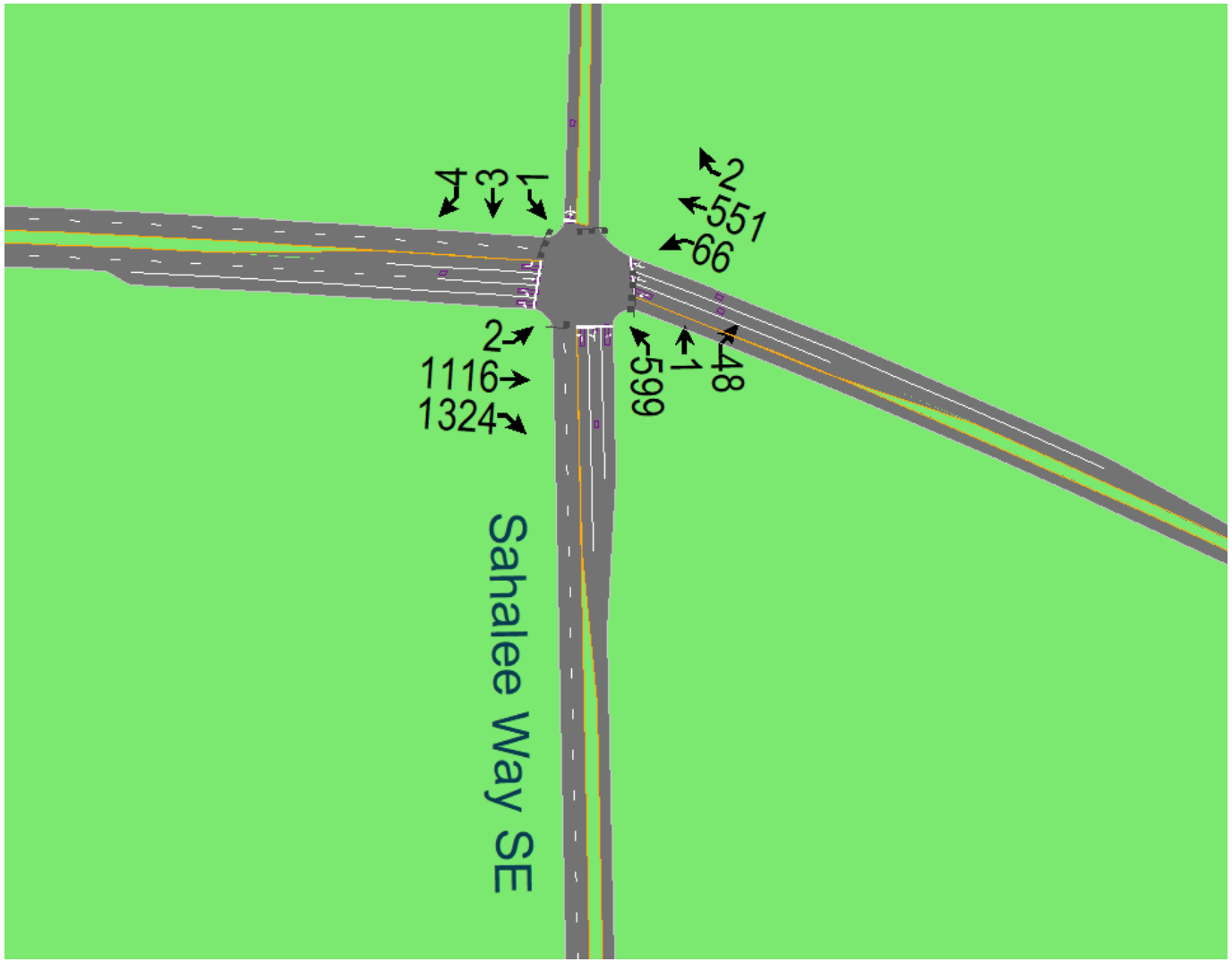
E Lake Samm Option E



-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.

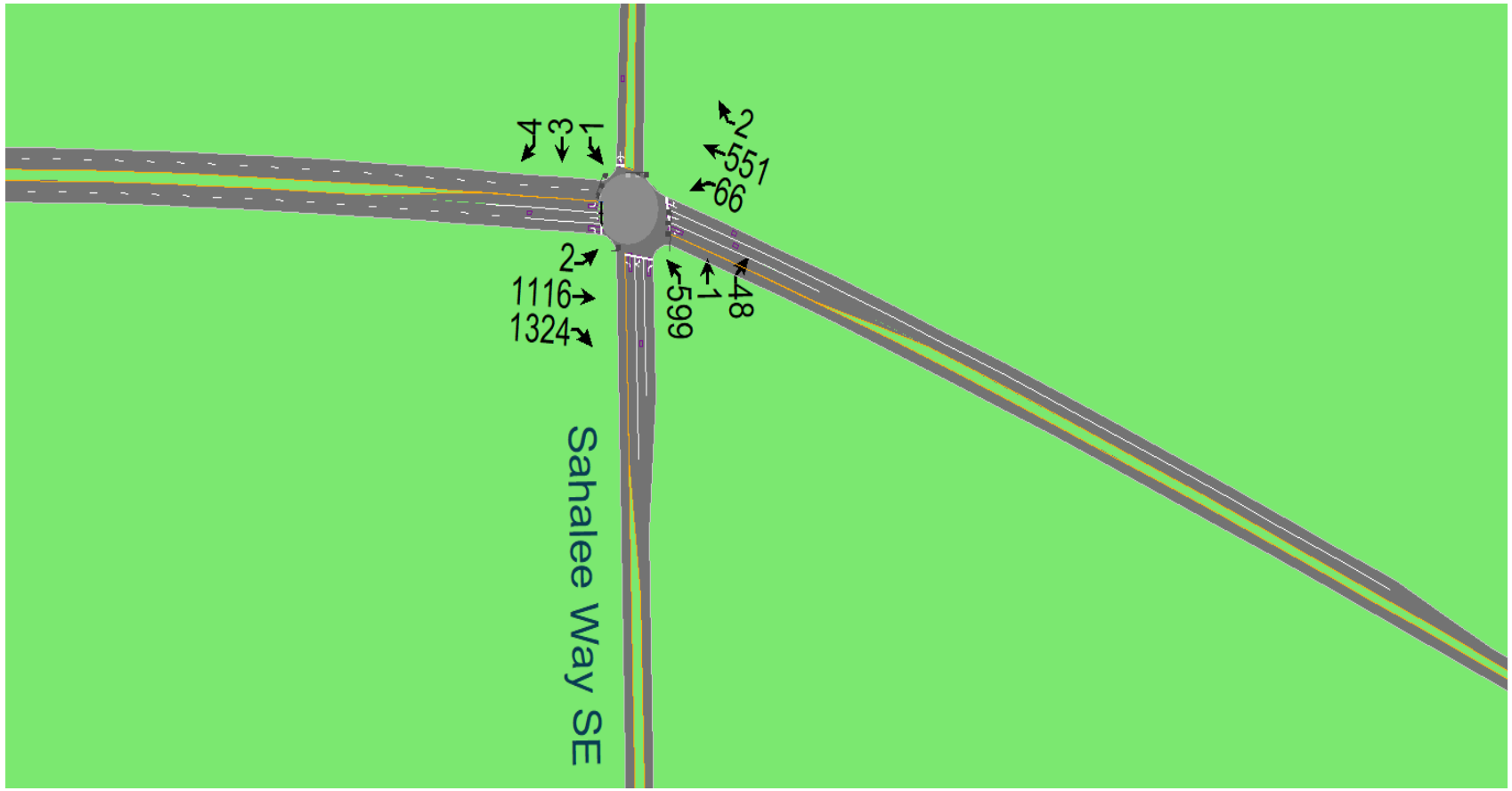
Sahalee Way NE: Existing

2025 Sahalee Way NE: Additional EB right turn lane



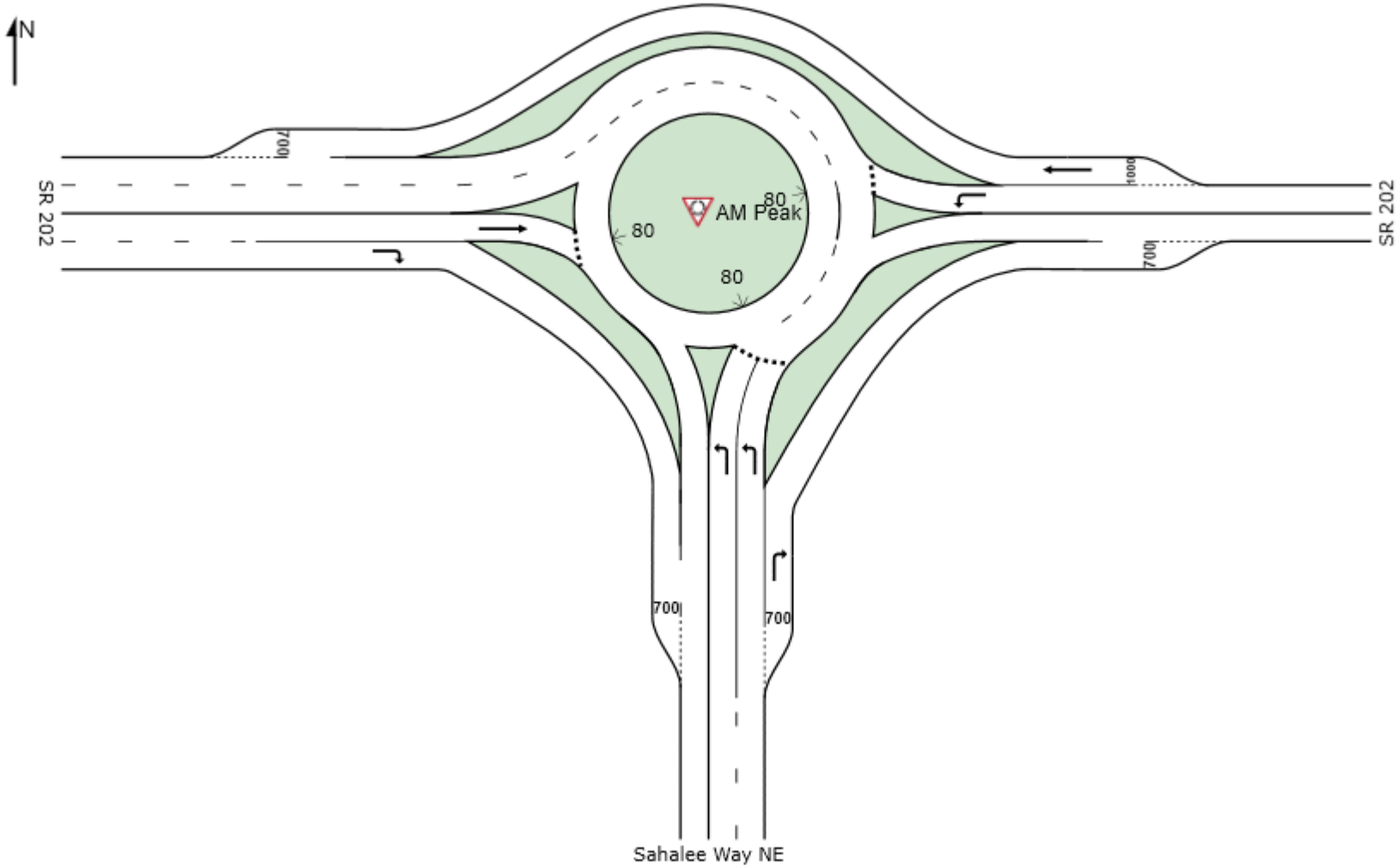
- Additional 400’ eastbound right turn lane
- Overall PM Peak intersection LOS improves from existing LOS F to LOS E
- Eastbound PM Peak delay improves from 160.3 sec to 81 sec
- Eastbound PM Peak queue improves from 1424’ to 897’
- Westbound and Northbound PM Peak has the same results as existing

2025 Sahalee Way NE: Extended WB Through



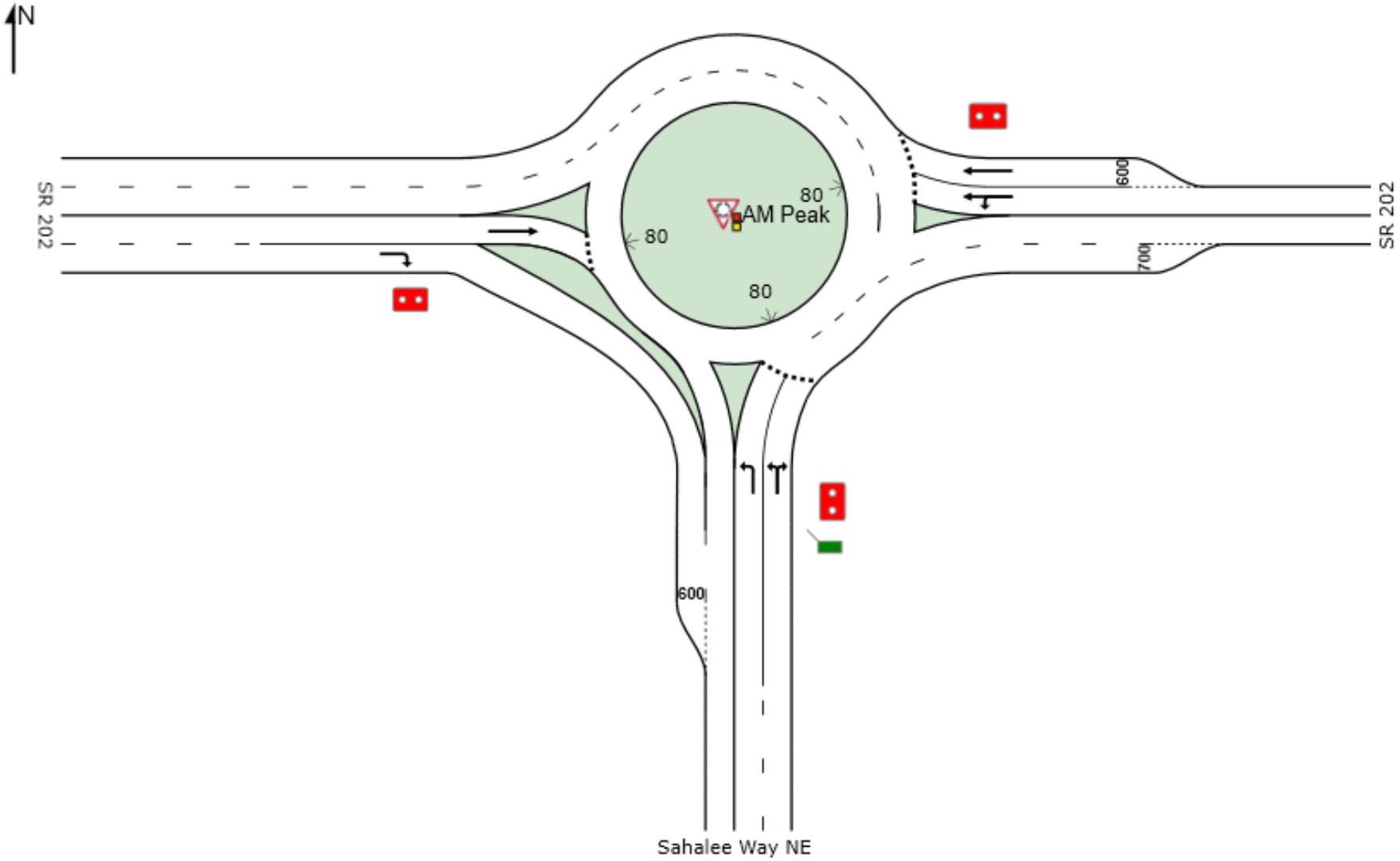
- Extended second westbound through lane from 500’ to 1000’
- Overall AM Peak intersection LOS improves from existing LOS F to LOS D
- Westbound AM Peak delay remains has the same results as existing
- Westbound AM Peak queue improves from 344’ to 255’
- Eastbound and Northbound AM Peak has the same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

2025 Sahalee Way NE: Roundabout Option A



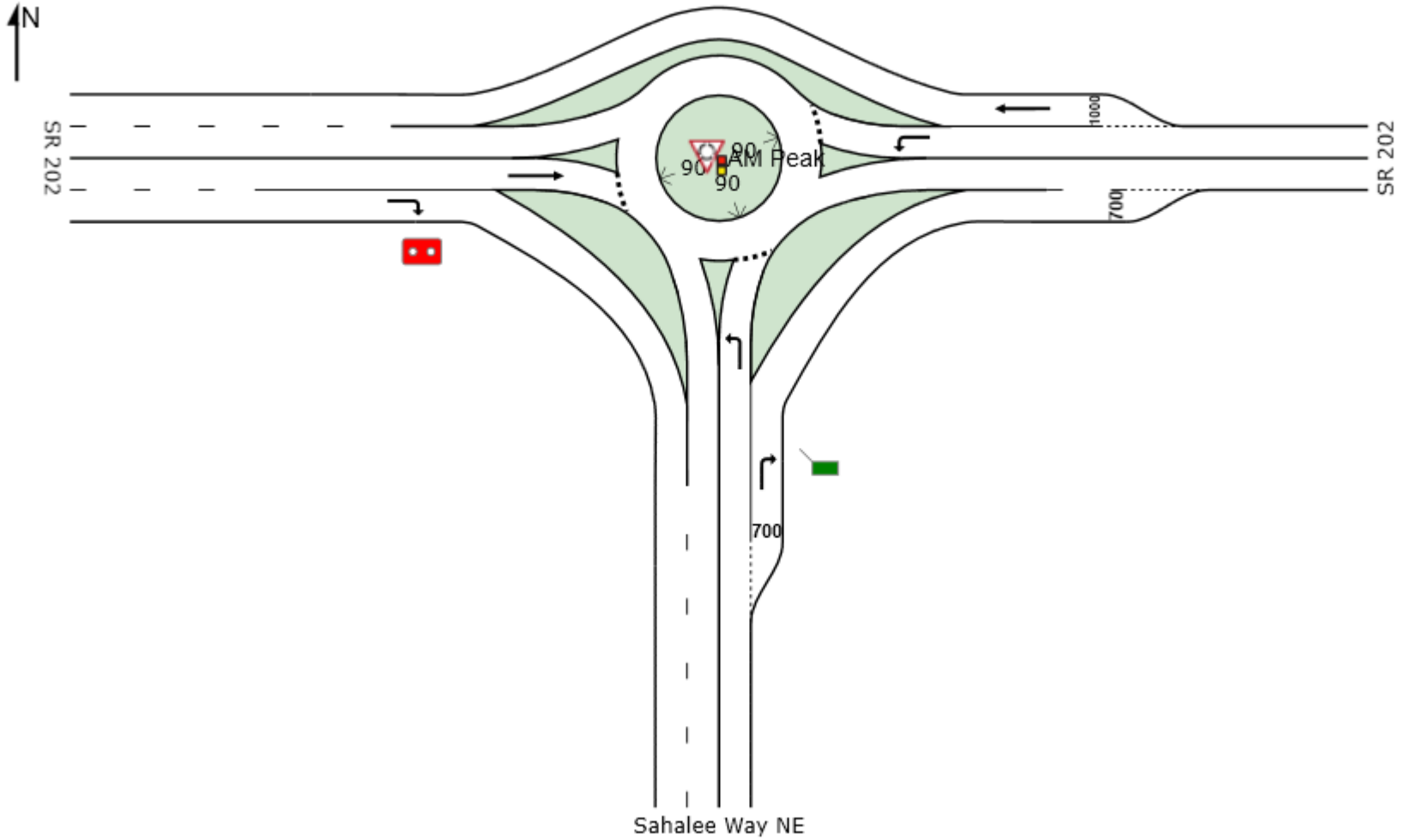
- Unmetered two lane roundabout.
- All the metrics (LOS, queue, delay, v/c) are better than the 2025 AM Peak and PM Peak no build
- This has the largest footprint and most likely the most expensive option out of the three
- Anticipate potential right of way takes and environmental impacts

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
- Activation of meters is not anticipated in the PM peak, but operational concepts would be further refined if the strategy moves forward.
- The concept may fit within the existing roadway footprint but is subject to further evaluation and design review.

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

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

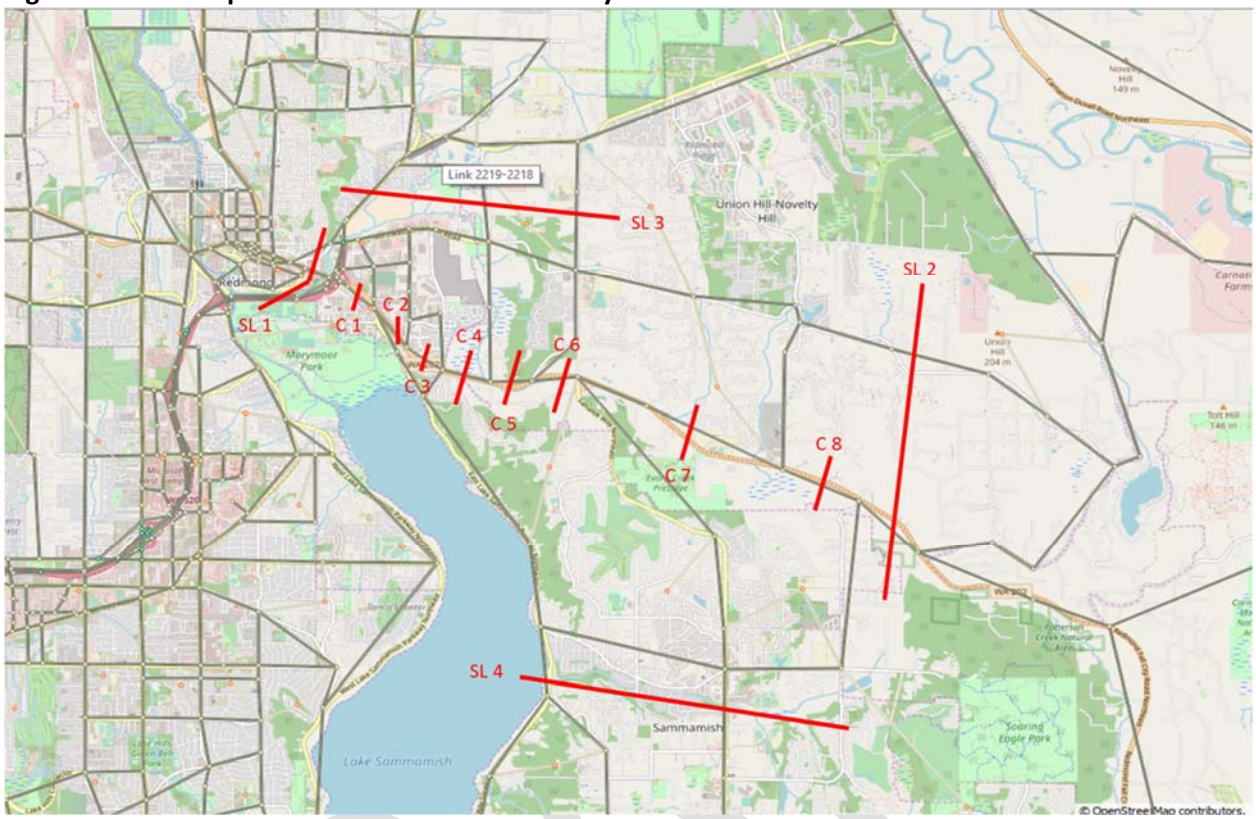


Table 1 Screen Line Cross Street

	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:

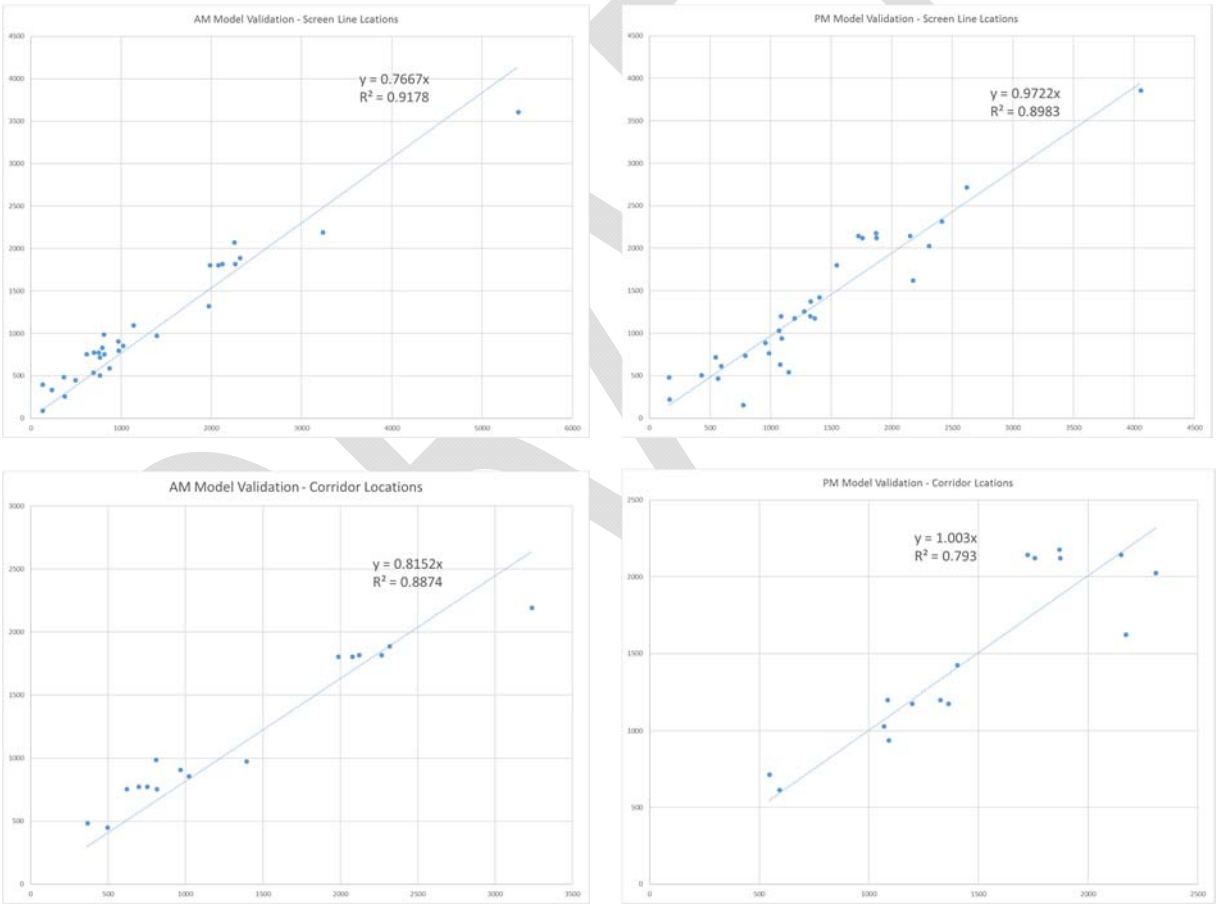
- traffic volumes at selected screen lines
- traffic volumes on the study corridor

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

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

Appendix I: Crash Intersection Tablulations

SR 202
NE 70th St
MP 8.02

Legend
3 # of Non-Injury
(2) # of Injury

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		3	(1)	1	
Entering at angle	1				1
Sideswipe	(1)	2	1		1
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle				(1)	(1)
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1	2	1	3	3
Entering at angle					
Sideswipe		1	1		1
Fixed object		1			
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end	1				
Entering at angle			1		
Sideswipe	1				
Fixed object					
Same Dir - Other	1				
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
E Lk Sammamish Pkwy
MP 8.22

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end	1		1		
Entering at angle			2		
Sideswipe	1			1	
Fixed object		1			
Same Dir - Other		1			
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	4	2	5	2	
Entering at angle					
Sideswipe	1	1	1		2
Fixed object	1				
Same Dir - Other				1	
Opp Dir - "T-bone"					
Overturn			(1)		
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1 (2)	4 (1)	1 (1)	1	2
Entering at angle	1				
Sideswipe		1	2	1	1
Fixed object		1			
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end		(1)		1 (1)	1
Entering at angle	(1)	2	1		1
Sideswipe	1	1	1		
Fixed object					
Same Dir - Other	1		1		1
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle			(1)		
Opp Dir - Head-on					

SR 202
185th Ave NE
MP 8.65

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					1
Entering at angle				1	1
Sideswipe					
Fixed object	1		1		
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1	5	1	3	
Entering at angle					
Sideswipe					(1)
Fixed object		1			
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other				1	
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		4 (1)			
Entering at angle			2		
Sideswipe			1		
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other		(1)			
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
188th Ave NE
MP 9.04

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end		2			
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	(1)	4			2
Entering at angle					1
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		3	1	(1)	
Entering at angle			1	(1)	
Sideswipe			1		
Fixed object			(1)		
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other		1			
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end		1			1
Entering at angle			1 (1)		(1)
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
192nd Dr NE
MP 9.19

Legend
3 # of Non-Injury
(2) # of Injury

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1 (1)	1	1 (1)		
Entering at angle					
Sideswipe			1		1 (1)
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	2	(1)	(2)		
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
196th Ave NE
MP 9.49

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other	1				
Opp Dir - "T-bone"					
Overturn					
Other				1	
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		2		1	(1)
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					(1)
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
204th Pl NE
MP 9.87

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		2	(1)		
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other				1	
Opp Dir - "T-bone"		1			
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		1	1	(1)	
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
Sahalee Way
MP 10.27

Legend
3 # of Non-Injury
(2) # of Injury

Eastbound — Increasing milepost of major roadway

	2014		2015	2016		2017	2018	
Rear end	2	(2)	1			1	1	(1)
Entering at angle	1	(1)	2		(1)	(1)	2	(1)
Sideswipe				1				
Fixed object								
Same Dir - Other	1							
Opp Dir - "T-bone"								
Overturn						(1)		
Other								
Opp Dir - Other								
Pedestrian-Pedalcycle								
Opp Dir - Head-on								

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1		1		(1)
Entering at angle	1			(1)	
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe			1		1
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					1
Overturn	(1)				
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
50th/218th
MP 10.91-10.94

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1				
Entering at angle					
Sideswipe					
Fixed object		(1)	(1)		
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1 (2)		2 (2)	1 (1)	2 (1)
Entering at angle					
Sideswipe	1				
Fixed object		1			1 (1)
Same Dir - Other			1		
Opp Dir - "T-bone"					
Overturn					1
Other					
Opp Dir - Other				(1)	
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
224th Ave NE
MP 11.48

Legend
3 # of Non-Injury
(2) # of Injury

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	2	(1)	2	1 (1)	
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
228th Ave NE
MP 11.74

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1 (1)	(1)	2 (1)	(1)	1
Entering at angle					(1)
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		(1)	1 (1)		
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle			1		
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
Shopping Center
MP 12.18-12.22

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					
Entering at angle			(1)		
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end			1 (1)	1	(1)
Entering at angle					
Sideswipe				(1)	
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
236th Ave NE
MP 12.26

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end			(1)		
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	1		(3)		
Entering at angle	1				
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					1
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		(2)		1	
Entering at angle					
Sideswipe	1				
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"	1				(1)
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
244th Ave NE
MP 13

Legend
3 # of Non-Injury
(2) # of Injury

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end		(1)	1		
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn			(1)		
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe		1			
Fixed object	1				
Same Dir - Other					
Opp Dir - "T-bone"		(2)			
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object			1		
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
Business Driveways
MP 13.10

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end	(1)				
Entering at angle					
Sideswipe					
Fixed object	1				(1)
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

SR 202
NE Ames Lake Rd
MP 13.82

Legend
3 # of Non-Injury
(2) # of Injury

Southbound — Entering major roadway from the left

	2014	2015	2016	2017	2018
Rear end	1			(1)	
Entering at angle		(2)			1
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Westbound — Decreasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					(1)
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Eastbound — Increasing milepost of major roadway

	2014	2015	2016	2017	2018
Rear end					
Entering at angle					
Sideswipe					
Fixed object					
Same Dir - Other				1	
Opp Dir - "T-bone"					1
Overturn	(1)				
Other		1			
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					

Northbound — Entering major roadway from the right

	2014	2015	2016	2017	2018
Rear end					
Entering at angle	1				
Sideswipe					
Fixed object					
Same Dir - Other					
Opp Dir - "T-bone"					
Overturn					
Other					
Opp Dir - Other					
Pedestrian-Pedalcycle					
Opp Dir - Head-on					