15261

Attachment A

King County

CITY OF ISSAQUAH WASHINGTON

Issaquah-Hobart Road/Front Street CORRIDOR STUDY

March 2018

Presented by:

transpogroup

15261

ISSAQUAH-HOBART ROAD/FRONT STREET CORRIDOR STUDY

Prepared for:
King County &
The City of Issaquah

March 2018

Prepared by:

transpogroup
WHAT TRANSPORTATION CAN BE.

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Introduction

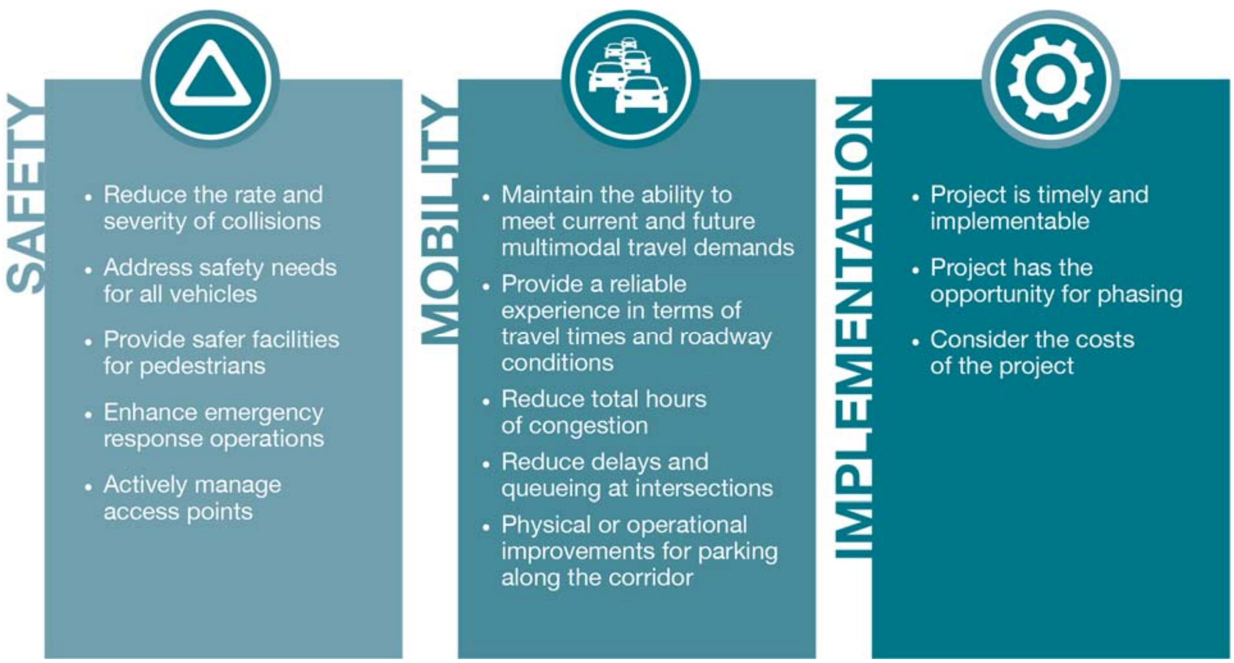
The Issaquah-Hobart Road/Front Street corridor is a main route connecting communities in southeast King County and the City of Issaquah with Interstate 90 (I-90) and areas north. It runs from I-90 in the north to SR 18 to the south. The corridor is a heavily-used commute route, with a northbound peak direction in the AM peak period and the reverse in the PM peak period. It has experienced a substantial amount of growth in traffic volumes over the last several years. As a result, congestion on the corridor has worsened, leading to extended travel times and longer peak traveling hours.

Project Purpose

The purpose of this project is to evaluate and identify safety, mobility and other related improvements to provide the most efficient and reliable traffic flow possible along the corridor. This study evaluates existing conditions, with input from project stakeholders, and analyzes potential solutions using an improvement toolbox to help identify the best solution. The results of the report are aimed at multimodal safety and mobility improvements, keeping in mind the cost and feasibility of implementing the projects.

Goals and Objectives

The transportation improvement projects identified along the corridor were driven by project goals and objectives which were developed by the project team, including the City of Issaquah and King County. The overarching goal of the study is to make the Issaquah-Hobart Road/Front Street corridor safer and more reliable. Based on this goal, solutions were evaluated utilizing three primary evaluation criteria that included safety, mobility, and implementation, which are illustrated in the figure below.



The project team also defined the objectives of the project, which include:

- Provide a comprehensive inventory of existing conditions along the Issaquah-Hobart Road/Front Street corridor, including a summary of multimodal infrastructure, collisions, and congestion;
- Investigate future operations, speed, and safety along the Issaquah-Hobart Road/Front Street corridor; and

- Provide conceptual designs, strategies, and cost estimates for implementing short-term and long-term multimodal improvements to the Issaquah-Hobart Road/Front Street corridor. The focus will be on identifying the lowest cost and highest value improvements that enhance safety and travel time predictability/reliability along the corridor.

Evaluation Approach

The study approach is primarily focused on performing a technical and detailed evaluation of mobility and safety along the corridor. It relies on various data collected on both the City and County segments of the corridor. The different types of data that were utilized in the study, include:

- AM and PM peak hour turning movement counts at intersections,
- Average Daily Traffic Volumes along roadway segments,
- Non-motorized counts at intersections and mid-block crossings,
- Collision data over the past 5 years,
- Signal timing information and guidelines from both jurisdictions,
- Travel times along the corridor during AM and PM peak hours,
- Origin-Destination surveys, and
- School bus stop information and routing.

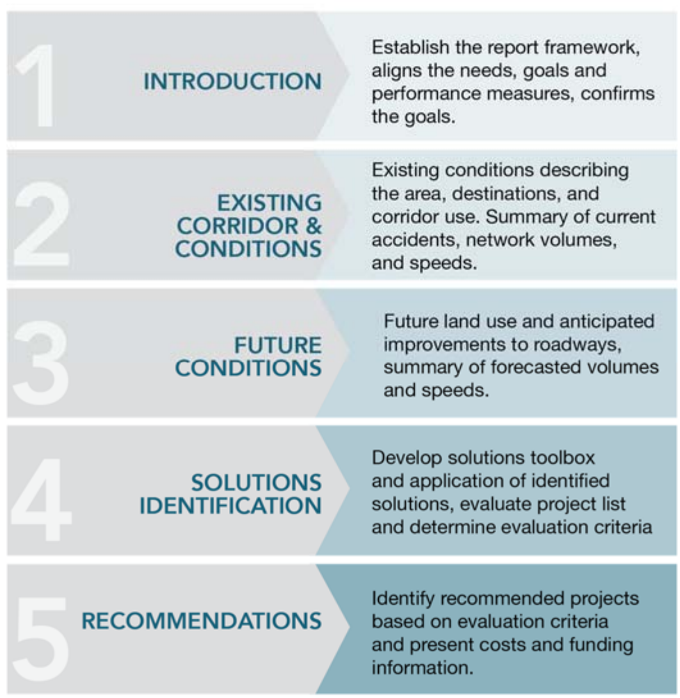
The study analysis focuses on the AM and PM peak hours as that is when congestion on the corridor is the highest. These peak hours range from roughly 6 a.m. to 9 a.m. for the morning peak and 4 p.m. to 6 p.m. for the evening peak.

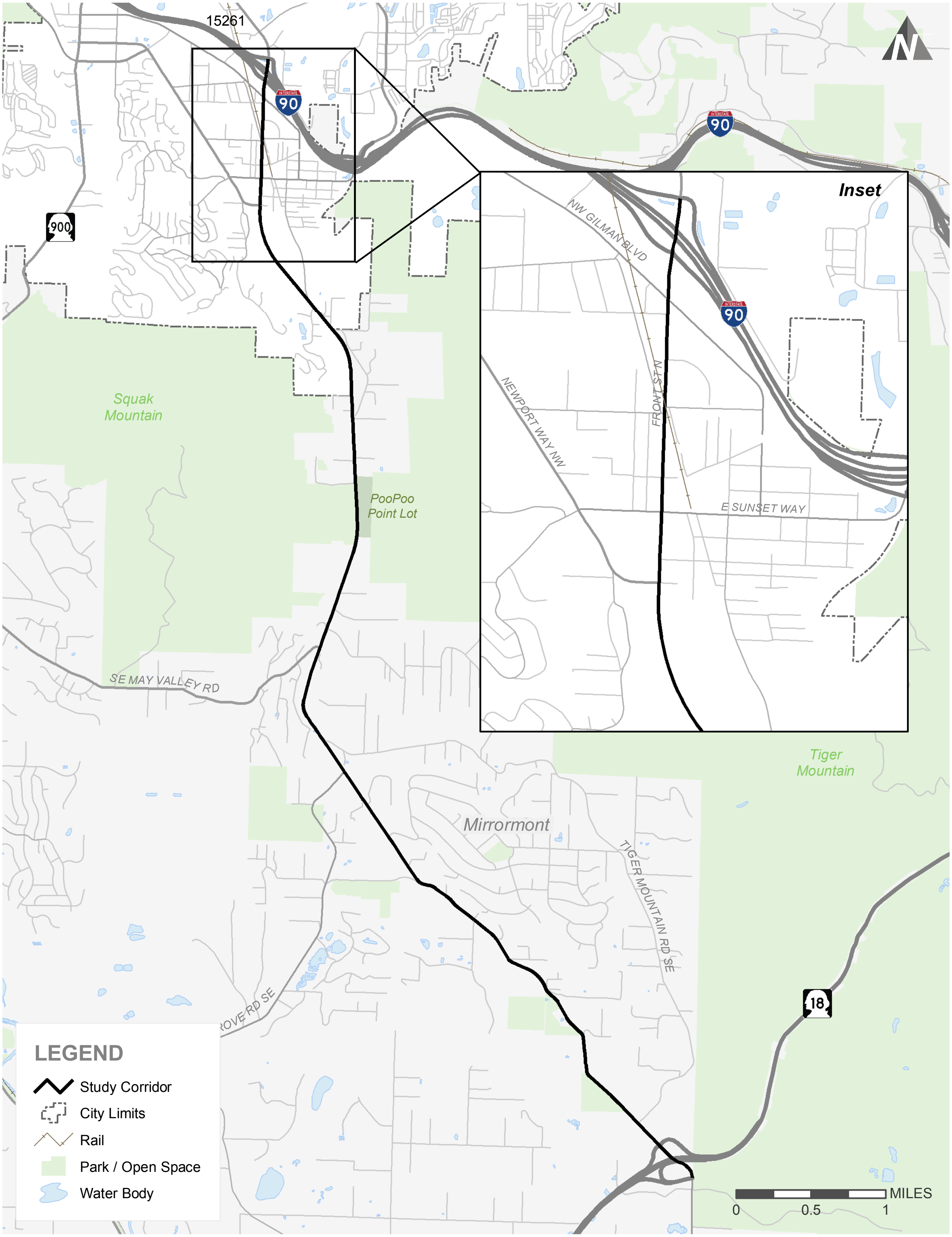
In addition to the existing data, the future data relied on forecasts provided in the PSRC regional travel model. The forecasts were validated against adopted land use plans and historical growth rates to confirm they represented a reasonable growth rate in which to develop and analyze future needs and to develop project recommendations.

While this study did interview specific stakeholders of the corridor, such as emergency responders, transportation providers, property and business owners, and public agency staff, this study did not conduct or gather broad public comment due to the technical nature of the evaluation. No public survey was taken nor were public meetings held. Public comments that had been sent to public agencies over the past several years were reviewed to provide context, as well as comments provided at a City Council Infrastructure Committee meeting.

Report Organization

This corridor study addresses the objectives noted above and is organized as shown to the right to follow the approach of the analysis and evaluation.





Study Area

FIGURE
1

Issaquah-Hobart Rd/Front St Corridor Study

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Existing Corridor Conditions

This section describes existing conditions along the study corridor. Information is provided regarding corridor characteristics, traffic safety, non-motorized facilities, transit service, existing traffic volumes, travel times, travel patterns, vehicle speeds, traffic operations, and freight.

Corridor Characteristics

The corridor stretches between Gilman Boulevard in the north, located in the City of Issaquah, to SR 18 in the south, located in unincorporated King County. It is 8.22 miles long, with the Issaquah city limit located roughly 2 miles south of the northern end. The roadway is classified as a Principal Arterial in both the City and the County, with a speed limit ranging between 25 mph to 35 mph in the City and 40 mph to 45 mph in the County.

The corridor has several functions. Overall it serves as a connection between I-90 in the north and Issaquah, its neighboring communities, and other communities further to the south and west. Within the main downtown area of Issaquah, it serves both motorized and non-motorized users with access to the retail, restaurants, and services within the vicinity.

Front Street, south of NW Dogwood Street

Issaquah-Hobart Road, south of SE 172nd St

Traffic Safety

Historical collision data provides an overview of potential safety concerns along the corridor. Crash records were reviewed within the study area to document known locations of crashes. Crash data from the Washington Department of Transportation (WSDOT) was collected and analyzed for the approximately five-year period between January 1, 2012 and December 31, 2016. A historical review of the number of collisions was conducted at all arterial and collector roadway intersections on the Issaquah-Hobart/Front St corridor. A summary of the total number of reported collisions by severity and crash type is provided in Table 1 for the intersections that averaged more than 1 crash per year. Intersections are reported from north to south along the corridor.

Table 1. Issaquah-Hobart/Front Street Corridor Intersection Collision Summary[1]

Intersection with Issaquah-Hobart/Front St Corridor	Collision Severity				Collision Type						
	Total	PDO	Injury	Fatal	Rear - End	Side - Swipe	Approach Turn	Angle	Bike - Ped	Other	Collision Rate[4]
Interstate 90[2]	53	40	13	0	33	4	5	5	0	6	2.18
NE Gilman Blvd	7	6	1	0	5	2	0	0	0	0	0.29
NW Holly St	45	34	11	0	17	4	10	9	1	4	1.85
NE Crescent Dr	9	8	1	0	3	0	1	2	0	3	0.37
Dogwood St	17	14	3	0	9	0	1	3	0	4	0.70
NW Alder Pl	16	12	4	0	5	0	0	3	2	6	0.66
E Sunset Way	29	21	8	0	10	3	3	9	2	2	1.19
SE Bush St	12	9	3	0	8	0	0	2	2	0	0.49
Newport/Clark St	20	16	4	0	11	2	3	2	2	0	0.58
2nd Ave Se	4	3	1	0	3	0	1	0	0	0	0.12
Sycamore Dr Se	2	1	1	0	2	0	0	0	0	0	0.06
SE Lewis St	6	3	2	1	4	0	0	1	0	1	0.17
SE 96th St	3	3	0	0	2	0	0	0	0	1	0.09
SE 104th St	2	1	1	0	1	0	1	0	0	0	0.06
SE 105th Pl	12	8	4	0	9	0	0	2	0	1	0.33
238th Way Se	5	3	2	0	4	0	0	0	0	1	0.14
SE 111th St	6	3	3	0	2	0	1	2	0	1	0.17
SE 113th St	7	7	0	0	3	0	1	1	0	2	0.20
SE 127th St	5	4	1	0	5	0	0	0	0	0	0.14
SE May Valley Rd	34	21	13	0	23	1	1	5	0	4	0.93
Tiger Mt Rd N	3	2	1	0	2	0	0	1	0	0	0.11
Cedar Grove Rd SE	9	2	7	0	7	0	1	1	0	0	0.45
Mirrormont Blvd	2	1	1	0	0	0	0	0	0	2	0.10
SE 153rd Pl	3	1	2	0	1	0	0	0	0	2	0.15
SE 156th St	7	5	1	1	1	1	1	1	0	3	0.35
SE 164th St	4	1	3	0	1	1	0	0	0	2	0.20
260th Ave SE	3	0	3	0	1	0	0	0	0	2	0.15
SE 172nd St	3	1	2	0	1	0	0	0	0	2	0.15
Tiger Mt Rd S	4	3	1	0	3	1	0	0	0	0	0.20
Hwy 18[3]	2	0	2	0	1	0	0	1	0	0	0.10

Source: WSDOT Collision Data (accessed 3/29/2017)
1. Collisions Reported 2012 – 2016
2. From MP 0.00 – 0.33 on Front St
3. From MP 0.00 – 0.16 on Issaquah-Hobart Road
4. Collision Rates are per million entering vehicles

An intersection with a collision rate greater than 1.00 per million entering vehicles (MEV) typically indicates that further investigation is necessary to determine whether an adverse condition exists. As shown, the intersections with I-90, NW Holly Street, and E Sunset Way have a rate greater than 1.0 per MEV. Additionally, SE May Valley Road has a rate just under 1.0 at 0.93. All of these intersections had rear-end collisions as the most common collision type. The majority of collisions at these locations resulted in property damage only and no fatalities were reported at these intersections. Fatalities were reported at SE Lewis Street and SE 156th Street.

A similar review of historical collisions was also conducted for roadway segments along the Issaquah-Hobart/Front St corridor. Table 2 summarizes the reported collisions by severity and crash type along each segment of the corridor.

Table 2. Issaquah-Hobart/Front Street Roadway Segment Collision Summary[1]

Segment on Issaquah-Hobart/ /Front St Corridor	Crash Severity				Crash Type							Collision Rate[3]
	Total	PDO	Injury	Fatal	Rear - End	Side - Swipe	Approach Turn	Angle	Bike - Ped	Run – Off[2]	Other	
I-90 to Newport Way	125	96	29	0	58	10	17	22	4	3	11	5.25
Newport Way to City Boundary	55	37	17	1	38	2	3	3	2	5	2	1.08
City Boundary to May Valley Road	95	58	37	0	57	4	4	12	0	8	10	1.53
May Valley Road to Cedar Grove Road	35	19	15	1	17	3	1	1	1	4	8	1.37
Cedar Grove Road to Hwy 18	59	31	27	1	13	5	1	2	0	20	18	0.80
Total	369	241	125	3	183	24	26	40	7	40	49	1.48

Source: WSDOT Collision Data (accessed 3/29/2017)
1. Collisions Reported 2012 – 2016
2. Run-off road collisions, reported as those where the initial collision was recorded involving a boulder, fence, over or under a guardrail, mailbox, metal sign post, roadway ditch, street light pole, tree or stump (fixed), utility pole, or wood sign post
3. Collision Rates are per one hundred million miles traveled.

According to the 2015 King County Collision Data Report, urban roads saw an average collision rate of 2.16 collisions per million vehicle miles traveled, and rural roads saw an average collision rate of 1.45 collisions per million vehicle miles traveled. Using these numbers as benchmarks, two of the roadway sections above stand out as having a particularly high collision rate –I-90 to Newport Way, and the City Boundary to May Valley Road. The majority of collisions on these two segments (and the corridor as a whole) were rear-end. While no fatalities occurred on these segments, three fatalities were reported along roadway segments on the corridor: one each from Newport Way to the City Boundary, from May Valley Road to Cedar Grove Road, and from Cedar Grove Road to Highway 18.

Exhibit 1 below shows the percent of total collisions that occurred along the corridor by jurisdiction.

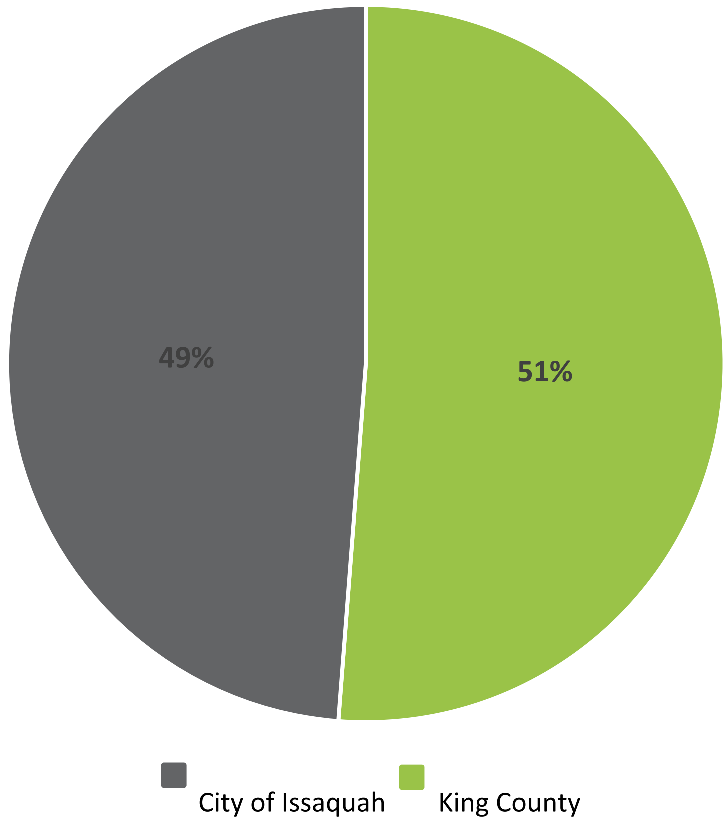


Exhibit 1. Corridor Collisions by Jurisdiction

Almost half of all collisions within the study area occurred on the 2 miles within the City of Issaquah, and half occurred on the 6.8 miles within King County. Collisions on the segment from I-90 to Newport Way occurred at a rate that is 3 to 6 times higher than on the remaining sections of the corridor.

Exhibit 2 illustrates the types of collisions along the corridor from 2012 through 2016. The collisions are separated by the jurisdiction within which they occurred.

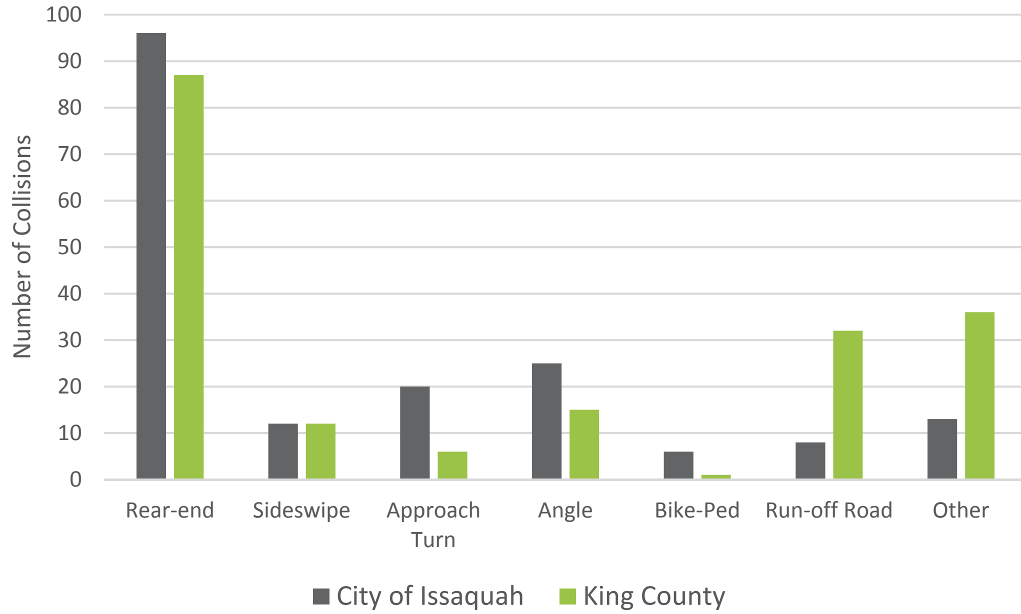


Exhibit 2. Crash Type by Jurisdiction along Issaquah-Hobart Rd/Front St Corridor

Rear-end, approach turn, angle, and bike-ped related collisions were more common in the City of Issaquah. Likely causes of these collisions include parking maneuvers, pedestrian crossings at several crosswalks, and left- and right-turning vehicles at locations with no turn lanes, all of which cause stop-and-go conditions. In the County, run-off road, rear-end, and other types of collisions were more common. The “other” category includes collisions involving vehicles colliding with guardrails, utility poles, or trees, or driving into a ditch. Causes for run-off road collisions could include higher speeds than the speed limit or wet or icy road conditions. These “other” collision types aren’t occurring on one particular segment in either the City or County but are scattered throughout the corridor. Side swipe collisions were about evenly split between the two jurisdictions.

Exhibit 3 illustrates the severity of collisions along the corridor from 2012 through 2016. The collisions are similarly separated by the jurisdiction within which they occurred.

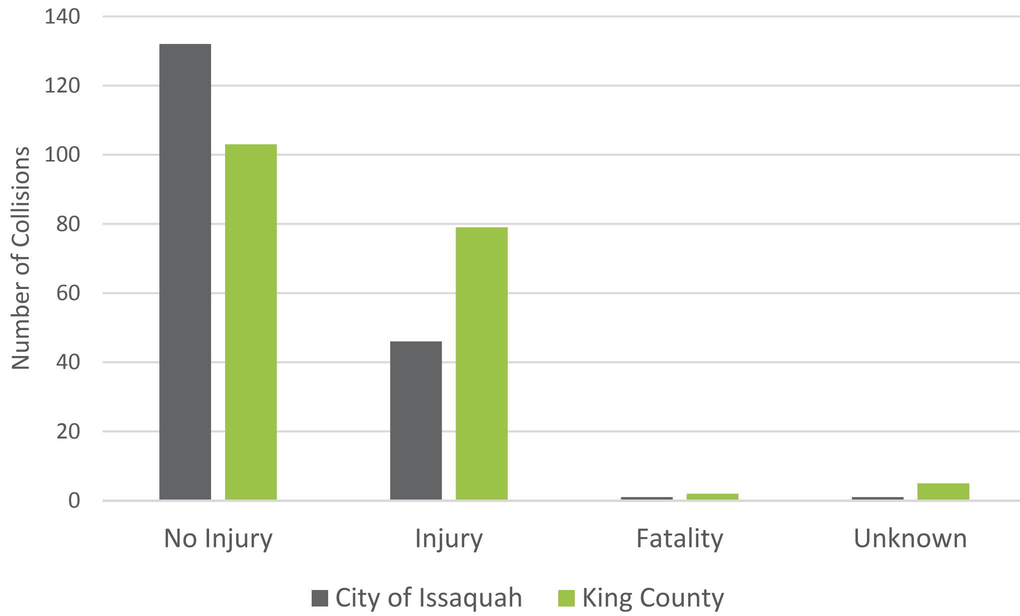


Exhibit 3. Crash Severity by Jurisdiction along Issaquah-Hobart Rd/Front St Corridor

Collisions in King County were nearly twice as likely to result in an injury as they were in the City of Issaquah. In both jurisdictions, fatalities made up approximately 1% of total collisions. Figure 2 shows the distribution of collisions along the corridor. Collisions occurred with much greater frequency in the northern section of the corridor.

From 2012-2016, the top contributing circumstances in collisions were inattention (28%), failure to yield the right of way (11%), following too closely (10%), and speeding (7%). Inattention and speeding were the most common causes of fatal and serious injury collisions - making up nearly half of the causes of all injuries and fatalities along the corridor.

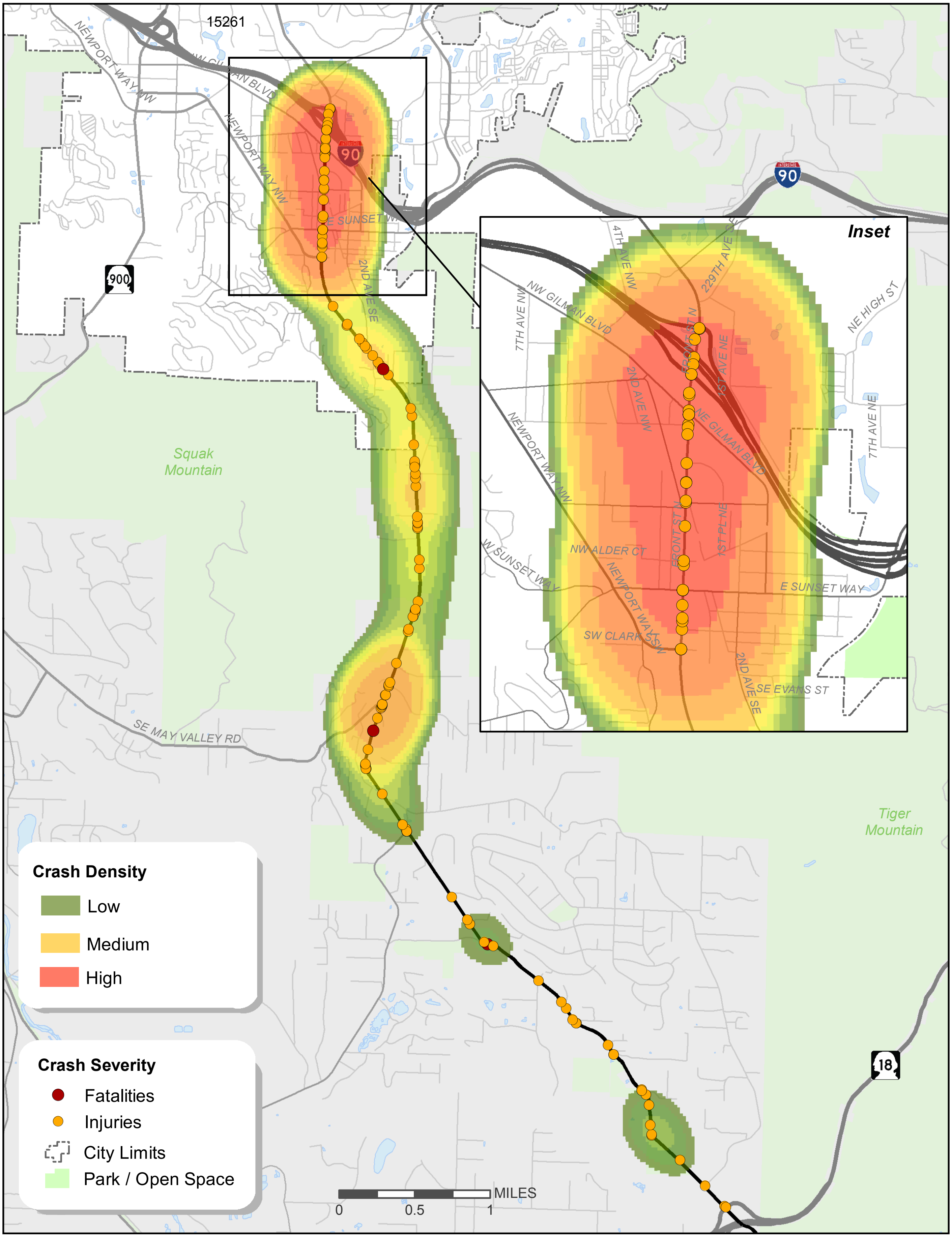
Non-Motorized Facilities

Non-motorized facilities vary between the City portion of the corridor and the County portion. In the City, sidewalks are provided along both sides of the roadway through the downtown area until roughly 6th Ave SE. After that, paved shoulders exist to the City limit. Crosswalks are located at major intersections allowing safe pedestrian mobility throughout the area. Additionally, there are four mid-block crossings in the downtown: one between NW Alder Pl and E Sunset Way, one north of NW Alder Pl, one north of Creek Pl, and one near Crescent Dr. Signalized pedestrian crossings include those at Newport Way SW, E Sunset Way, and NE Dogwood Street. Unsignalized pedestrian crossings include those at SE Bush Street, and NW Alder Place. There is also a crosswalk at the Front Street/600 block that is currently under construction.

Pedestrian counts were conducted at intersections and mid-block crossings along the corridor. These counts confirmed that larger volumes of pedestrian activity occur during the PM peak hour and are located in the downtown core of the City. Fewer pedestrian traffic occurs in the AM peak hour and are primarily at the intersections with E Sunset Way and Newport Way SW. The peak pedestrian volumes occur at the same time as the peak congestion along the downtown section of the corridor, in the PM peak hour. These pedestrian volumes contribute to congestion on that section of the corridor as traffic stops anytime a pedestrian uses the crosswalk, interrupting traffic flow and potentially queuing traffic to a nearby signal. The proximity of the crosswalks just north of Sunset Avenue also may be contributing to congestion. According to the WSDOT Pedestrian Facilities Guidebook, the recommended minimum spacing between crosswalks is 300 feet. The three crosswalks just north of Sunset Avenue, for example, are all within 200 to 250 feet of the other. This can particularly affect traffic flow at the Sunset Avenue traffic signal, where vehicles stopped for a pedestrian at the nearby mid-block crossing can back up into the intersection. Figures 4 and 5 show AM and PM peak hour pedestrian volumes, respectively, at intersections in the City.

Bike lanes are located along parts of the corridor, starting at Newport Way SW and extending to 6th Ave SE. Several multi-use trails connect to the corridor in the City segment: the Rainier Trail crosses at NW Dogwood Street at the signalized pedestrian crossing, the Newport Way Trail crosses on the north side of the intersection with Newport Way SW, and the Squak Valley North Trail connects to the corridor just north of the City limit. Figure 3 shows the non-motorized facilities in the City.

Differing from its City counterpart, the County has paved or gravel shoulders for non-motorized users along most of the roadway, although the shoulders disappear in some sections (such as the bridge across Fifteenmile Creek). Crosswalks exist at the two signalized intersections along this segment: at May Valley Rd and Cedar Grove Rd. Pedestrian counts were also conducted at study intersections in the County, however little to no pedestrian activity took place at these intersections in either the AM or PM peak hour. There are no dedicated bicycle facilities or multi-use trails along the corridor, however there is access to the Poo Poo Point trail with a parking lot on the east side of the corridor near SE 113th Street. Figure 6 shows non-motorized facilities in the County.



Traffic Crash Locations

Issaquah-Hobart Rd/Front St Corridor Study

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FIGURE
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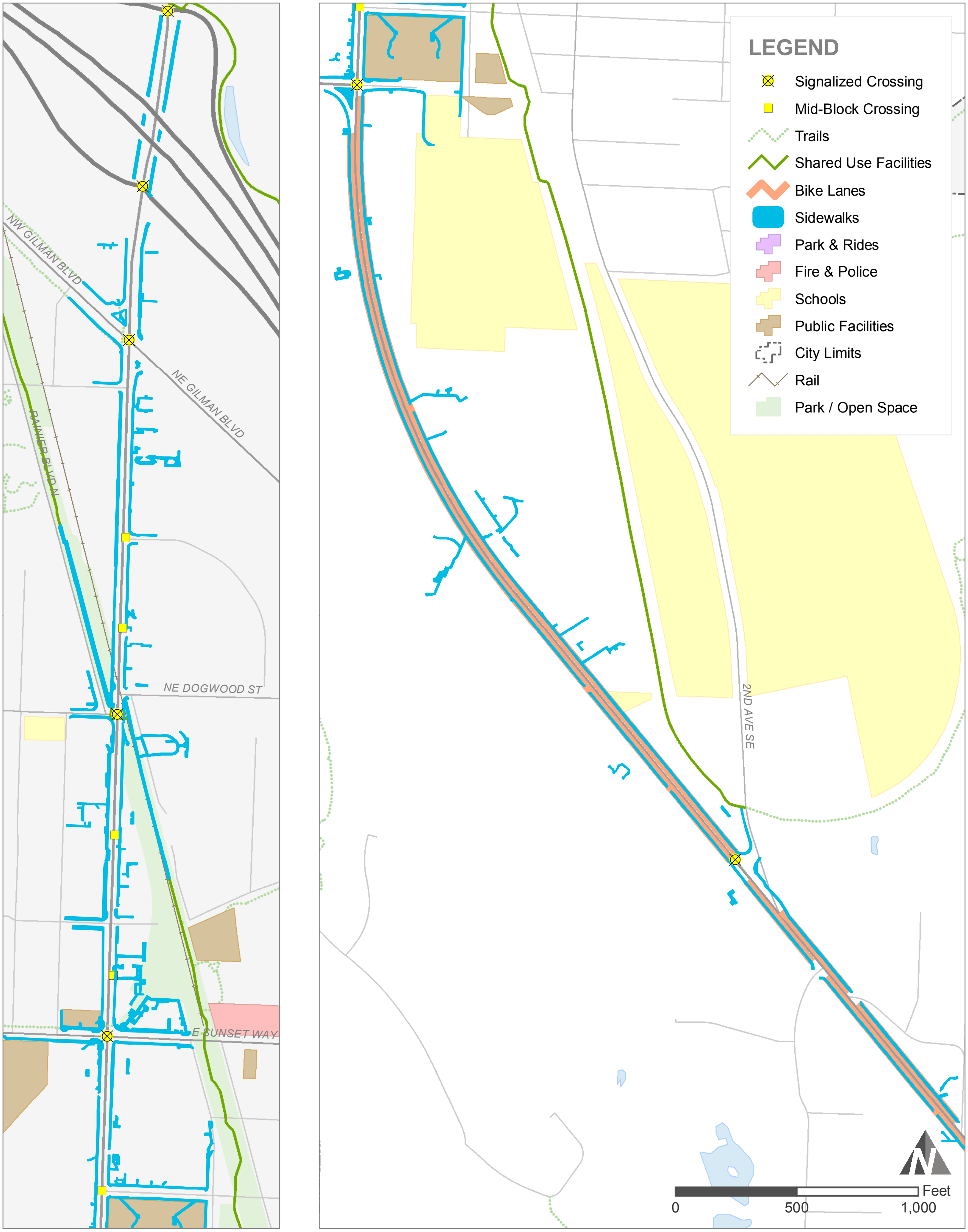
North Section

South Section



Non-Motorized Facilities - City

FIGURE 3

Issaquah-Hobart Rd/Front St Corridor Study

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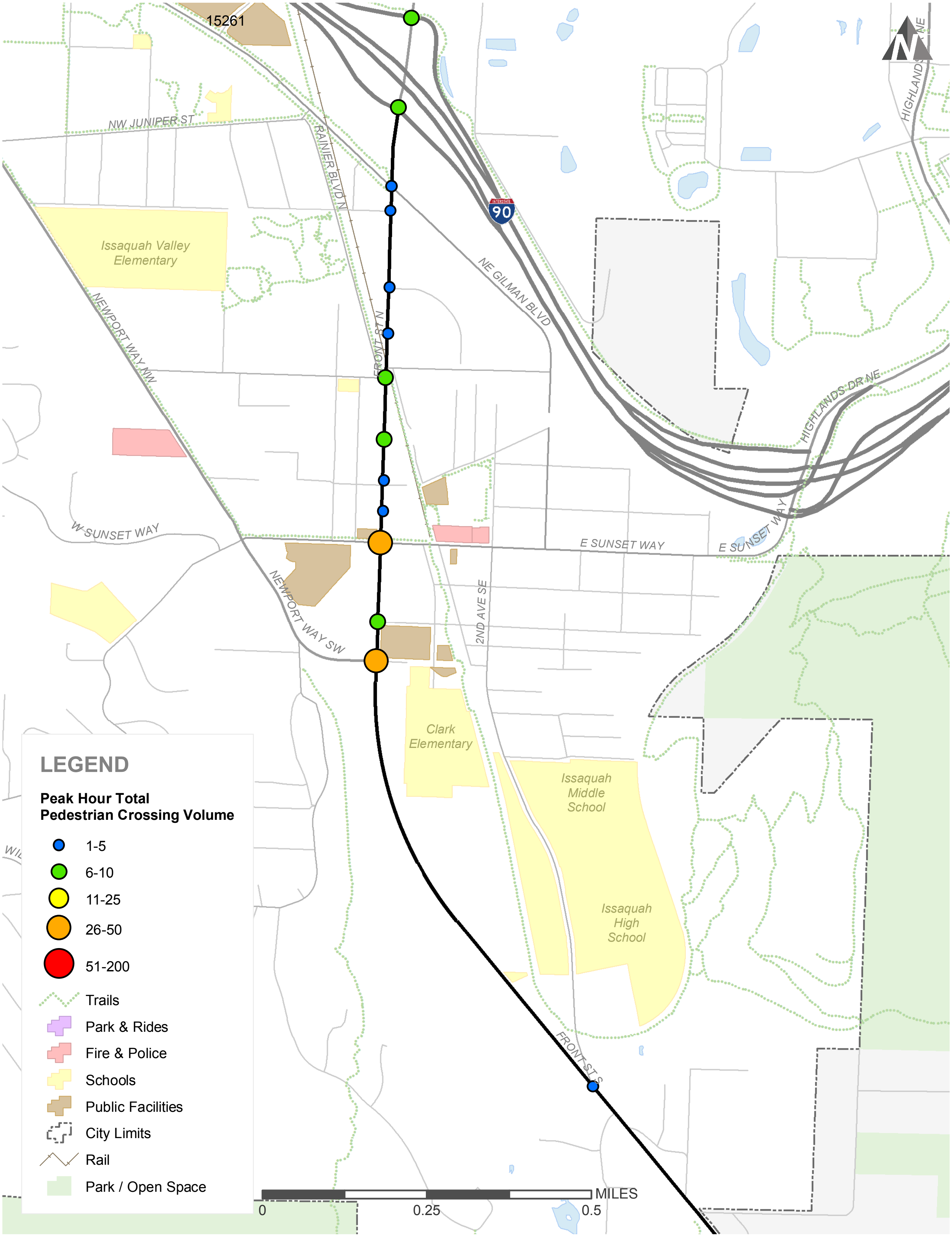

AM Peak Hour Pedestrian Intersection Crossing Volumes

FIGURE 4

Issaquah-Hobart Rd/Front St Corridor Study

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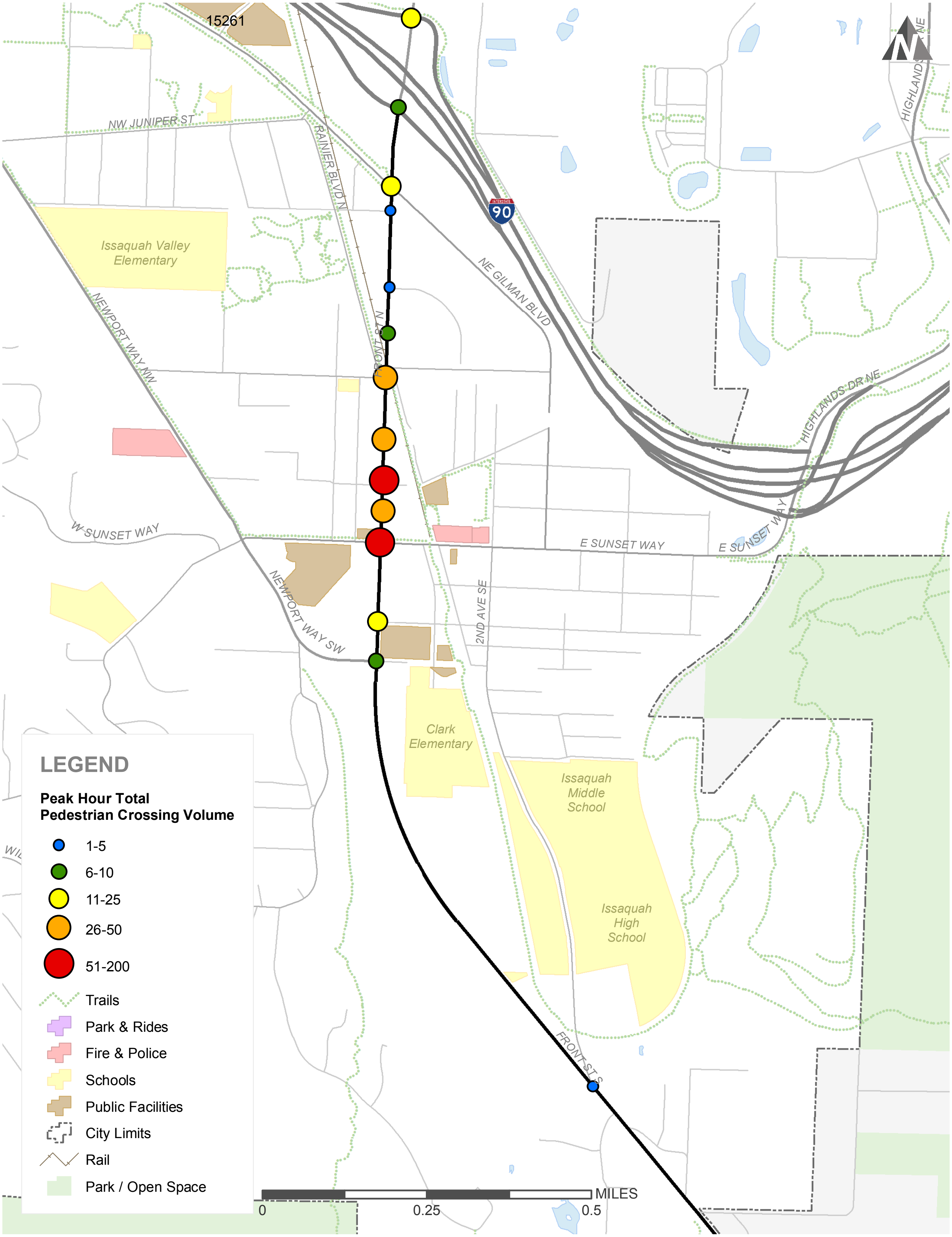

PM Peak Hour Pedestrian Intersection Crossing Volumes

FIGURE
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Issaquah-Hobart Rd/Front St Corridor Study

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Non-Motorized Facilities - County

FIGURE 6

Issaquah-Hobart Rd/Front St Corridor Study

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Transit Service

Transit routes run exclusively in the City portion of the corridor. Four routes operated by King County Metro serve this area. The service areas, operating days, operating hours, and headways are summarized in Table 3. As shown in the table, two routes provide service to the Seattle area and two provide service locally (to the Issaquah Swedish Medical Center and to North Bend). Headways range from 30 minutes to 3 hours, depending on the route. There are also several park and rides in the City, west of the corridor near SR 900. Figure 7 shows the location of the park and rides as well as the transit facilities in the vicinity of the corridor.

Table 3. Existing Transit Service[1]

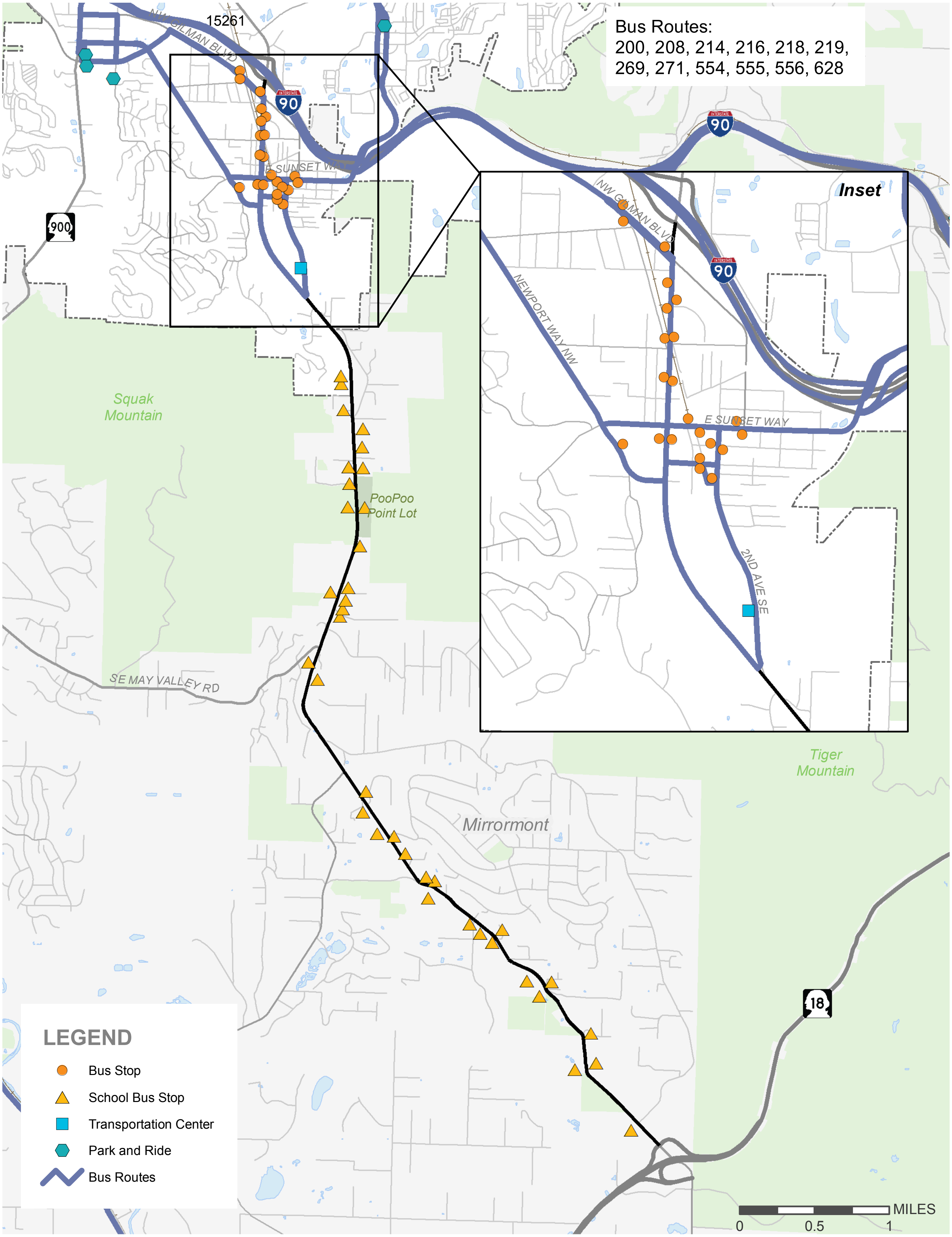
Routes	Area Served	Operating Days	Approximate Operating Hours on Corridor	PM Peak Headways
200	Issaquah Community Center – Swedish Medical Center	Weekday	9:00 a.m. to 3:30 p.m.	30-40 minutes
208	Issaquah Transit Center – North Bend	Weekday Saturday	6:00 a.m. to 9:30 p.m. 6:30 a.m. to 10:00 p.m.	2-3 hours
214	Issaquah – Downtown Seattle	Weekday	6:00 a.m. to 8:00 a.m. 4:00 p.m. to 6:00 p.m.	30-40 minutes
271	Issaquah – University District	Weekday Saturday Sunday	6:00 p.m. to 11:30 p.m. 6:30 a.m. to 10:30 p.m. 7:30 a.m. to 11:30 p.m.	1 hour 30-60 minutes 30-60 minutes

Based on data provided by, King County Metro Transit (July 2017).

School buses also utilize the corridor as several schools are located nearby. Issaquah High School and Middle School are located just off 2nd Avenue SE and Clark Elementary is near Newport Way. A number of buses use the City section of the roadway between Newport Way and 2nd Avenue SE to access the high school and middle school, roughly 20 in the AM peak hour and 8 to 10 in the PM peak hour. There are also several school bus stops along both sides of Issaquah-Hobart Road south of the city limits. The existing bus stops are illustrated in Figure 7 as well.

The Issaquah School District AM peak hour stops between May Valley Road and 2nd Avenue run between approximately 7:15 AM and 8:35 AM with 22 scheduled stops within this timeframe. The PM peak hour stops occur between 3:04 and 4:15 PM again with 22 scheduled stops. The totals include northbound and southbound stops which require both lanes of traffic to stop while loading or unloading passengers.

King County supplied data showed that while school is in session, 200 fewer vehicles progress through the corridor in the 7:00 a.m. to 8:00 a.m. peak hour, in the northbound direction. The counts were collected just north of the intersection of May Valley/Issaquah Hobart Road. The reduction in PM peak hour traffic volumes was not as great, but the difference was still around 80 fewer vehicles reaching the intersection of May Valley/Issaquah Hobart Road between 3:30 and 4:30 PM in the southbound direction.



Transit Facilities

FIGURE

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Issaquah-Hobart Rd/Front St Corridor Study

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Traffic Volumes

Where available, traffic volumes from counts conducted by the City or County where utilized. Otherwise, traffic volumes were collected at study intersections during both the weekday from 7 to 9 a.m. and 4 to 6 p.m. These time periods are typical weekday AM and PM peak hours (respectively) when traffic conditions would be greatest. While the AM peak period on the corridor typically covers a longer period (anywhere between 5:00 a.m. to 9:00 a.m.), a two-hour time period is standard for peak hour counts and as such, the 7 to 9 a.m. time frame was chosen to ensure data was collected when school buses would be utilizing the corridor. Average weekday daily traffic volumes were also counted at other points along the corridor. All of the counts used for the corridor analysis, including those provided by the City or County, were conducted in either 2016 or 2017. The detailed count information is provided in Appendix A. Figures 8 and 9 show the turning movement counts in both the north and south segments of the corridor. Figure 10 shows the directional average weekday daily volumes along the corridor and Figures 11 and 12 show the directional weekday AM and PM peak hour volumes on the north segment and south segment of the corridor, respectively.

As shown in Figure 10, weekday average daily traffic volumes are heaviest along the middle segment of the corridor between the City limits and May Valley Road. In the downtown area, volumes taper off after Newport Way SW but build up again near Gilman Boulevard. To the south, volumes taper off after May Valley Road, again after Cedar Grove Road, and still further near SR 18.

During the peak hours there is a directional shift in the volumes. Figures 11 and 12 show the AM peak period has greater traffic in the northbound direction while the PM peak period has greater traffic in the southbound direction. This shift is also shown in the average daily traffic volume graph in Exhibit 4, which demonstrates an early AM peak hour around 6:00 a.m. followed by another peak around 8:00 a.m. The first peak represents morning commute traffic using the roadway. A dip occurs when school-related traffic and additional morning commute traffic start accessing the roadway, which results in congestion and less cars being able to get through the corridor. The second peak occurs when congestion eases slightly, resulting in a higher vehicular throughput.

Consistent with the average weekday daily traffic volumes, the heaviest peak period volumes also occur in the middle segment of the corridor, though the very highest volumes occur just south of May Valley Road at roughly 1,300 in the southbound direction during the PM peak hour.

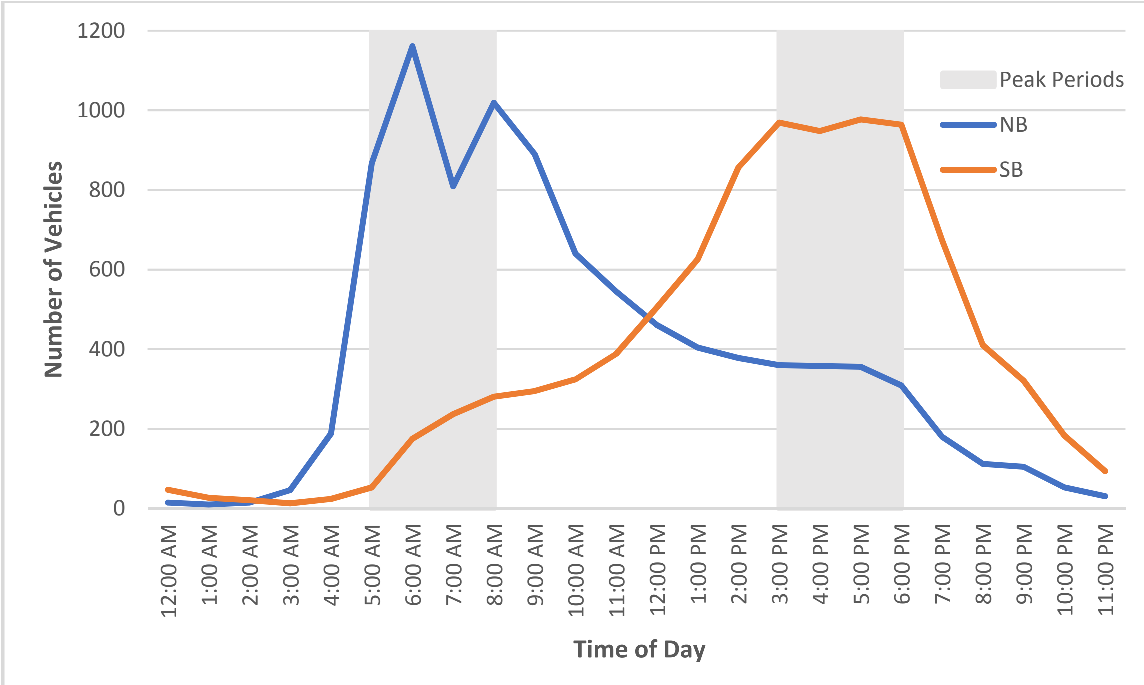

Exhibit 4. Average Daily Traffic Volumes by Hour, along Issaquah-Hobart Road n/o May Valley Road

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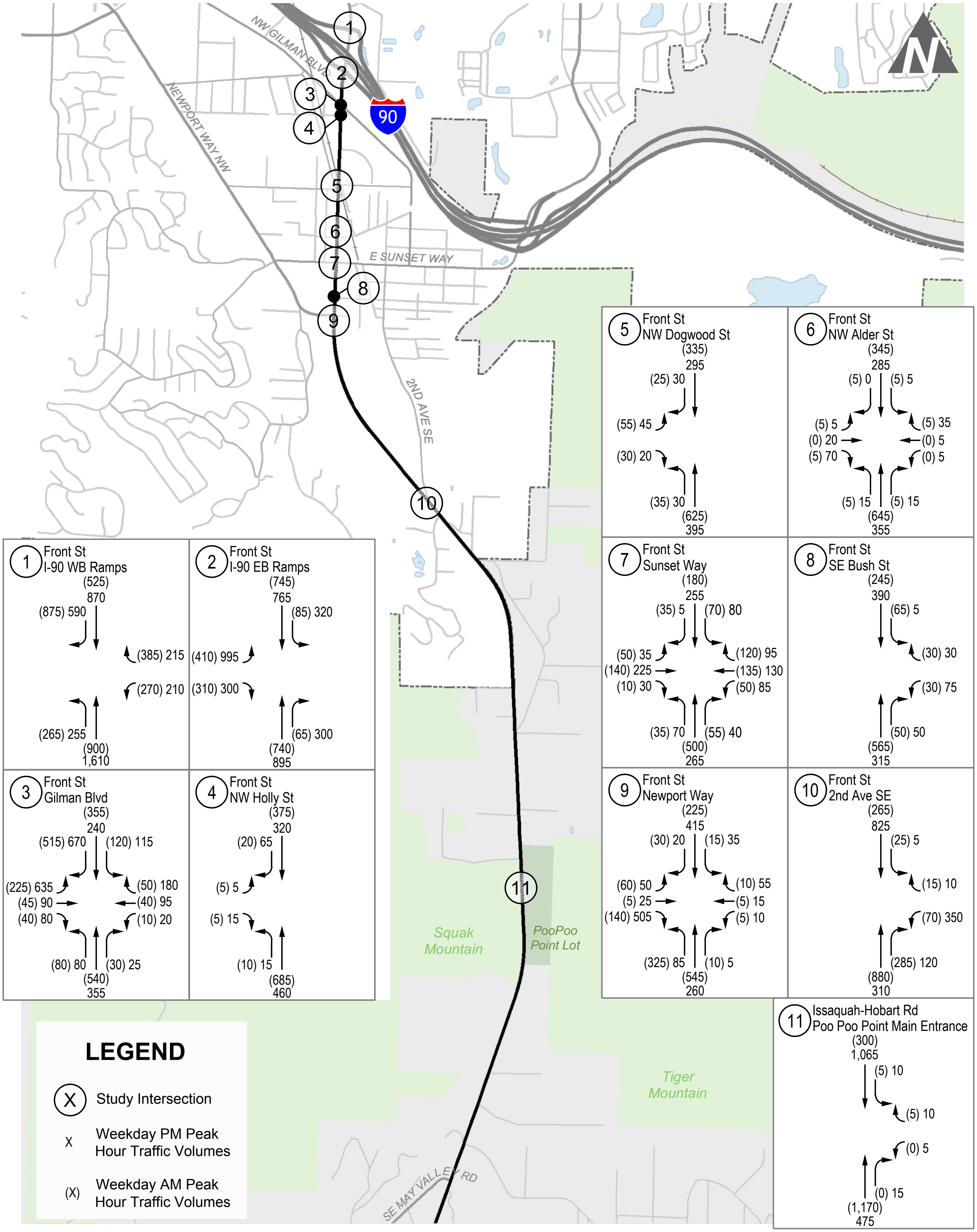

Weekday (2017) AM & PM Peak Hour Traffic Volumes - North

Issaquah-Hobart Rd/Front St Corridor Study

FIGURE 8

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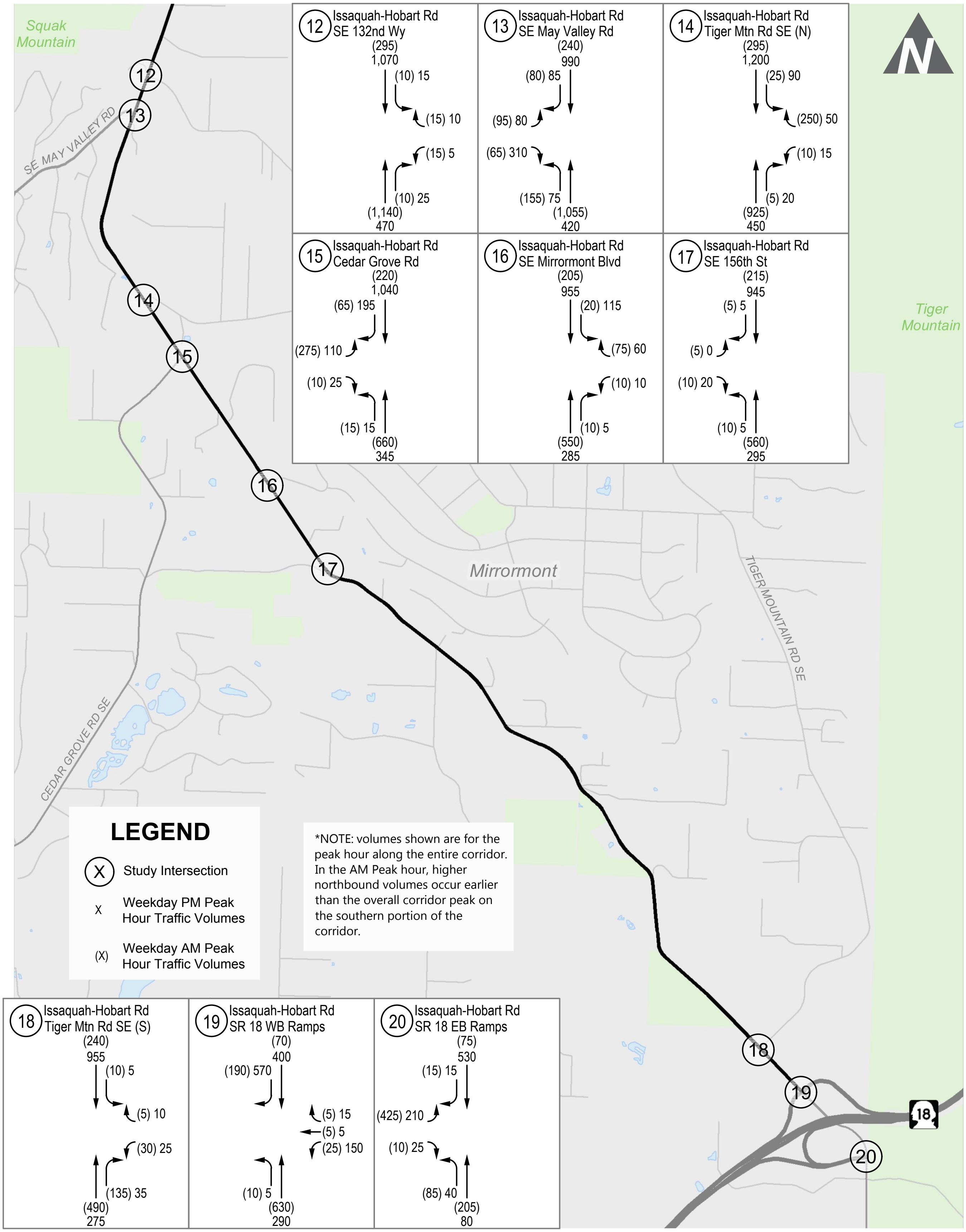

Weekday (2017) AM & PM Peak Hour Traffic Volumes - South

FIGURE 9

Issaquah-Hobart Rd/Front St Corridor Study

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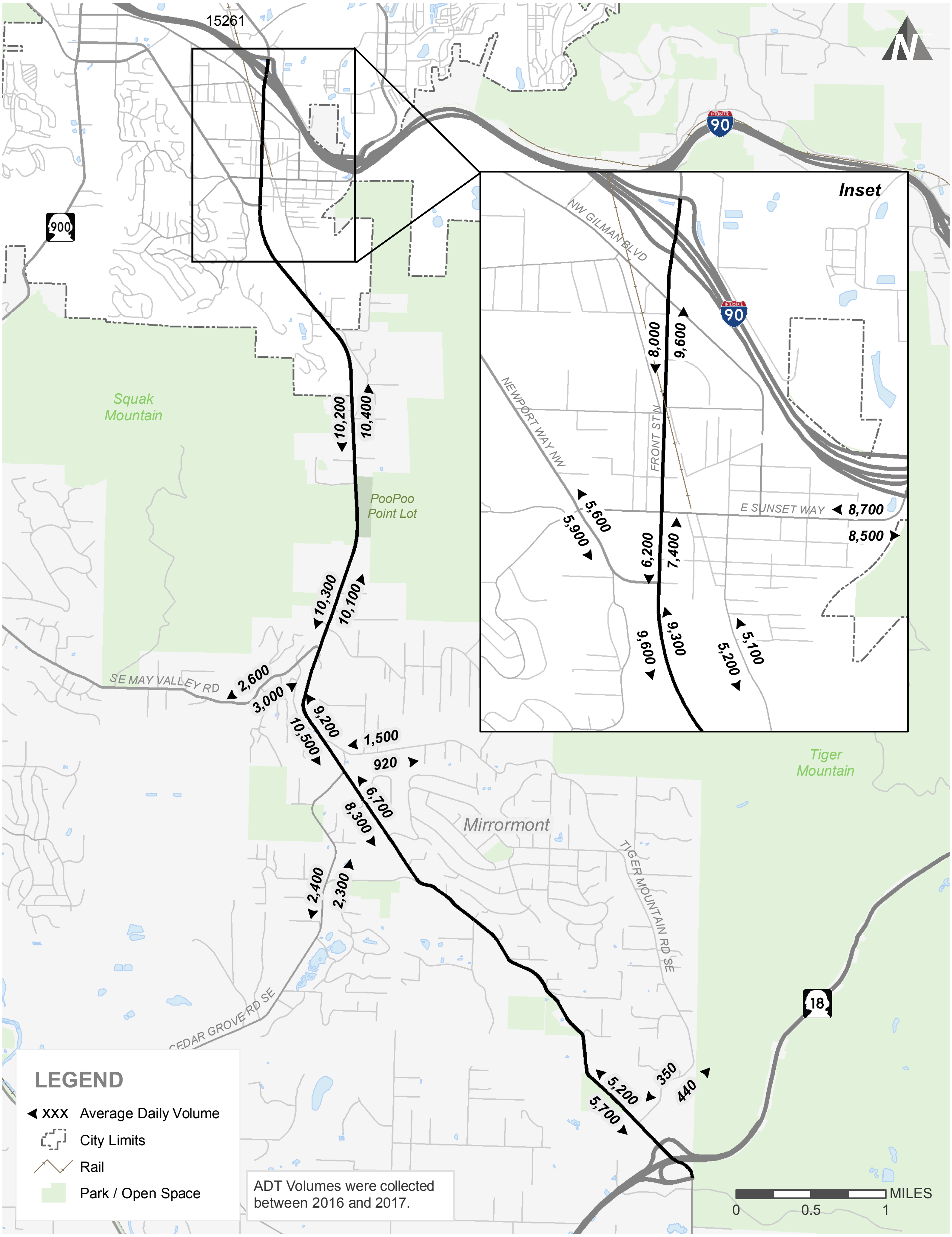

Weekday Average Daily Traffic Volumes

FIGURE 10

Issaquah-Hobart Rd/Front St Corridor Study

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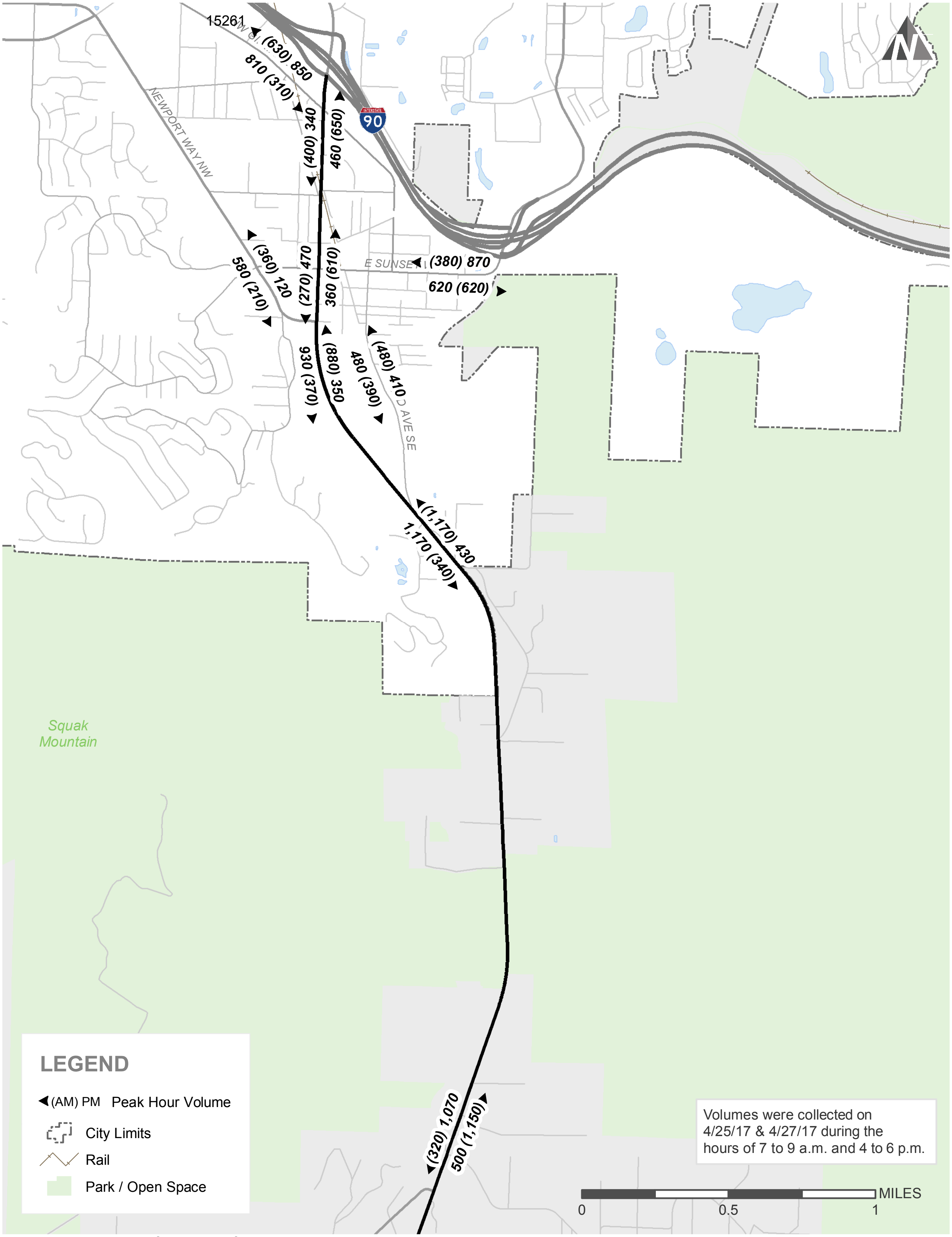

Weekday (2017)
AM & PM Peak Hour Roadway Volumes - North

FIGURE

11

Issaquah-Hobart Rd/Front St Corridor Study

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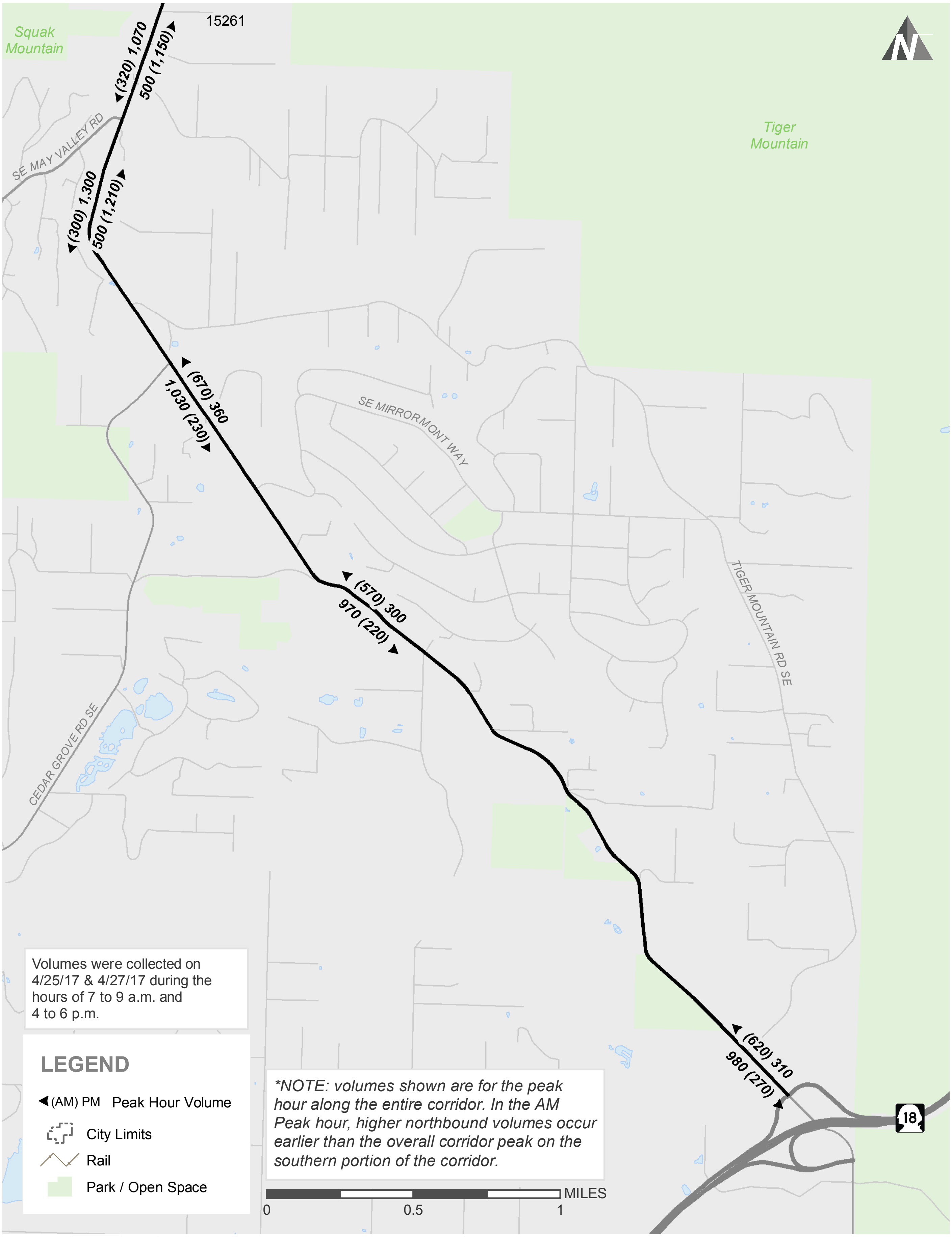

Weekday (2017)
AM & PM Peak Hour Roadway Volumes - South

Issaquah-Hobart Rd/Front St Corridor Study

FIGURE **12**

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Travel Times

Travel times were collected along the corridor during both the AM (7:00 a.m. to 9:00 a.m.) and the PM (4:00 p.m. to 6:00 p.m.) peak periods. These periods are generally consistent with the times when peak traffic occurs along the corridor. Field data was collected by driving the corridor and recording time/location stamps every second. The corridor was driven at least 5 times in either direction on a Tuesday or Thursday; Wednesdays were excluded as the Issaquah School District has an early release, which could lessen the traffic during the peak hours. These particular days typically represent the average weekday peak travel conditions. Each corridor was driven five times in each direction for each peak period.

Corridor speeds and travel times are listed below by segment. Appendix B provides a summary of the exact limits of each measured travel time route.

Table 4. AM Peak Hour Travel Speeds and Times[1]

Location	Corridor Length (mi)	Average Speed		Average Travel Time	
		SB	NB	SB	NB
City					
Gilman Blvd to Sunset Way[2]	0.54	17 mph	26 mph	2 min	1 min
Sunset Way to Newport Way	0.18	9 mph	6 mph	1 min	2 min
Newport Way to 2nd Ave	0.75	32 mph	21 mph	2 min	2 min
2nd Ave to South City Limits	0.72	39 mph	21 mph	1 min	2 min
County					
South City Limits to May Valley Rd	1.73	44 mph	19 mph	2 min	5 min
May Valley Rd to Cedar Grove Rd	0.93	33 mph	12 mph	2 min	5 min
Cedar Grove Rd to SR 18	3.37	41 mph	10 mph	5 min	21 min
TOTAL	**8.22**	**34 mph**	**13 mph**	**15 min**	**38 min**

1. Travel time data collected on Tuesdays and Thursdays in April and May, 2017.
2. The speed in the AM peak hour in the southbound direction along this section is atypically low as one of the runs was impacted by a pedestrian crossing at Dogwood St. Removing that run from the data yields an average travel speed of 23 mph.

Table 5. PM Peak Hour Travel Speeds and Times[1]

Location	Corridor Length (mi)	Average Speed		Average Travel Time	
		SB	NB	SB	NB
City					
Gilman Blvd to Sunset Way	0.54	2 mph	14 mph	14 min	2 min
Sunset Way to Newport Way	0.18	2 mph	7 mph	4 min	2 min
Newport Way to 2nd Ave	0.75	8 mph	27 mph	6 min	2 min
2nd Ave to South City Limits	0.72	19 mph	34 mph	2 min	1 min
County					
South City Limits to May Valley Rd	1.73	17 mph	41 mph	6 min	3 min
May Valley Rd to Cedar Grove Rd	0.93	31 mph	42 mph	2 min	1 min
Cedar Grove Rd to SR 18	3.37	37 mph	41 mph	6 min	5 min
TOTAL	**8.22**	**13 mph**	**32 mph**	**40 min**	**16 min**

1. Travel time data collected on Tuesdays and Thursdays in April and May, 2017.

As shown in Tables 4 and 5, average speeds tend to be higher in the southbound direction and lower in the northbound direction during the AM peak hour, with the reverse being true for the PM peak hour. The average speeds are consistent with the average travel times, with the AM peak hour taking 38 minutes in the northbound direction and 15 minutes in the southbound direction and the PM peak hour taking 16 minutes in the northbound direction and 40 minutes in the southbound direction. The PM peak hour is slightly worse in both the peak and off-peak direction, which is likely caused by the activity in downtown Issaquah. This activity takes the form of on-street parking, vehicles turning on and off the roadway, and pedestrian activity at several crosswalks, all of which impact corridor travel speeds.

Traffic Distribution

As part of the overall data collection effort, general traffic distribution for vehicles traveling along the corridor were collected and analyzed. This data helped to define local travel patterns for corridor vehicle trips.

WiFi units were installed at ten locations along or nearby the corridor to collect origin-destination (O-D) data. WiFi units record anonymous signals from nearby WiFi enabled devices (commonly installed in mobile phones and automobiles), and record the time at which the signal was received. A web-based software system was used to match recorded signals and compute O-D patterns.

To understand the validity of the data collected by the WiFi devices, capture rates were calculated in order to confirm the statistical significance of the sample size. The capture rates were calculated by dividing the number of unique WiFi addresses captured during the weekday by the total number of vehicles counted along the corridor at that location during the weekday. The capture rate of WiFi devices is generally expected to be between 10 to 20 percent of the traffic volumes on the adjacent roadway, which provides a statistically significant sampling of the data. Table 6 summarizes the estimated capture rates during the week along the corridor.

Table 6. Estimated WiFi Capture Rates

Location	Number of WiFi IDs Captured	Adjacent Intersection Average Daily Volumes	Capture Rate
South of I-90	2,537	17,600	14%
Newport Way NW	758	11,500	7%
E Sunset Way	1,677	17,200	10%
2nd Ave SE	2,234	10,300	22%
Southern City Limits	2,423	20,600	12%
May Valley Road	672	5,600	12%
Cedar Grove Rd	688	4,700	15%
North of SR 18	1,704	10,900	16%

As shown in Table 6, capture rates vary by location. Between 7 and 22 percent of the vehicles traveling along the corridor were detected, with an average of a 12 percent capture rate.

The capture rates were compared to traffic count information at intersections along the corridor, and where necessary, percentages were adjusted based on count information. Figures 13 through 24 show the resulting general traffic distribution during the AM and PM peak hours from and to different locations on and off the corridor.

During the morning commute, most trips along the corridor tend to be traveling north to either the Downtown area, I-90, or continue north along the corridor, accounting for between roughly 50 to 70 percent of northbound trips. A slightly smaller percentage of vehicles do peel off to May Valley Road, Newport Way, or Sunset Way as well. Sunset Way trips are typically using 2nd Ave SE, and account for between 15 to 20 percent of corridor trips. In the south end of the corridor, trips are mostly coming from SR 18 or areas south of the corridor (at roughly 50 percent of the trips), or Cedar Grove Road (at roughly 25 percent). An additional, slightly smaller, percentage of trips comes from May Valley Road and Tiger Mountain/Mirrormont.

The evening commute presents a more varied traffic distribution. A high percentage of trips are seen coming from Newport Way and May Valley Road traveling south (between 20 and 30 percent each). A slightly lower percentage is coming from Sunset Way and utilizing 2nd Ave SE (between 15 and 20 percent). A variety of other locations to the north also generated southbound evening trips, each generating between 8 and 30 percent of the total. Of the trips that continue south out of the City along the corridor, nearly 70 percent continue off the corridor to SR 18 or 276th Ave SE. Other areas in the south end of the corridor – May Valley Rd, Cedar Grove Rd, and Tiger Mountain/Mirrormont – experience between 8 percent and 13 percent of corridor trips.

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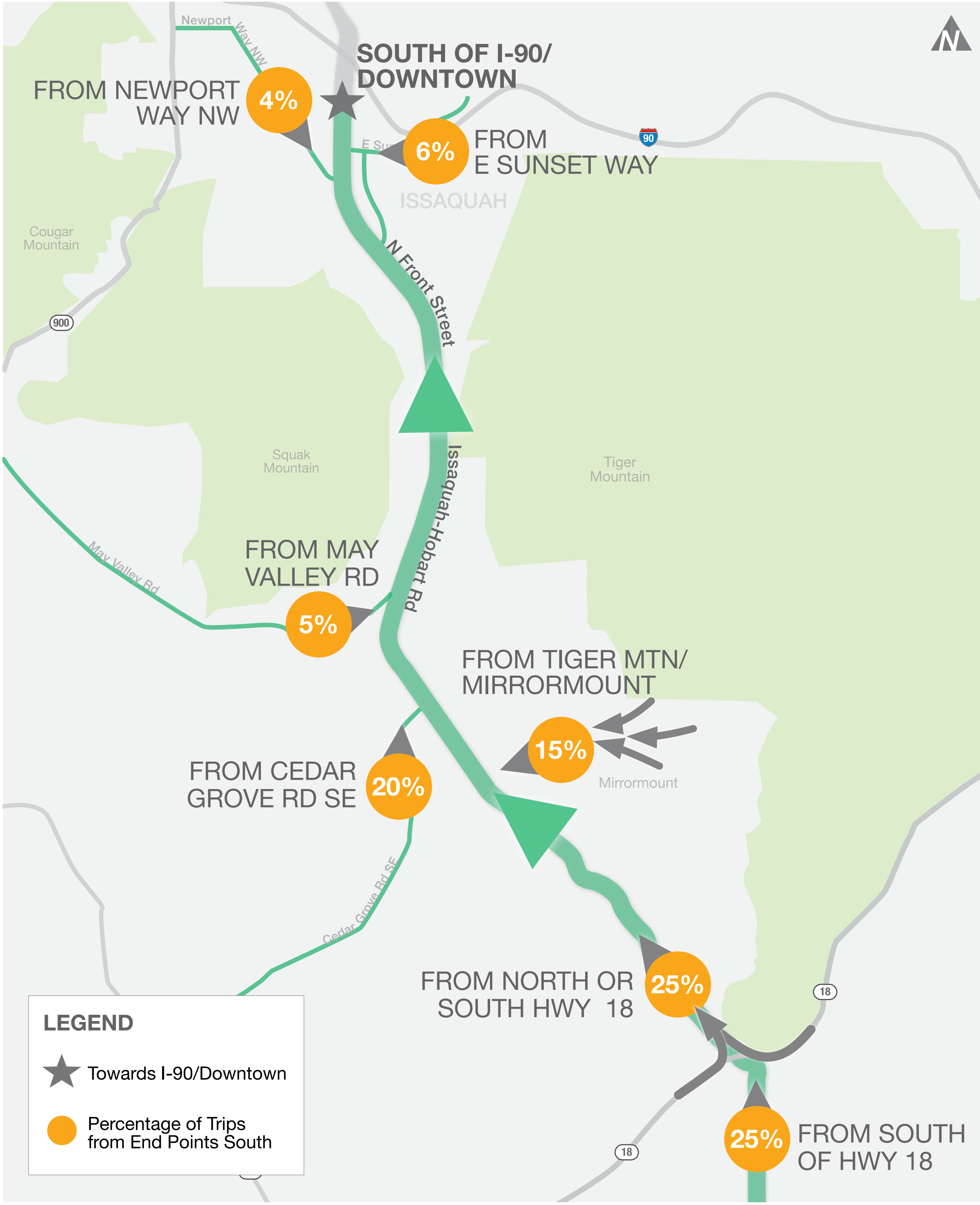

FIGURE
13

Traffic Distribution Towards I-90/Downtown – Northbound AM

Issaquah-Hobart Rd/Front St Corridor Study

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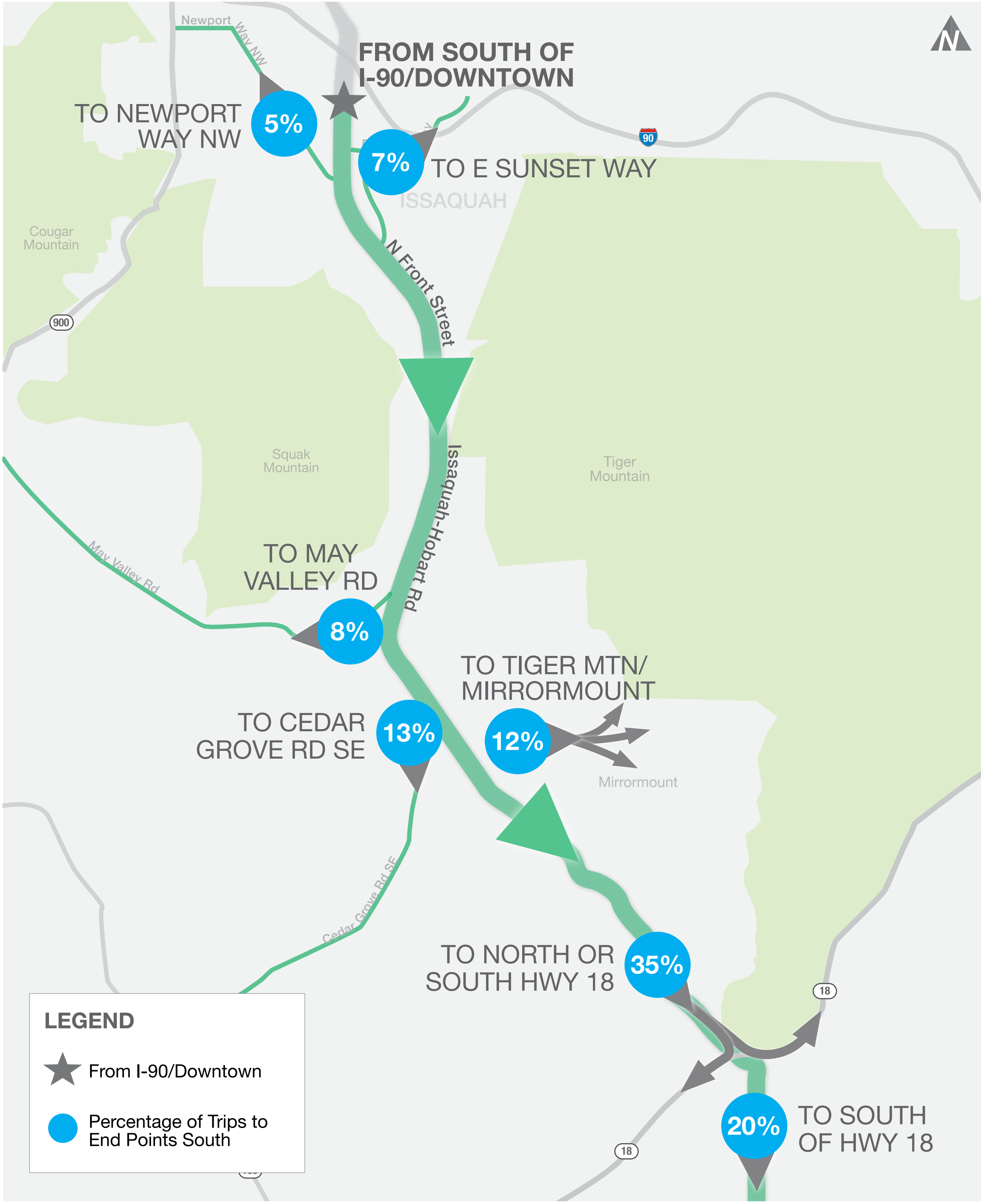


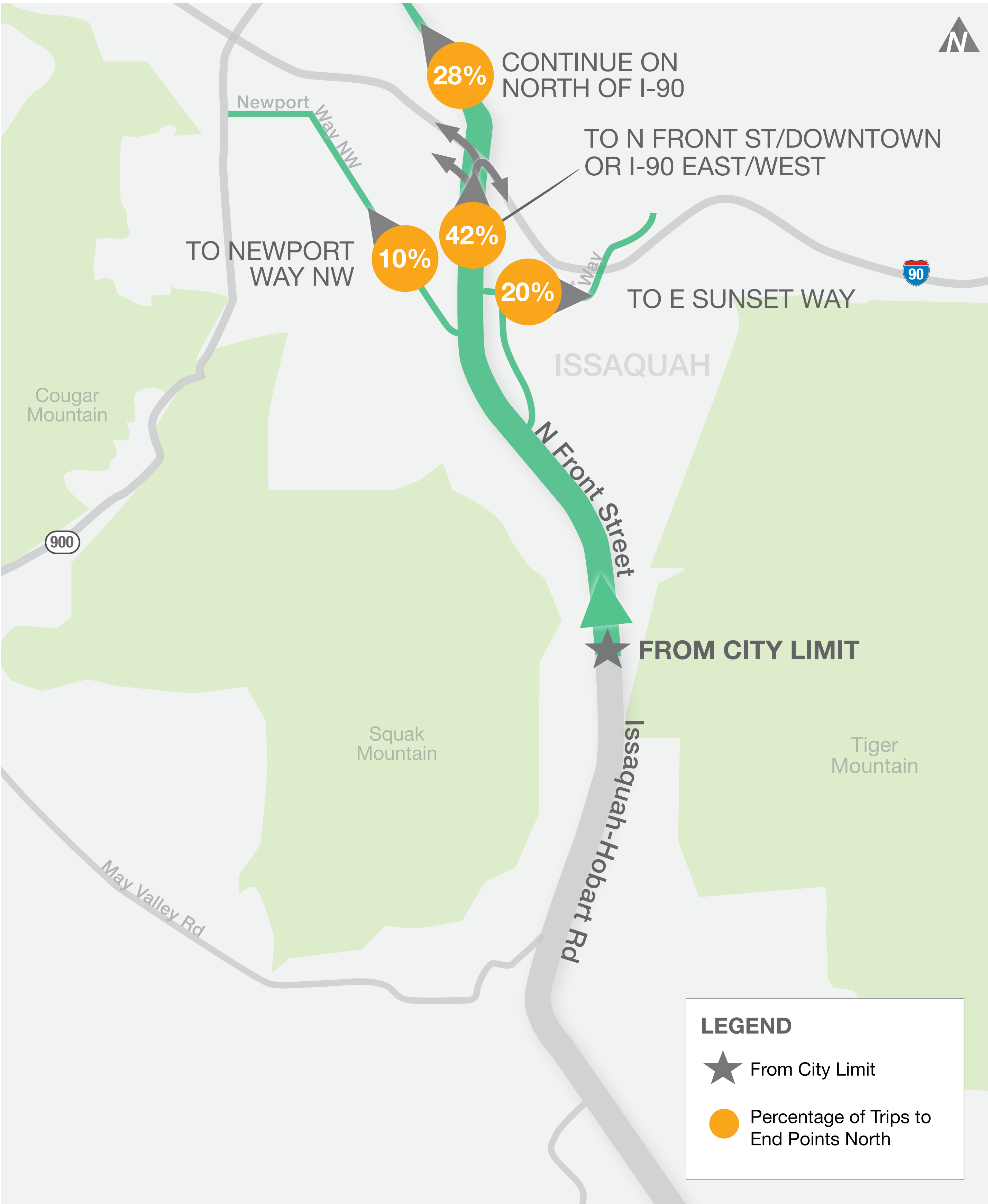
Traffic Distribution from South of I-90/Downtown – Southbound PM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
14

15261



Traffic Distribution from City Limit – Northbound AM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
15

15261

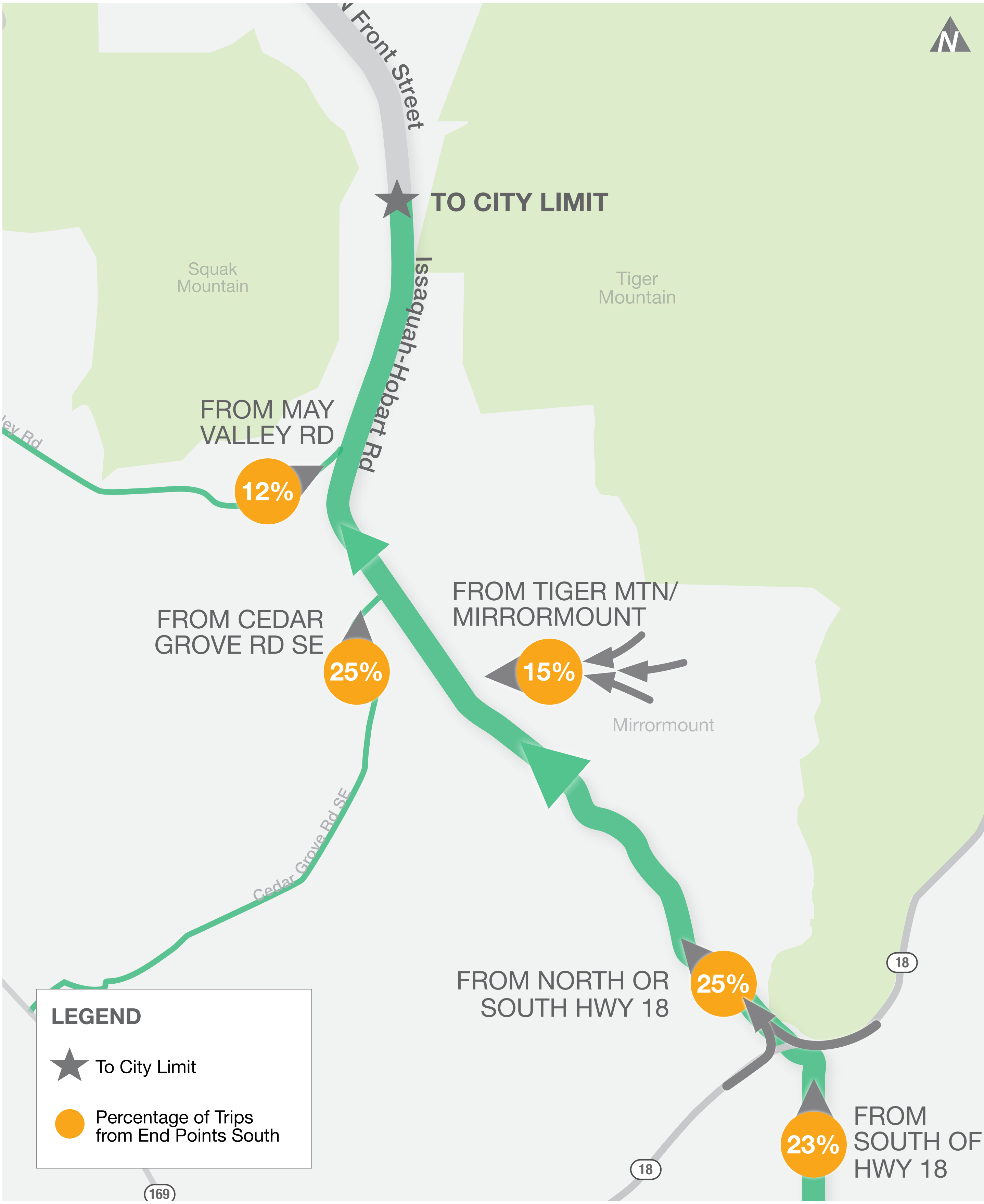
Traffic Distribution to South City Limit – Southbound PM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
16

15261



Traffic Distribution to South City Limit – Northbound AM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE 17

15261

Traffic Distribution from City Limit – Southbound PM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
18

15261

Traffic Distribution from May Valley Road – Northbound AM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
19

15261

Traffic Distribution to May Valley Road – Southbound PM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
20

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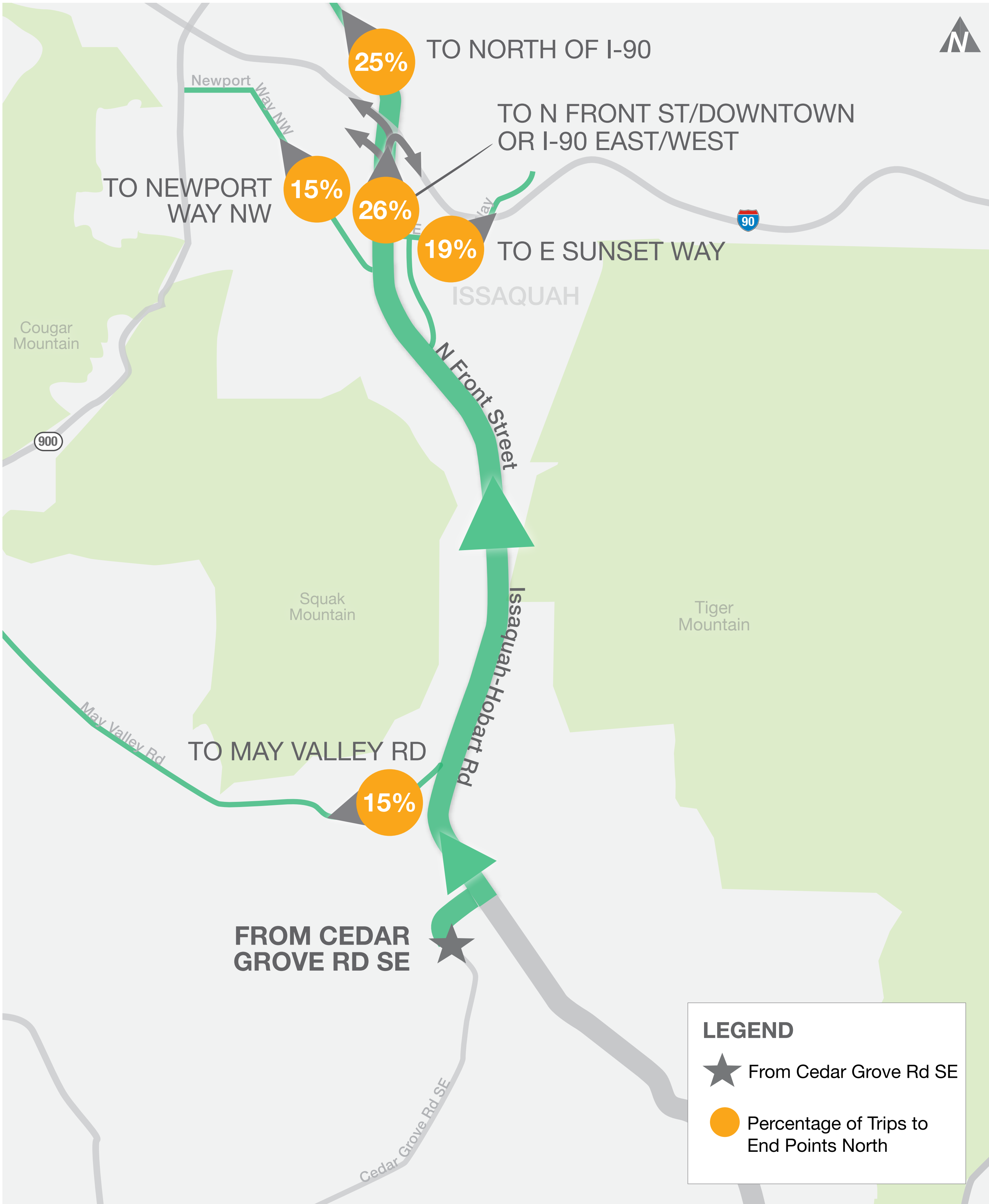

Traffic Distribution from Cedar Grove Road SE – Northbound AM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
21

Traffic Distribution to Cedar Grove Road SE – Southbound PM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE 22

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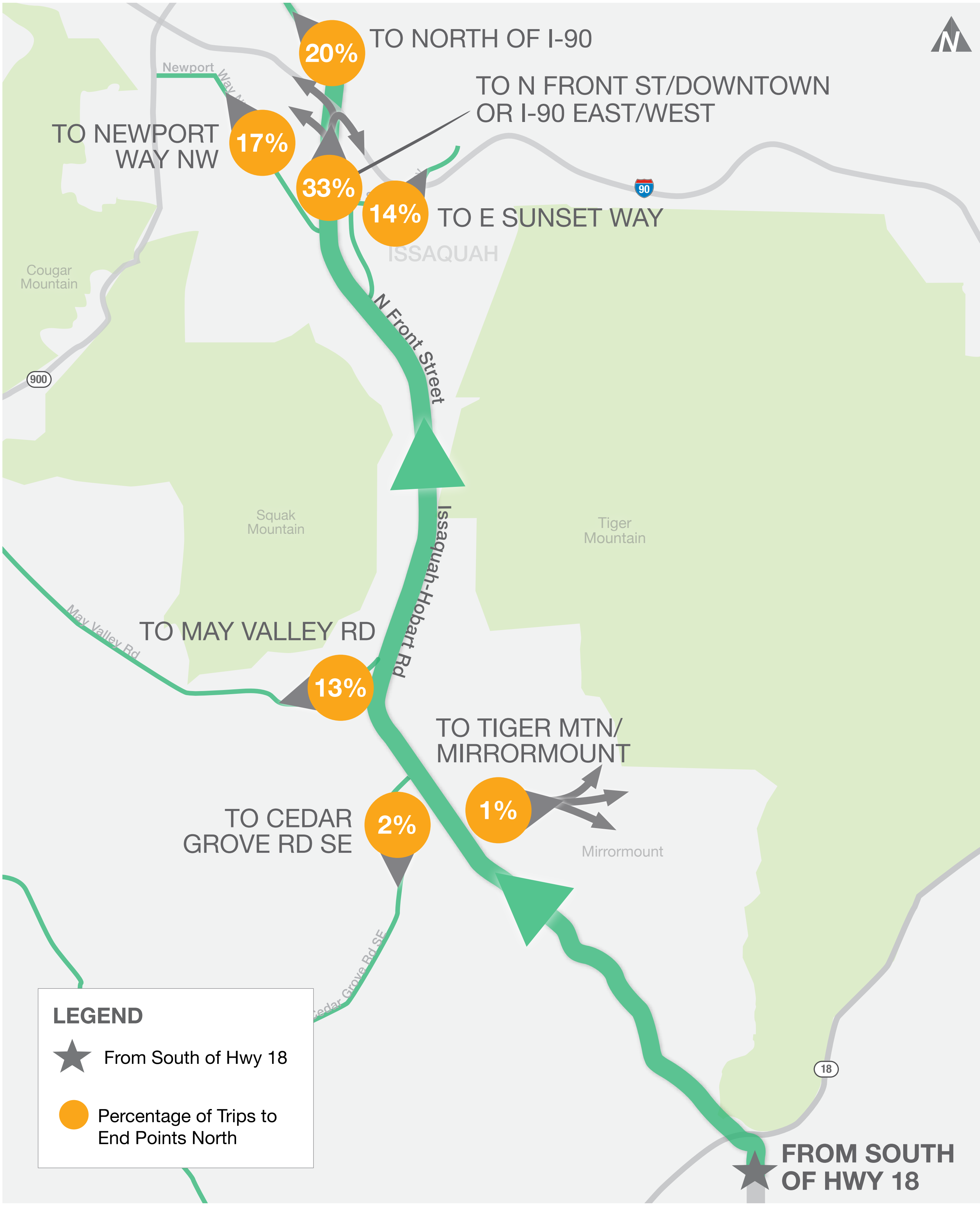


Traffic Distribution from South of Hwy 18 – Northbound AM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
23

15261

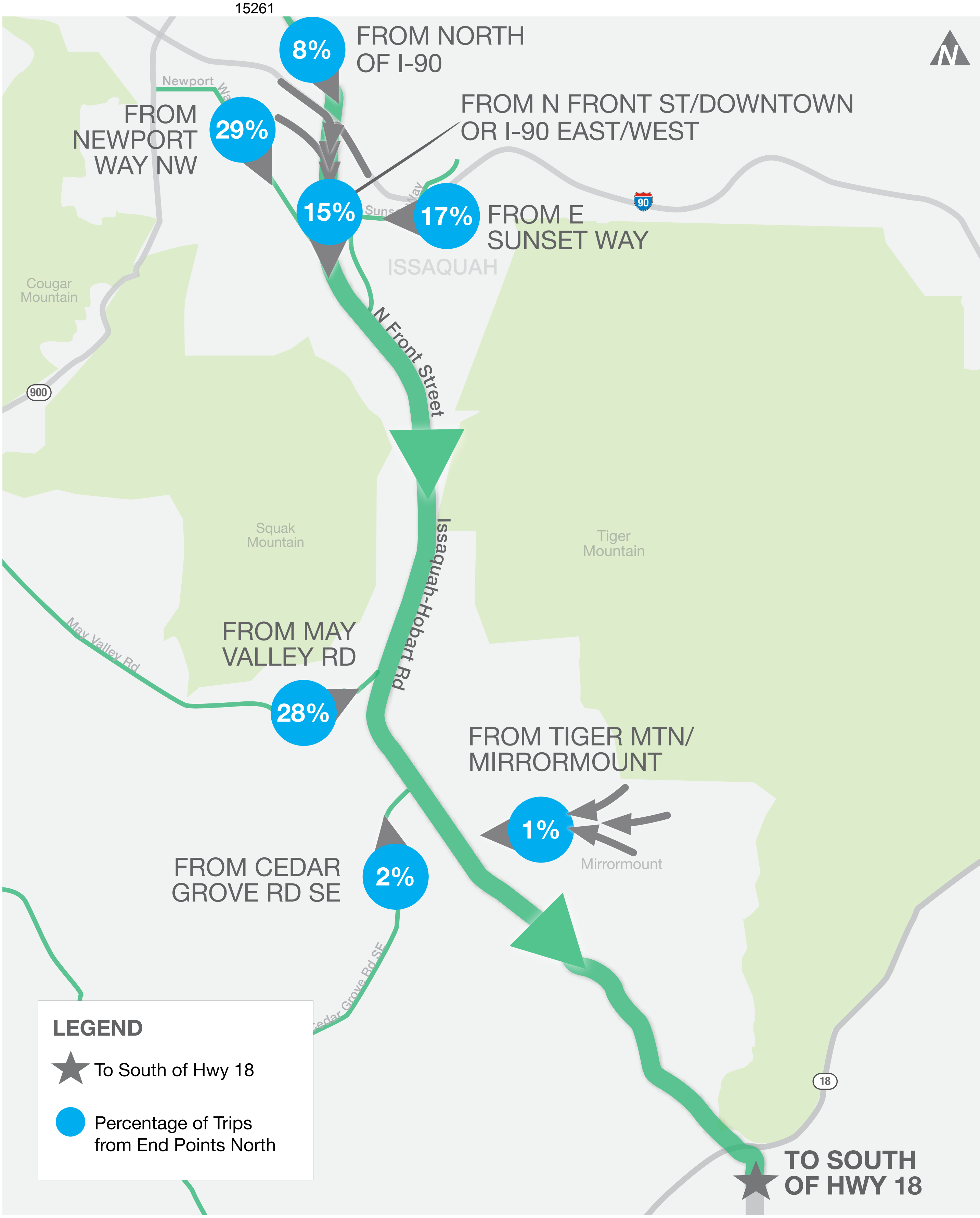


FIGURE 24

Traffic Distribution to South of Hwy 18 – Southbound PM

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

Vehicle Speeds

Vehicle speeds were collected along the corridor to document where vehicles may be traveling above the speed limit. Several factors were evaluated to determine this. The methodology for the evaluation is described below, as well as a summary of the data collected.

Methodology

Speed studies use a variety of metrics, including the median speed, 85th percentile speed, 10 mph pace, percent in pace, and percent of vehicles 5 mph over the speed limit. The definition and purpose of these speed indicators are described below.

Median Speed – The speed in which 50 percent of all traffic is traveling at or below. This statistical measure is typically used as a point of reference in understanding the prevailing conditions. The median speeds should be under the posted speed limit.

85th Percentile Speed – The speed in which 85 percent of the traffic is traveling at or below. Typically, the 85th percentile speed should be within 5 to 10 mph of the posted speed.

10 mph Pace – The 10 mph pace is a measure of the range in speeds and is defined as the consecutive 10 mph range containing the highest number of vehicles. Typically, the posted speed limit should be near the upper limit of the 10 mph pace.

Percent in Pace – The percent in pace represents the percentage of all vehicles traveling within the 10 mph pace. It is desirable to have a high percentage of the total number of vehicles in the 10 mph pace.

Percent of Vehicles 5 mph over the Speed Limit – The number of vehicles traveling over the posted speed limit by at least 5 mph. As a general guideline, speeding along a roadway segment may be an issue when more than 15 percent of the vehicles exceed the speed limit by at least 5 mph.

Data Summary

Table 7 summarizes the key speed indicators for places along the corridor using the data that was collected in April 2017. Appendix A shows the actual speed data by direction and hour.

Table 7. Speed Data Summary

Location	Posted Speed[1] (mph)	Direction	ADT[1]	Median Speed (mph)	85th Percentile (mph)	10 mph Pace	% in Pace	% of Vehicles 5 mph over Speed Limit[2]
City of Issaquah								
Front St	25	NB	9,600	30	34	25-35	76%	51%
s/o NW Holly St	25	SB	8,000	26	30	22-32	70%	17%
Front St	25	NB	7,400	18	25	13-23	58%	2%
s/o W Sunset Wy	25	SB	6,200	24	28	20-30	69%	8%
Front St	25	NB	9,300	28	32	23-33	67%	31%
s/o Newport Wy NW	25	SB	9,600	28	33	24-34	64%	35%
King County								
Issaquah-Hobart Rd	45	NB	10,200	41	45	36-46	70%	2%
n/o SE 106th Pl	45	SB	10,400	39	44	36-46	58%	1%

Source: Speed data collected in April 2017.
1. Average Weekday Daily Traffic.
2. Represents the vehicles exceeding the posted speed limit by at least 5 mph.

The speed data results summarized in Table 7 suggest the following:

- The 85th percentile ranges between 25 and 34 mph for both northbound and southbound directions in the City portion of the corridor. For the County portion, it is 45 mph for northbound and 44 mph for southbound. Typically, the 85th percentile speed should be within 5 to 10 mph of the posted speed, which is consistent with the data.
- The 10 mph pace is shown to be between 13 and 35 mph in the City segment and 36 to 46 in the County segment. The upper limits of the 10 mph pace should ideally be close to the posted speed limit. This is true for the County portion but in the City the upper limit is 10 mph higher than the speed limit.
- The percent of vehicles traveling 5 mph or greater over the posted speed limit of 25 mph in the City segment varies between data collection locations. Near NW Holly Street a large percentage are traveling 5 mph or more above the speed limit (51percent in the northbound direction and 17 percent in the southbound directions). The same is true near Newport Way NW, with over 30 percent for both northbound and southbound. In the County, the percentages are much smaller at only 1 or 2 percent. Typically, any location higher than 15 percent indicates a possible speeding issue or a location that needs to be further monitored.

The following speed graphs show percentage of vehicles by speed at the four locations from Table 7. Time frames for speeding vehicles were also reviewed and are described at each location. Overall, most vehicles traveling 5 mph or more over the speed limit occur in the opposite direction from peak travel (i.e. southbound in the AM or northbound in the PM). The off-peak direction of travel has fewer cars on the roadway and therefore less congestion, making the ability to speed along the corridor easier than when the roadway is congested. In some locations, the peak direction of travel in the AM also has vehicles traveling more than 5 mph over the speed limit. This occurs just south of Holly Street (Exhibit 5), where the two-lane roadway widens to four lanes, and just south of Newport Way (Exhibit 7), where the speed limit goes from 35 mph to 25 mph. At Newport Way, this speeding occurs just before and after the AM peak time period, as the true peak sees a decrease in speed due to congestion.

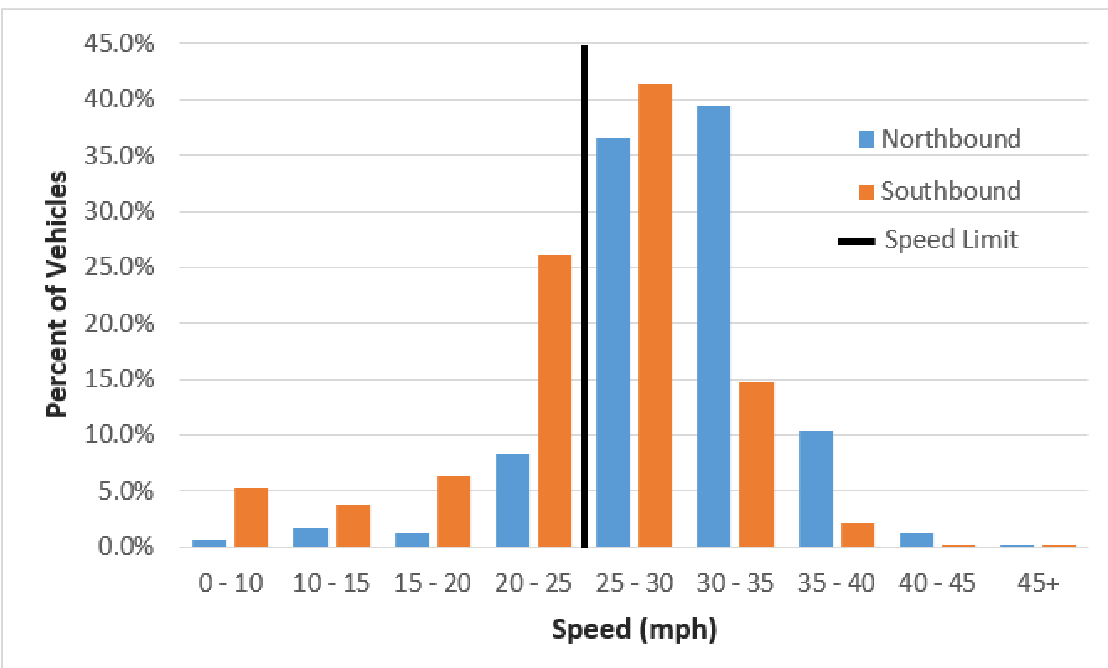


Exhibit 5. Vehicle Speeds by Direction: Front Street south of NW Holly Street

Consistent with the data in Table 7, Exhibit 5 shows a large percentage of vehicles traveling above the speed limit at Front Street south of NW Holly Street. This is true in both the northbound and southbound direction, with northbound showing a higher percent. The AM peak hours experience the highest number of vehicles traveling more than 5 mph above the speed limit, ranging from 5:00 a.m. to 10:00 a.m. in the northbound direction and 7:00 a.m. to 9:00 a.m. in the southbound direction.

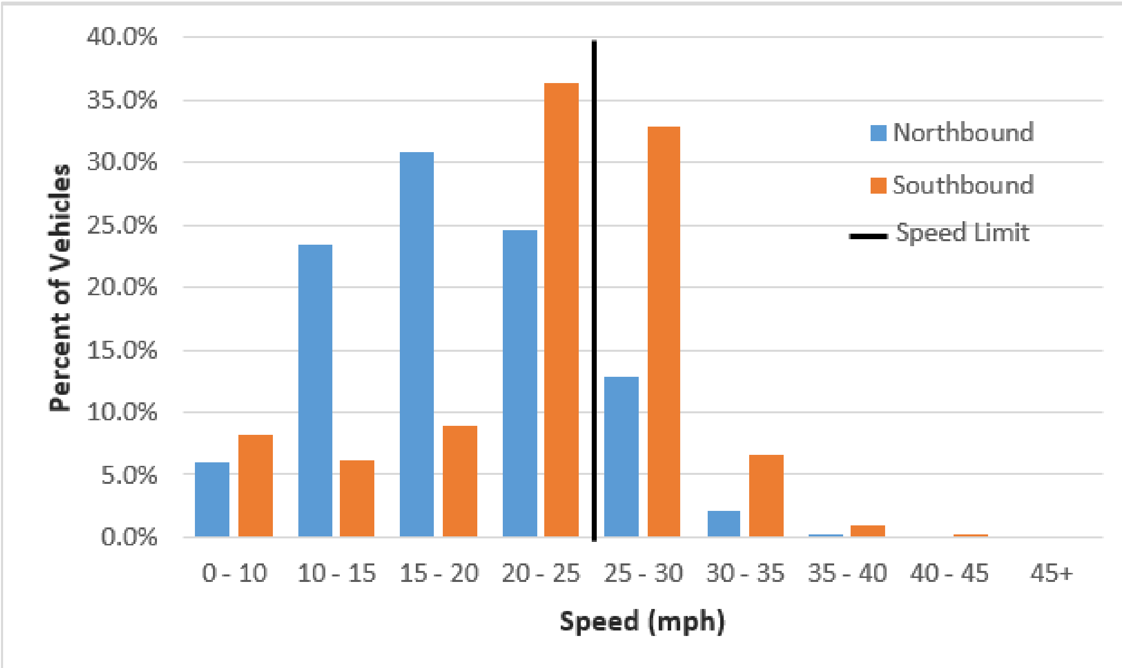


Exhibit 6. Vehicle Speeds by Direction: Front Street south of W Sunset Way

Along Front St south of W Sunset Way as shown in Exhibit 6, most of the vehicles in the northbound direction are traveling under the speed limit. This could be due to congestion or being stopped at the nearby traffic signal. In the southbound direction, the greatest number of vehicles are within 5 mph of the speed limit. Where there were vehicles traveling 5 mph or more above the speed limits, it mainly occurred in the AM peak hours, ranging from 5:00 a.m. to 7:00 a.m. in the northbound direction and 6:00 a.m. to 8:00 a.m. in the southbound direction.

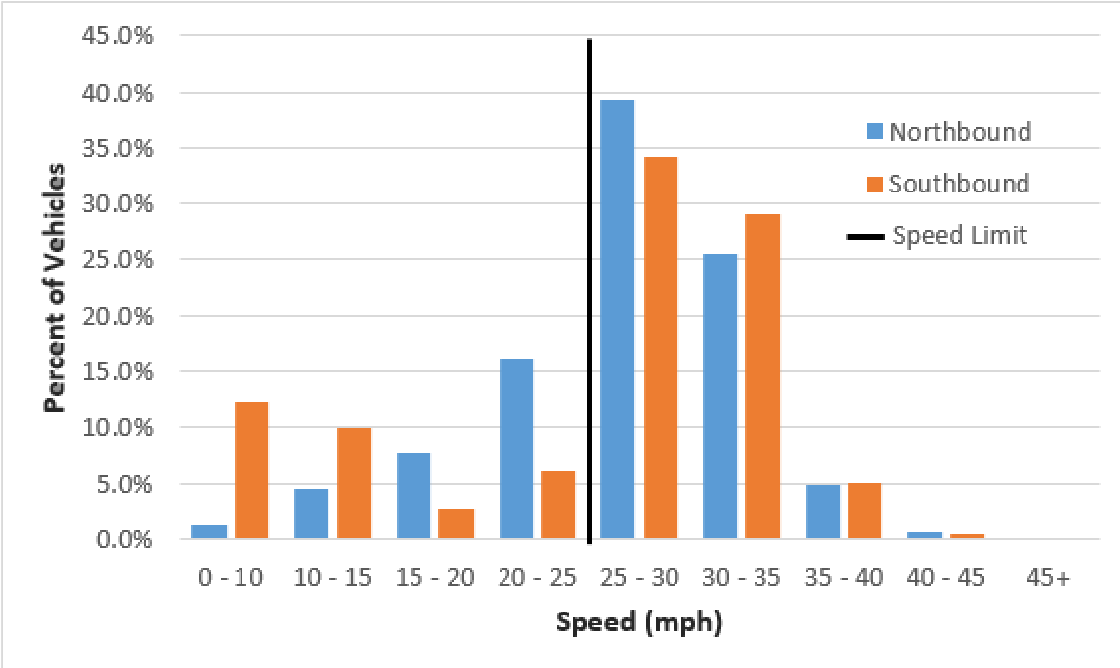


Exhibit 7. Vehicle Speeds by Direction: Front Street south of Newport Way NW

Near Newport Way NW along the corridor shown in Exhibit 7, a higher percentage of vehicles are above the speed limit than below in both the northbound and southbound directions. The majority of vehicles are within the 25-35 mph range for both directions as well. Where there were vehicles traveling 5 mph or more above the speed limits, it mainly occurred just outside the AM peak hours in the northbound direction, ranging from 5:00 a.m. to 9:00 a.m., and just after the PM peak hours in the southbound direction, occurring between and 6:00 p.m. to 8:00 p.m.

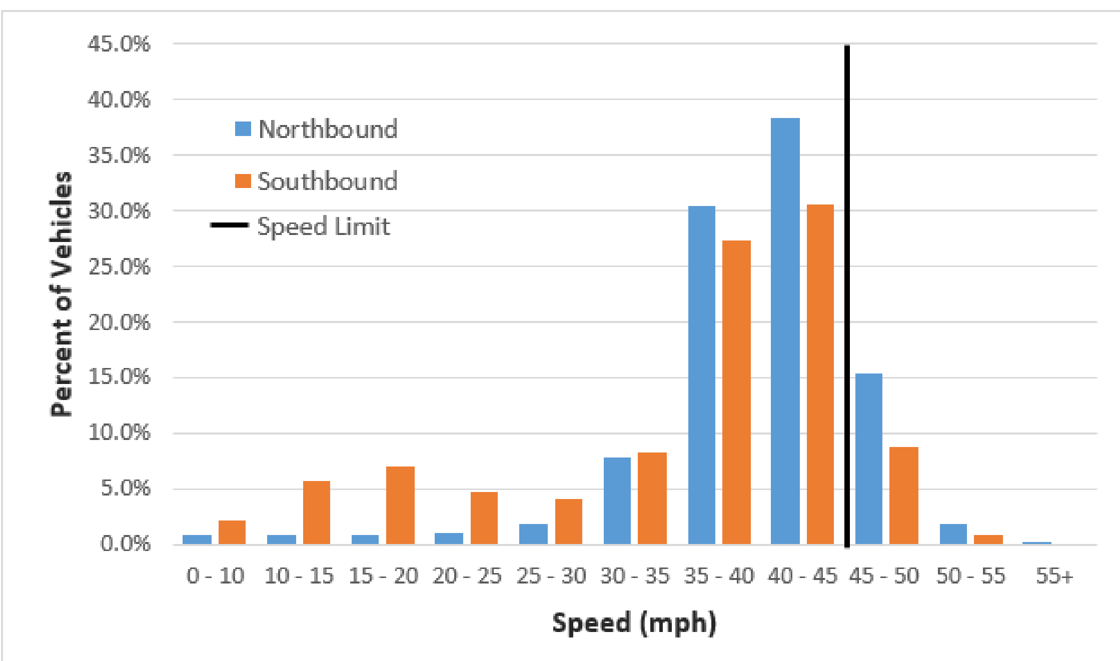


Exhibit 8. Vehicle Speeds by Direction: Issaquah-Hobart Road north of SE 106th Place

Just south of the City limits as shown in Exhibit 8, vehicle speeds are typically just under the speed limit. This is likely due to the change in speed limit from 35 to 45 at this segment, as well as the radar speed sign in the northbound direction.

Traffic Operations

AM and PM peak hour traffic operations were evaluated two different ways, by intersection and by corridor. Both of these are measured with Level of Service (LOS). At signalized study intersections, the LOS analysis method was based on Synchro reports, as requested by both the City and the County. At stop-controlled intersections, procedures identified in the *Highway Capacity Manual (HCM)* (2010) or in some cases where HCM 2010 methodology was prohibitive, using procedure from HCM 2000. All of the intersections were evaluated using Synchro version 9.0. For corridor operations, the LOS was analyzed using average travel speed in miles per hour. In the City this was compared to LOS thresholds outlined in Exhibit 16-4 in HCM 2010 and in the County it was compared to the LOS standards outlined in section 14.70.220 of the King County Code.

As mentioned in the travel time section, field data was collected by driving the corridor and recording time/location stamps every second. The corridor was driven at least 5 times in either direction during AM and PM peak hours. Data was collected in April and May 2017 on either a Tuesday or Thursday to avoid the impact of the Wednesday early release for the school district. The recorded time/location stamps were used to generate travel delay heatmaps illustrating average speed in either direction during AM and PM peak hour travel. The heatmaps for AM northbound travel and PM southbound travel are provided along with corresponding intersection LOS in Figure 25 and Figure 26 respectively. The field data collected by driving the corridor was also used to calibrate some intersection operations as described below (A full set of travel delay heatmaps for directional AM and PM peak hour travel is provided in Appendix C).

Intersection Operations

At signalized intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay and volume-to-capacity ratio (V/C). At stop-sign-controlled intersections, LOS is measured in delay per vehicle. Traffic operations for an intersection can be described alphabetically with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. The City of Issaquah has set an intersection LOS standard of D for intersections, with some exceptions. One of these exceptions is along the corridor – the intersection of Front Street & Sunset Way. This intersection may operate at LOS E or F according the section 18.15.250 in the Issaquah Municipal Code. Appendix D contains a detailed explanation of LOS criteria and definitions.

The LOS methodology was adjusted at intersections along the corridor to more accurately represent existing conditions. Due to the nature of travel in the peak directions, the original methodology did not take into account the unused green time (time the traffic signal is green but cars can’t get through) resulting from congestion backup at adjacent intersections, and as such the LOS was artificially better than what actually occurs on the corridor.

As recommended by the City and County, certain parameters were altered in the Synchro software to better demonstrate real-life conditions; these parameters were travel speed and saturation flow rate. For reference, the saturation flow rate is the number of vehicles per hour that can travel through a signal when it’s green. Once these factors were altered, the Synchro-calculated travel times were calibrated to documented travel times along the corridor. Most intersections could be calibrated closely to the documented travel times, however in the PM peak hour the intersections between Gilman Boulevard and Newport Way were not able to be fully calibrated due to restrictions in how much the travel speed and saturation flow rate could be reduced in the Synchro software.

The resulting existing weekday AM and PM peak hour LOS at study intersections are summarized in Table 8. The detailed LOS worksheets are included in Appendix E, with queue and LOS by movement is provided in Appendix F.

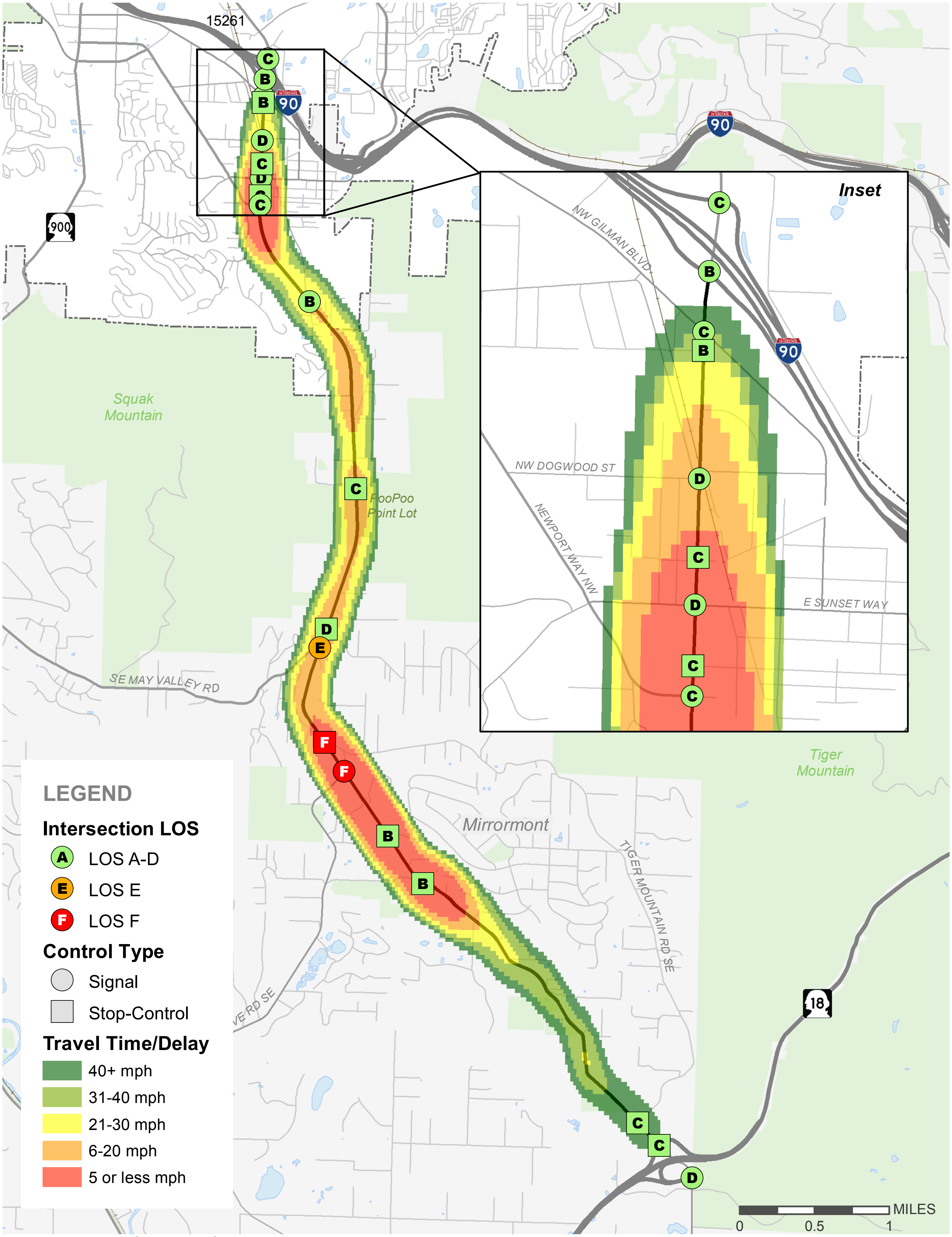
Table 8. Existing (2017) Intersection LOS Summary

	AM Peak Hour			PM Peak Hour		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
City Intersections						
1. Front St/I-90 WB Ramps	C	23.6	0.90	C	21.8	0.80
2. Front St/I-90 EB Ramps	B	18.2	0.67	D	35.1	0.90
3. Front St/Gilman Blvd	C	22.9	0.68	C	33.2	0.82
4. Front St/NW Holly St	B	10.6	EB	B	10.7	EB
5. Front St/NW Dogwood St (west leg)[6]	D	22.7	EB	C	18.9	EB
6. Front St/NW Alder St	C	18.1	EB	C	20.1	WB
7. Front St/Sunset Wy[5]	D	44.4	0.89	F	132.7	1.41
8. Front St/SE Bush St	C	15.0	WB	C	17.3	WB
9. Front St/Newport Wy	C	24.3	0.75	D	42.2	0.92
10. Front St/2nd Ave SE	B	14.8	0.82	C	26.8	0.96
County Intersections						
11. Issq-Hobart Rd/Poo Poo Pt	C	21.3	WB	B	14.7	WB
12. Issq-Hobart Rd/SE 132nd Wy	D	32.9	WB	C	21.2	WB
13. Issq-Hobart Rd/SE May Valley Rd	E	56.9	1.10	E	60.8	1.13
14. Issq-Hobart Rd/Tiger Mtn Rd SE (N)	F	78.9	WB	D	27.2	WB
15. Issq-Hobart Rd/Cedar Grove Rd	F	107.4	1.22	B	17.1	0.85
16. Issq-Hobart Rd/SE Mirrormont Blvd	B	13.2	WBR	C	20.9	WBL
17. Issq-Hobart Rd/SE 156th St	B	11.0	EB	C	18.0	EB
18. Issq-Hobart Rd/Tiger Mtn Rd SE (S)	C	18.4	WB	D	25.0	WB
19. Issq-Hobart Rd/SR 18 WB Ramps	C	17.5	WBTL	C	21.3	WBTL
20. Issq-Hobart Rd/SR 18 EB Ramps	D	36.4	0.79	C	30.4	0.76

1. Level of service, based on Synchro methodology for signalized intersections and 2010 Highway Capacity Manual (HCM) methodology for unsignalized intersections. LOS reports in Appendix E provide information on which methodology was used at which intersection.
2. Average delay in seconds per vehicle.
3. Volume-to-capacity ratio reported for signalized intersections.
4. Worst movement reported for unsignalized intersections.
5. Intersection is exempt from LOS D standard, per 18.15.250 of Issaquah City Code.
6. Counts collected only for the west leg of the intersection.

As shown in Table 8, in the AM peak hour all of the City intersections operate at or above LOS D. In the PM peak hour, one of the City intersections operate at LOS F: Front Street/Sunset Way. This intersection is exempt from the City's LOS D standard.

While the County does not have an intersection LOS standard there are several intersections that operate at LOS E or F, indicating congestion and long delays. During the AM peak hour these intersections are Issaquah-Hobart Road/SE May Valley Road, Issaquah-Hobart Road/Tiger Mountain Road SE (N), and Issaquah-Hobart Road/Cedar Grove Road. In the PM peak hour, the only intersection operating at LOS E in the County section is Issaquah-Hobart Road/SE May Valley Road.



Existing (2017)
AM Peak Hour Intersection LOS & NB Travel Delay

Issaquah-Hobart Rd/Front St Corridor Study

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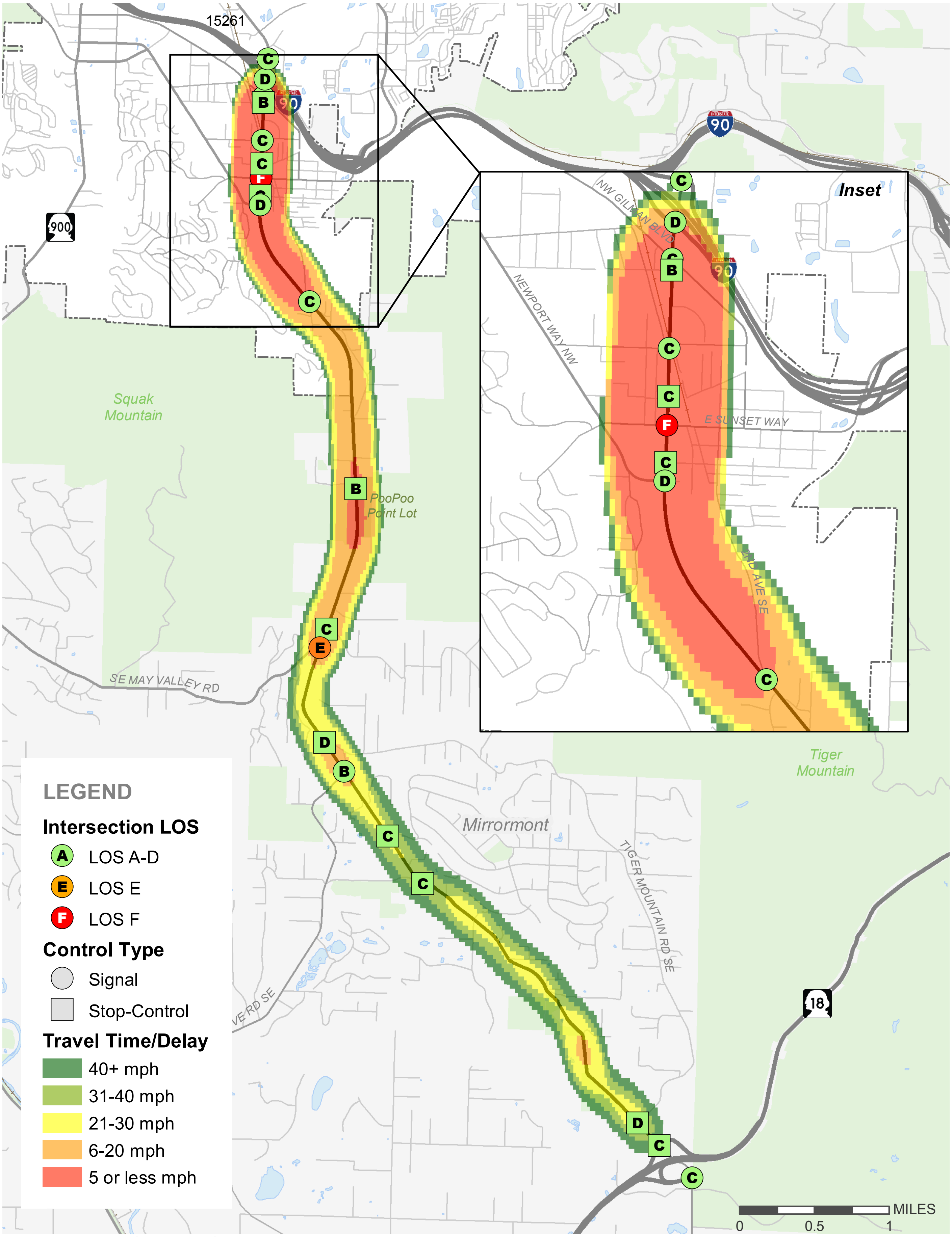
FIGURE
25



Exciting (2017)
PM Peak Hour Intersection LOS & SB Travel Delay

Issaquah-Hobart Rd/Front St Corridor Study

FIGURE **26**

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Corridor Operations

Corridor operations were documented using the travel time surveys. Travel time data was evaluated and converted to average travel speeds, then compared to either LOS thresholds outlined in Exhibit 16-4 in HCM 2010 for City segments or the King County LOS criteria for County segments, as defined in the King County Code. The County segment of the corridor is within the County's Urban Growth Area and as such has an LOS E standard; the City does not have a corridor LOS standard. In the County, Issaquah-Hobart Road is classified as a Principal Arterial and as such, an average travel speed of 13 mph or less would be considered LOS F and would not meet the standard. Table 9 summarizes the corridor LOS by segment.

Table 9. Corridor LOS Summary

	AM Peak Hour				PM Peak Hour			
	SB		NB		SB		NB	
Location	**Speed[1]**	**LOS[2]**	**Speed**	**LOS**	**Speed**	**LOS**	**Speed**	**LOS**
City								
Gilman Blvd to Sunset Way[3]	17 mph	D	26 mph	B	2 mph	F	14 mph	E
Sunset Way to Newport Way	9 mph	F	6 mph	F	2 mph	F	7 mph	F
Newport Way to 2nd Ave	32 mph	B	21 mph	D	8 mph	F	27 mph	C
2nd Ave to South City Limits	39 mph	A	21 mph	D	19 mph	D	34 mph	B
County								
South City Limits to May Valley Rd	44 mph	A	19 mph	D	17 mph	E	41 mph	A
May Valley Rd to Cedar Grove Rd	33 mph	B	12 mph	F	31 mph	B	42 mph	A
Cedar Grove Rd to SR 18	41 mph	A	10 mph	F	37 mph	A	41 mph	A

1. Based on data collected on Tuesdays and Thursdays in April and May, 2017.
2. LOS criteria according to Exhibit 16-4 in HCM 2010 for the City segments and section 14.70.220 in the King County Code for the County segments.
3. The speed in the AM peak hour in the southbound direction along this section is atypically low as one of the runs was impacted by a pedestrian crossing at Dogwood Street. Removing that run from the data yields an average travel speed of 23 mph in the SB direction.

As shown in Table 9, several segments of the corridor operate at LOS F during both the AM and PM peak hours. During the AM peak in the northbound direction, the County segment between SR 18 and May Valley Road operates at LOS F, as does the City segment from Newport Way to Sunset Way. During the PM peak hour, the City segment shows LOS F in the southbound direction between Gilman Boulevard and 2nd Avenue. The northbound direction shows LOS F from Sunset Way to Newport Way, then LOS E from Gilman Boulevard to Sunset Way. The poor LOS through downtown Issaquah in both directions is associated with delays at the traffic signals, on-street parking maneuvers, pedestrian crossings, and vehicles turning off the corridor. The County segment operates at LOS E or better in both directions during the PM peak hour.

During the AM peak hour, the corridor operations are affected not just by the volume of vehicles, but also by school bus stops along the corridor. There are more than 20 stops in each direction between roughly 7 a.m. and 9 a.m, which require both lanes of traffic to stop while loading passengers. Another factor is the multiple drops in speed limit, going from 45 mph to 35 mph at the City Limit, then down again to 25 mph south of Newport Way. All of these factors slow traffic in the northbound peak direction.

In the PM peak hour, the corridor operations are impacted more heavily in the southbound direction, the peak direction of travel. In addition to the heavy vehicles volumes, there is a lot of activity, particularly in the downtown Issaquah area. As mentioned previously, this activity takes the form of on-street parking, vehicles turning on and off the roadway, and pedestrian activity at several crosswalks, all of which impact corridor travel speeds. There are also school bus stops leading up to and at the beginning of the PM peak hour, 22 of them between 2nd Avenue SE and May Valley Road. As mentioned previously, these impact corridor operations as they require both lanes of traffic to stop while loading or unloading.

Freight

In the past, the corridor has served as a route for truck traffic from I-90 to cut through to SR 18 as well as access sites along the corridor. Several of these sites are along Cedar Grove Road, such as Cedar Grove Composting and the Regional Landfill.

The Washington State Freight and Goods Transportation System (FGTS) is used to classify state highways, county roads, and city streets according to average annual gross truck tonnage they carry as directed by RCW 47.05.021. The FGTS establishes funding eligibility for the Freight Mobility Strategic Investment Board (FMSIB) grants and supports designations of HSS (Highways of Statewide Significance) corridors, pavement upgrades, traffic congestion management, and other state investment decisions.

The FGTS classifies roadways using five freight tonnage classifications, T-1 through T-5. Routes classified as T-1 or T-2 are considered strategic freight corridors and are given priority for receiving FMSIB funding. The classifications are as follows:

- **T-1:** Over 10,000,000 annual gross tonnage (over approximately 800 trucks per day).
- **T-2:** 4,000,000 to 10,000,000 annual gross tonnage (approximately 320 to 800 trucks per day).
- **T-3:** 300,000 to 4,000,000 annual gross tonnage (approximately 24 to 320 trucks per day).
- **T-4:** 100,000 to 300,000 annual gross tonnage (approximately 8 to 24 trucks per day).
- **T-5*:*** Over 20,000 gross tonnage in a 60-day period.

Along the corridor, I-90 to Sunset Way is currently classified as T-3 and Sunset Way south to SR 18 is classified as T-2. These corridors, as well as surrounding FGTS corridors, are shown in Figure 27.

Truck traffic along the corridor has changed recently. In the fall of 2016, the City of Issaquah changed their designated truck routes to prohibit trucks south of I-90 in the City[1]. Trucks not making local deliveries are prohibited along the corridor, as well as along E Sunset Way, Newport Way, and Maple Street. Trucks can access the corridor from I-90 by using SR 900 and connecting to Issaquah-Hobart Road via May Valley Road.

This re-routing has created some issues along the corridor at the May Valley Road intersection. These issues include the following:

- Geometry of the intersection – it is difficult for trucks to make an eastbound right turn (from eastbound May Valley Road to southbound Issaquah-Hobart Road) as it requires a tight turning radius. Larger trucks sometimes need to go into either the eastbound left-turn lane or into opposing lanes of traffic in the northbound direction in order to make the turn.
- Increased vehicles volumes on May Valley Road – as truck traffic increases, volumes increase and the amount of green time (time the traffic signal is green) for vehicles on May Valley Road also increases. This decreases the green time for vehicles along Issaquah-Hobart Road and can add to congestion along the corridor.
- Longer queues in the northbound direction – as more trucks make a northbound left turn onto May Valley Road, they take up more of the left turn lane. When vehicles start to line up in the turn lane and there are large trucks with trailers, traffic using the northbound through lane can be blocked, further adding to congestion along the corridor.

Data was collected at various locations along the corridor to evaluate the amount and type of vehicle traffic currently utilizing the corridor. The data is grouped by Federal Highway Administration (FHWA) vehicle classifications, which are shown in Exhibit 9. The data itself is summarized in Table 10.

[1] http://www.issaquahchamber.com/single-post/2016/10/12/Truck-Routes-Eliminated-From-Downtown-Issaquah

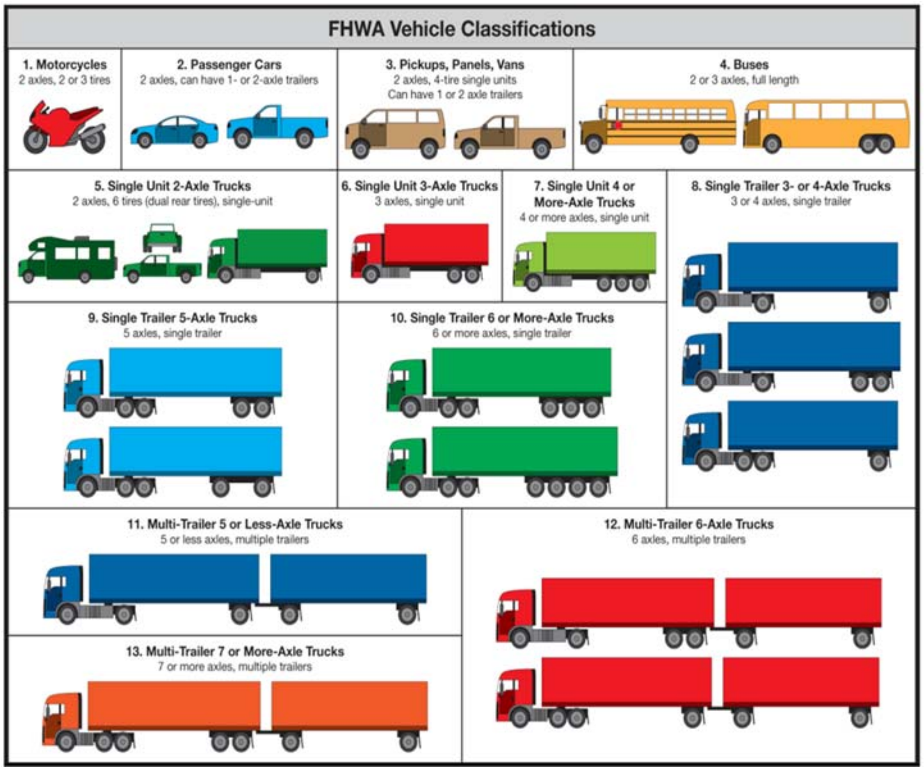
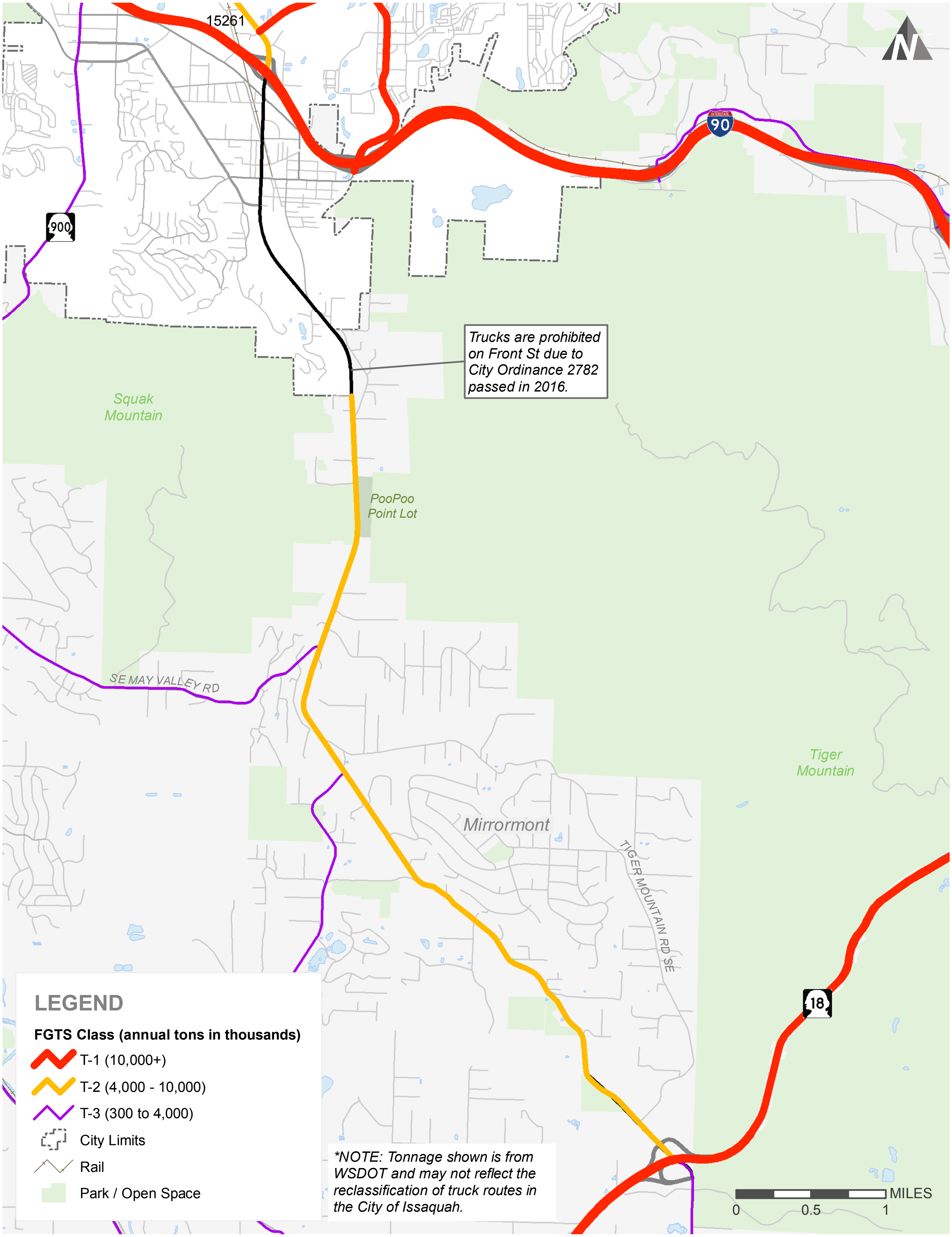


Exhibit 9. Federal Highway Administration Vehicle Classifications



Freight & Goods Transportation System (FGTS)

FIGURE
27

Issaquah-Hobart Rd/Front St Corridor Study

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Table 10. Daily Average Weekday Roadway Volumes by Vehicle Classification [1]

	Daily Volumes by Vehicle Classification[2]			
Location	**Tier 1**	**Tier 2**	**Tier 3**	**TOTAL**
Front Street s/o NW Holly St				
Northbound	8,810	745	15	9,570
Southbound	7,207	747	14	7,968
TOTAL	*16,017*	*1,492*	*29*	*17,538*
Front Street s/o W Sunset Wy				
Northbound	4,526	395	9	4,930
Southbound	3,876	235	5	4,116
TOTAL	*8,402*	*630*	*14*	*9,046*
Front Street s/o Newport Wy NW				
Northbound	*8,476*	*777*	*21*	*9,274*
Southbound	*8,857*	*738*	*20*	*9,615*
TOTAL	*17,333*	*1,515*	*41*	*18,889*
Issaquah-Hobart Road n/o SE 106th Pl				
Northbound	9,200	938	21	10,159
Southbound	9,596	830	17	10,443
TOTAL	*18,796*	*1,768*	*38*	*20,602*

1. Volumes represent an average of mid-week (Tuesday, Wednesday, and Thursday) volumes. Data was collected between 11/4/2017 and 11/11/2017.
2. Vehicle classification, as defined by the Federal Highway Administration (FHWA), are grouped into tiers. Tier 1 is classes 1 through 3, Tier 2 is classes 4 through 7, and Tier 3 is classes 8 through 13.

As shown in Table 10, the majority of vehicles at the corridor segments shown are in the Tier 1 classification. Less than one percent of the daily volumes are vehicles classified as Tier 3 in any of the locations, with less than 10 percent representing vehicles classified as Tier 2. Exhibit 10 below shows these percentages.

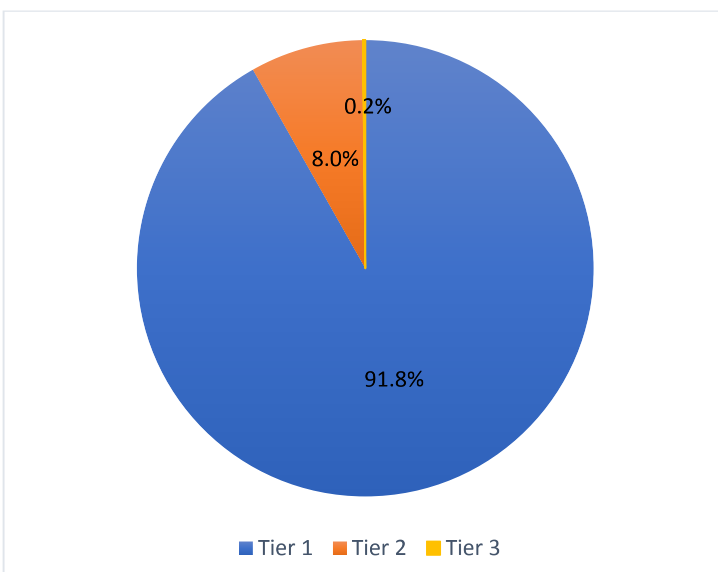


Exhibit 10. Average Vehicle Classification Along Front St/Issaquah-Hobart Rd Corridor

Interpretation/Summary

As shown by the data collected, the corridor is heavily travelled, accommodating over 20,000 vehicles daily on its most utilized segments. This heavy travel is particularly evident in the northbound direction during the AM peak period and the southbound direction during the PM peak period, which creates congestion that contributes to lengthy travel times. A good portion of the AM congestion occurs in the County segment of the corridor, particularly around May Valley Road and Cedar Grove Road, whereas in the PM peak period the congestion occurs mostly in the City.

The stop-and-go congestion on the corridor contributes to the occurrence of collisions, particularly rear-end collisions. In turn, these collisions contribute to travel times being unreliable each day. Other contributing factors to the inconsistency of travel times include school bus stops along the corridor, mid-block pedestrian crossings in the City downtown area, parking maneuvers for on-street parking, and left- and right-turn movements with no dedicated turn lanes.

The corridor not only serves those who live along it, but also communities to the south and west, as evidenced by the trip distribution along the corridor. It is used as an alternative to SR 18, SR 169, and SR 900 for those living in Renton Highlands, Maple Valley, Black Diamond, and beyond. It is also used as a bypass for trucks, but in 2016 the City eliminated truck routes south of I-90. Trucks now use SR 900 and May Valley Road to connect to the south, creating more congestion particularly at the May Valley Road intersection.

In the following chapter, the future conditions of the corridor are evaluated, taking into account land use growth forecasted in the surrounding areas. The corridor and intersection operations are analyzed and, in the subsequent chapter, projects are identified to address both existing and future corridor needs.

Future Conditions

The future conditions section builds on the existing conditions analysis. It provides forecasts of traffic volumes along the same corridor extents which are then analyzed operationally. The analysis of future traffic conditions uses the year 2040 as the forecast horizon, making it compatible with existing state and regional planning and forecasting efforts. The forecast conditions are based on assumptions of future employment and population growth that are consistent with those of related planning efforts in the region. In addition, the analysis also accounts for projected changes in transportation infrastructure. By comparing future conditions to existing operations, future improvement project needs are able to be identified (discussed in the next section).

Evaluation of future traffic conditions was based on forecasts of traffic volumes for the study corridor. To estimate future 2040 traffic volumes, the Puget Sound Regional Council travel demand model (PSRC model) was used to forecast traffic growth in the area. The data received from PSRC represents a 25-year growth period between 2010 and 2035. These estimates of traffic growth over a 25-year period were then applied as inputs to an existing year (2017) mesoscopic (meso) model to forecast and evaluate traffic volumes at specific roadways, intersections, and turning movements within the study corridor. Future 2040 traffic operations were evaluated based on the mesomodel outputs.

The following sections summarize the travel demand forecast, planned improvements, mesoscopic model development, travel forecasts, and future traffic operations.

Travel Demand Forecast

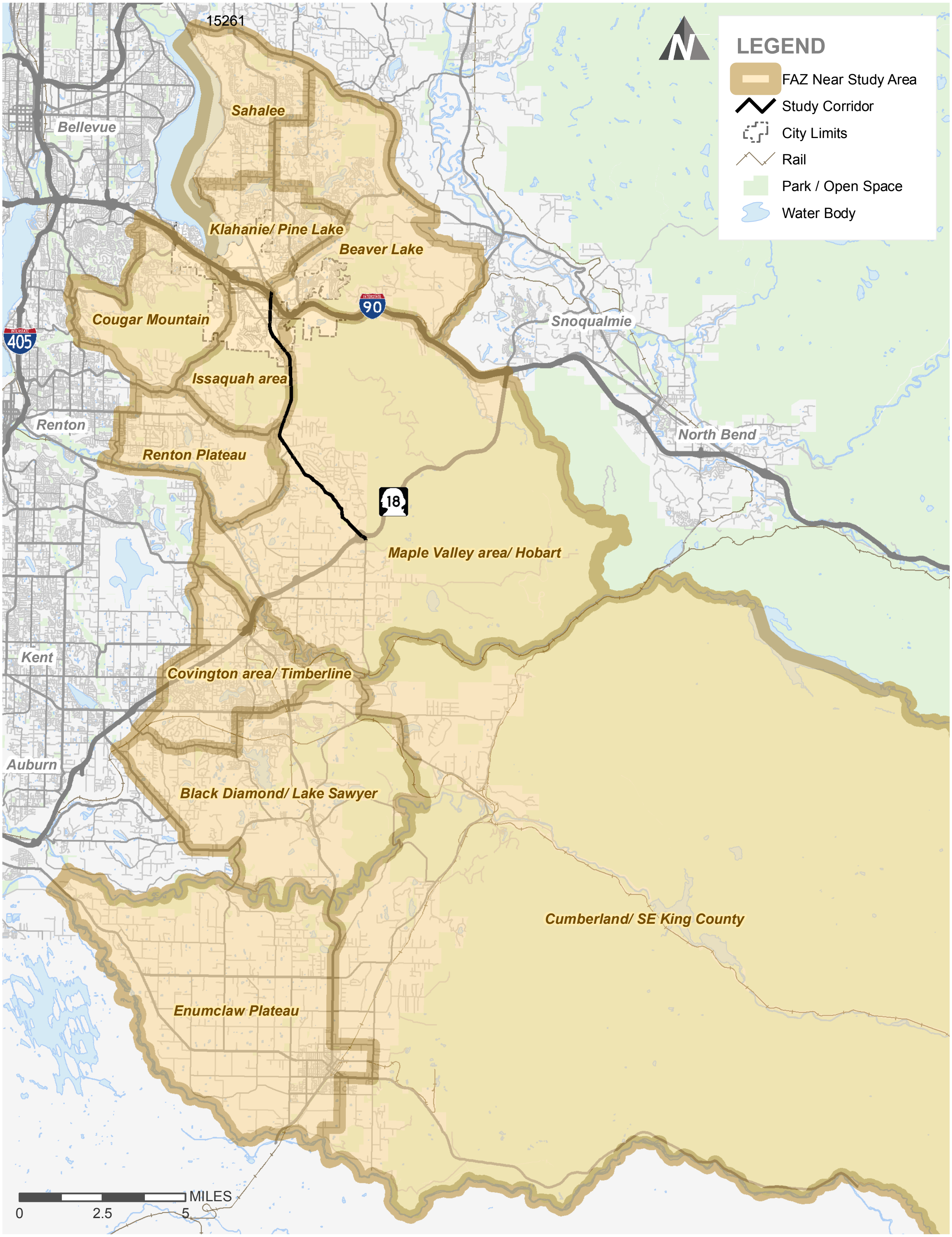
Travel demand models, otherwise known as macroscopic models, are forecast tools for citywide and regional applications. Macroscopic models incorporate land use to estimate travel demand by travel mode. Macroscopic models are often referred to as 4-step models and include trip generation, trip distribution, travel mode choice, and traffic assignment processes. To develop travel demand forecasts for this study, the PSRC travel demand model was utilized as it was the only model that included the entire study area to capture changes caused by regional growth.

Macroscopic Model Background

The PSRC, the region's Metropolitan Planning Organization (MPO), maintains and regularly utilizes a travel demand model[2] for purposes of regional transportation planning efforts. The growth in travel demand contained in the PSRC model is derived from estimates of regional population and employment forecasts based on economic indicators, but also on local and regional land use plans. The land use data contained in the model is summarized by specific geographic areas called Forecast Analysis Zones

[2] https://www.psrc.org/sites/default/files/travel_demand_white_paper_2009_final.pdf

(FAZs) and can contain several smaller cities or just a portion of a larger city. Both population and employment assumptions contained in the PSRC model are discussed in more detail in the subsequent sections. The data is summarized by FAZs in the immediate vicinity of the study area. A map of the FAZs is provided in Figure 28.



Study Area Forecast Analysis Zones (FAZs)

Issaquah-Hobart Rd/Front St Corridor Study

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FIGURE

28

Population Growth

PSRC estimates nearly 5 million people will live in the region by 2040[3] compared to approximately 3.5 million today. The strategy for accommodating the nearly 1.5 million new residents is found in PSRC's long-range plan, VISION 2040. The population forecasts are a key input in the PSRC model to estimate travel patterns and demand throughout the region.

Exhibit 11 below illustrates the anticipated growth over a 25-year time frame (between 2010 and 2035) in households for surrounding study area FAZs.

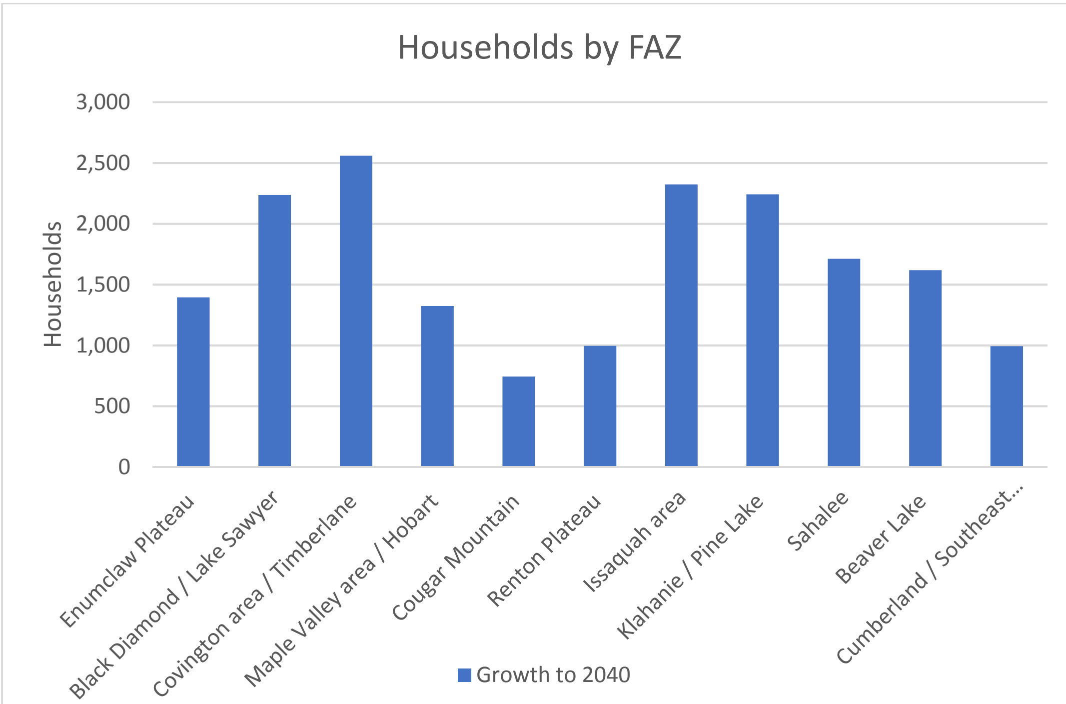


Exhibit 11. Household Growth by FAZ in the PSRC model (2010 to 2035)

As Exhibit 11 shows, the highest household growth is anticipated in the following FAZ areas:

- Black Diamond / Lake Sawyer
- Covington / Timberlane
- Issaquah
- Klahanie / Pine Lake

Each of these areas is expected to experience growth of over 2,000 households in a 25-year time period. The first two areas are located southwest of the corridor and will contribute increased traffic to both the study corridor and surrounding regional routes, such as SR 18 and SR 169. The remaining two areas are along and just north of the corridor and will also contribute to increased traffic along the corridor and other regional routes, such as SR 900 and I-90.

Of note is the planned growth in the Black Diamond FAZ. In the travel demand model, the FAZ is projected to grow by approximately 2,200 households over 25 years. While not included in the study forecasts, it should be noted that a development was approved in 2010 that would add more than 6,000

[3] https://www.psrc.org/regional-macroeconomic-forecast

homes (and a million square feet of commercial property) to the area. This large amount of growth will need to be kept in mind when considering future needs along the corridor.

Employment Growth

Over a million new jobs are anticipated within the PSRC region, growing total employment by 62 percent to 2.9 million jobs by 2040[4]. Exhibit 12 shows the anticipated growth in employment between 2010 and 2035 for the surrounding study area FAZs.

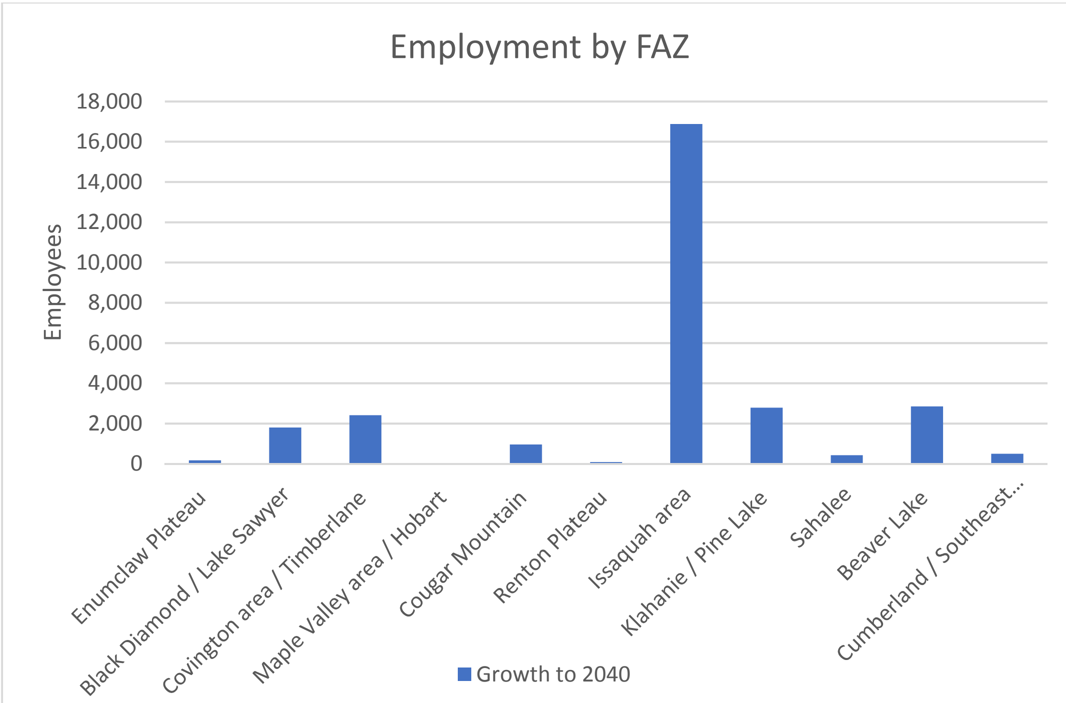


Exhibit 12. Employment Growth by FAZ in the PSRC model (2010 to 2035)

As shown in Exhibit 12, the most growth in employment is expected in the Issaquah area. Since this FAZ borders the corridor, it is anticipated that this growth would result in additional demands along the corridor.

The PSRC model was compared to the City of Issaquah's travel demand model to understand how local forecasts were reflected in the regional model. The City of Issaquah model has an existing year of 2013 and a future year of 2030. For comparison, the 2010 and 2035 model years were used from the PSRC model. The range of years from PSRC most closely matches the years from the Issaquah model. The annual growth rates were calculated by corridor segment for the PM peak hour to provide a consistent comparison. The comparison of annual growth rates is shown in Table 11.

[4] https://www.psrc.org/regional-macroeconomic-forecast

Table 11. Future PM Peak Hour Vehicle Annual Growth Rate Comparison

	Annual Growth Rate - SB		Annual Growth Rate - NB	
Segment	PSRC[1]	Issaquah[2]	PSRC[1]	Issaquah[2]
Gilman Blvd to Newport Way	0.4%	0.7%	2.1%	0.5%
Newport Way to 2nd Ave	1.5%	1.7%	2.4%	0.3%
2nd Ave to South City Limits	1.5%	1.9%	2.4%	-0.4%
South City Limits to May Valley Rd	1.5%	1.9%	2.5%	-0.4%
May Valley Rd to Cedar Grove Rd	1.5%	1.5%	1.8%	0.3%
Cedar Grove Rd to SR 18	1.0%	-[3]	0.7%	-[3]
Corridor Average	***1.3%***	***1.6%***	***2.0%***	***0.1%***

1. Calculated based on PSRC PM 3-Hour period volume growth from 2010 to 2035.
2. Calculated based on Issaquah model PM peak-hour volume growth from 2013 to 2030.
3. This segment of the study corridor was not included in the Issaquah model network.

As shown in Table 11, the annual growth rate in the southbound direction is similar between the two models. The Issaquah model does have slightly higher annual growth rates, but does not contain the full corridor, therefore the model is not necessarily sensitive to future delays at the southern end that impact travel route along the north end of the corridor.

In the northbound direction the Issaquah model shows minimal, or in some cases negative growth rates compared to PSRC's growth rates. The PSRC model growth rates are assumed to account for capacity constraints and alternative regional routes that influence travel behavior and have a direct impact on the resulting growth rates along the corridor. Based on this, and that the PSRC model covers a larger area and larger regional land use patterns, the PSRC model forecasts were used as a basis for developing future traffic volumes along the corridor.

Transportation Improvements

A review of local and regional capital improvement programs and long-range transportation plans was conducted to determine planned funded and unfunded transportation projects that would impact the corridor. The review included, but was not limited to, transportation plans from the Washington State Department of Transportation (WSDOT), King County, City of Issaquah, and Sound Transit. Table 12 provides a summary of transportation projects in the study area.

Table 12. Study Area Planned Transportation Improvements

Project Description	Responsible Agency	Expected Completion Year	Funded?[1]
1. **I-90 & Front Street IJR:** A study evaluating potential improvements to the interchange	WSDOT	2019	Yes
2. **I-90 & SR 18 Interchange Improvements.** Reconstruction of the interchange to improve travel times and safety. Includes widening of SR 18 to four lanes between I-90 and Deep Creek. Currently in the design phase.	WSDOT	2022	Yes
3. **SR 18 Widening from Issaquah Hobart Road to Deep Creek.** Widen to four lanes.	WSDOT	2040	No
4. **Link Light Rail to Central Issaquah.** Part of ST3, an extension of the light rail to Central Issaquah	Sound Transit	2041	Yes
5. **I-90 & Front Street Interchange.** Construction of the reconfiguration as proposed by the IJR.	WSDOT	Unknown	No
6. **Front St & Gilman Blvd.** Pre-design study for modification to the intersection.	City of Issaquah	Unknown	No
7. **Front St & Dogwood St.** Modification of the intersection, including a traffic signal.	City of Issaquah	Unknown	No
8. **Front St & Sunset Way.** Construction of left turn lanes on Sunset Way and according signal timing adjustments.	City of Issaquah	Unknown	No
9. **2nd Avenue Bike Facility.** Construction of an on-street bike facility south to Front St and north Sunset Way.	City of Issaquah	Unknown	No
10. **Sunset Way Bike Facility.** Construction of an on-street bike facility to connect west to Front St and east to I-90.	City of Issaquah	Unknown	No
11. **Fifteen Mile Creek Bridge Replacement**[2]	King County	Unknown	No
12. **Issaquah-Hobart Rd from City Limits to Cedar Grove Rd.** [2] Congestion relief measures (specific unidentified).	King County	Unknown	No
13. **Issaquah-Hobart Rd from Cedar Grove Rd to SR 18.** [2] Install ITS devices including cameras, message signs, and weather stations.	King County	Unknown	No
14. **Issaquah-Hobart Rd & May Valley Rd.** [2] Construction of a roundabout.	King County	Unknown	No
15. **Issaquah-Hobart Rd & Cedar Grove Rd.** [2] Construction of a roundabout.	King County	Unknown	No
16. **Issaquah-Hobart Rd from City Limits to SR 18**. [2] Roadway reconstruction (specific unidentified).	King County	Unknown	No

1. "Yes" means the project is fully funded for construction and "no" means the project is not fully funded as of 2017.
2. These projects are dependent on the outcomes of this study effort.

Several of the projects are regional and are expected to change travel along the corridor. These include the I-90/SR 18 interchange improvements, as well as the Link Light Rail extension project. Many of the projects have an unknown completion year due to lack of funding; a project start date in unable to be determined when it is not known when funding will be available, and as such a project completion date is unable to be determined. Specifically, the King County projects are located along the study corridor and are dependent on the outcomes of this study effort. Projects that were included in PSRC's Regional Transportation Plan, Transportation 2040, are included in their model and are therefore incorporated in the analysis.

Mesoscopic Model Development

While the PSRC model (a macroscopic travel demand model) was used to develop future travel demand for the study area, a mesoscopic (meso) model was used to analyze specific PM peak hour corridor traffic operations in the future. Meso models provide greater network detail than macroscopic models, including features such as intersection channelization and traffic signal timing. Many meso models are also referred to as dynamic traffic assignment (DTA) models. They are capable of analyzing multiple routing decisions based on travel time and detailed operational characteristics of a network such as lane change maneuvers, congestion, vehicle queuing, and delay at intersections. With these features, meso models are able to provide additional understanding of transportation system performance when regional highways and arterial roadways experience congestion. For this reason, a meso model was chosen for this analysis.

The meso model was built using Dynameq® software and is based upon the King County Dynameq model used in the Issaquah-Hobart Road Corridor Study completed by King County in 2010. This provides some consistency with past planning efforts in the area. The general scope of the model is the Issaquah-Hobart Road/Front Street corridor, including first/last mile connections with Tiger Mountain Road, Cedar Grove Road, May Valley Road, 238th Way, and major streets and arterials within the City of Issaquah.

The meso model has a base year of 2017, and a forecast horizon year of 2040. The model includes trip assignments for trips during the PM peak period (3:00 p.m. to 6:00 p.m.). The 3-hour time period provides the opportunity to evaluate impacts from increased congestion and peak spreading within the study area. The base year (2017) was calibrated to existing traffic volumes and traffic speeds in the area. An AM peak period model was not constructed as trip assignment for trips during the AM peak period was not available from PSRC. Appendix G provides further documentation of model methodology.

Baseline Traffic Volumes

Future PM peak period traffic volumes were drawn directly from the 2040 meso model which was built with PSRC model volume growth forecasts. The 2040 forecasts are referred to as “future baseline” traffic volumes. In addition to roadway volumes, intersection turning movements were also forecast for each of the study intersections. The intersection volumes were evaluated for reasonableness, and adjusted if necessary to account for model limitations. Table 13 shows a summary of the growth in PM peak hour traffic volumes by corridor segment.

Table 13. PM Peak Hour Traffic Volume Growth Summary by Corridor Segment

Location	2017 Volumes	2040 Volumes	Growth Volumes	Growth %	Annual Growth Rate
Southbound					
Gilman Blvd to Sunset Way	335	630	295	88%	2.6%
Sunset Way to Newport Way	435	645	210	48%	1.6%
Newport Way to 2nd Ave	830	1,065	235	28%	1.0%
2nd Ave to South City Limits	1,075	1,400	325	30%	1.1%
South City Limits to May Valley Rd	1,080	1,370	290	27%	1.0%
May Valley Rd to Cedar Grove Rd	1,265	1,550	285	23%	0.8%
Cedar Grove Rd to SR 18	990	1,200	210	21%	0.8%
Northbound					
Cedar Grove Rd to SR 18	315	445	130	41%	1.4%
May Valley Rd to Cedar Grove Rd	485	650	165	34%	1.2%
South City Limits to May Valley Rd	495	685	190	38%	1.3%
2nd Ave to South City Limits	430	620	190	44%	1.5%
Newport Way to 2nd Ave	350	415	65	19%	0.7%
Sunset Way to Newport Way	370	445	75	20%	0.7%
Gilman Blvd to Sunset Way	440	785	345	78%	2.3%

Source: Transpo Group

As shown in Table 13, the segment of the corridor which is expected to experience the most growth is in the City, between Gilman Boulevard and Sunset Way in both directions, both at over two percent. In the southbound direction, the percent growth is higher along this segment, however the actual growth volume is expected to be similar to other segments of the corridor (roughly between 200 and 300 vehicles). In the northbound direction the existing PM peak hour travel speeds are higher than the southbound direction, indicating room for growth. There is not as much anticipated growth in the southbound direction as this is the peak direction of travel in the PM peak hour. The roadway is at or near capacity along these segments during this time period and there is not room for a high amount of growth. As the northbound direction is not the peak direction of travel during this time period, some growth is expected but not a great amount.

AM peak period traffic volumes were not developed from the PSRC model, but were estimated using similar growth rates that were developed for the PM peak period. To estimate AM peak hour volumes, PM peak hour growth from existing to future conditions was calculated. The travel patterns of this growth were then switched to opposite directions, generally reflecting a reverse commute pattern. Reversing the growth rates is a common technique utilized in developing travel forecasts for corridors that have a prominent directional commute pattern. This process was utilized to develop estimates of AM travel forecasts at each study intersection and for each turning movement. The intersection forecasts were then evaluated for reasonableness, and adjusted if necessary, to account for specific details not captured in the forecasting process. Table 14 shows a summary of the growth in AM peak hour traffic volumes by corridor segment.

Table 14. AM Peak Hour Traffic Volume Growth Summary by Corridor Segment

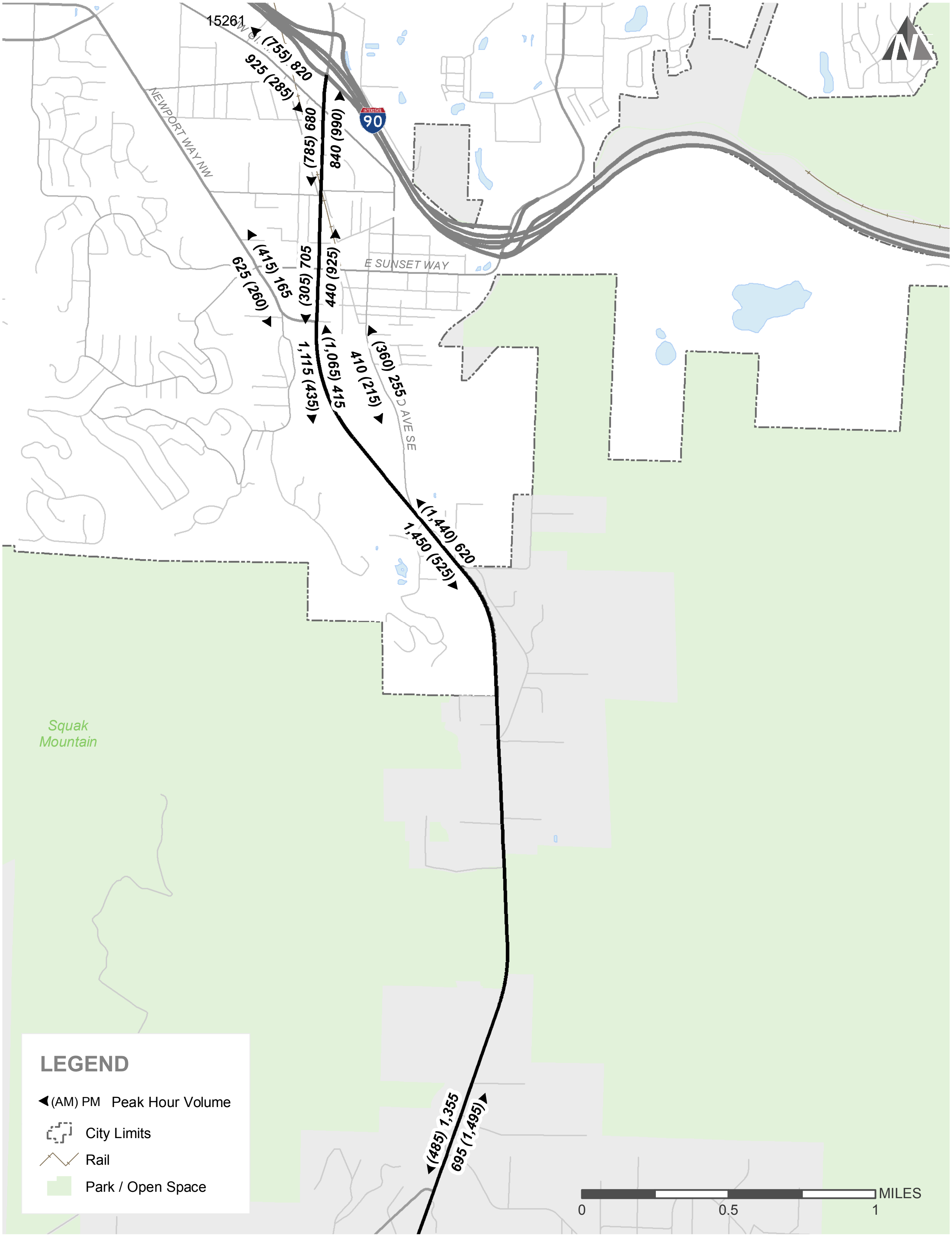
Location	2017 Volumes[1]	2040 Volumes	Growth Volumes	Growth %	Annual Growth Rate
Southbound					
Gilman Blvd to Sunset Way	350	675	325	93%	2.7%
Sunset Way to Newport Way	290	340	50	17%	0.6%
Newport Way to 2nd Ave	290	360	70	24%	0.9%
2nd Ave to South City Limits	305	500	195	64%	2.0%
South City Limits to May Valley Rd	315	505	190	60%	1.9%
May Valley Rd to Cedar Grove Rd	305	465	160	52%	1.7%
Cedar Grove Rd to SR 18	240	360	120	50%	1.6%
Northbound					
Cedar Grove Rd to SR 18	610	830	220	36%	1.2%
May Valley Rd to Cedar Grove Rd	1,070	1,360	260	27%	1.0%
South City Limits to May Valley Rd	1,160	1,470	185	27%	1.0%
2nd Ave to South City Limits	1,165	1,440	275	24%	0.9%
Newport Way to 2nd Ave	880	1,065	310	21%	0.8%
Sunset Way to Newport Way	605	865	290	43%	1.4%
Gilman Blvd to Sunset Way	670	970	220	45%	1.5%

Source: Transpo Group and King County
1. The 2017 volumes were collected between 7:00 a.m. and 9:00 a.m. and in the County section do not represent the true demand of the corridor due to congestion. Higher volumes occur prior to peak hour congestion, with a traffic volume of 1,250 vehicles just north of May Valley Road between 6:00 a.m. and 7:00 a.m.

As Table 14 shows, in general the southbound direction has slightly higher growth rates than the northbound direction. Given that the northbound direction is the peak direction in the AM peak hour and is already at capacity on several segments, the southbound direction would have more room for growth than the northbound direction. The segment which is expected to experience the most growth is from Gilman Boulevard to Sunset Way in the southbound direction, at a 2.7 percent annual growth rate. 2nd Avenue SE to May Valley Road is also expected to experience higher growth in the AM peak hour, at around two percent.

Of note in this growth summary is the time period for the AM peak hour. Data was collected between 7:00 a.m. and 9:00 a.m., which is a typical peak hour time frame. Several segments of the corridor have the highest AM traffic during this time period, however, particularly in the County section, 24-hour roadway counts from 2017 show higher traffic volumes prior to 7:00 a.m. For example, just north of May Valley Road from 6:00 to 7:00 a.m. shows a volume of 1,250 vehicles, compared to 1,160 in the Table 14. The peak hour was kept consistent across the corridor for analysis purposes, but any solutions along the County section should also consider the higher peak hour volumes from 6:00 to 7:00 a.m.

Figures 29 and 30 show the directional future baseline weekday AM and PM peak hour roadway volumes in the north and south segments of the corridor, respectively. The same directional shift that exists under existing conditions is apparent under future baseline conditions as well, with greater northbound volumes in the AM peak hour and greater southbound volumes in the PM peak hour. The middle segment of the corridor between 2nd Avenue SE and Cedar Grove Road continues to be the most heavily utilized segment. Vehicles split off to the north between Front Street and 2nd Avenue SE, and to the south along Cedar Grove Road and neighborhoods along the corridor. Intersection turning movement volumes for the AM and PM peak hour are also provided in Figures 31 and 32.



Future (2040) Baseline Weekday AM & PM Peak Hour Roadway Volumes - North

Issaquah-Hobart Rd/Front St Corridor Study

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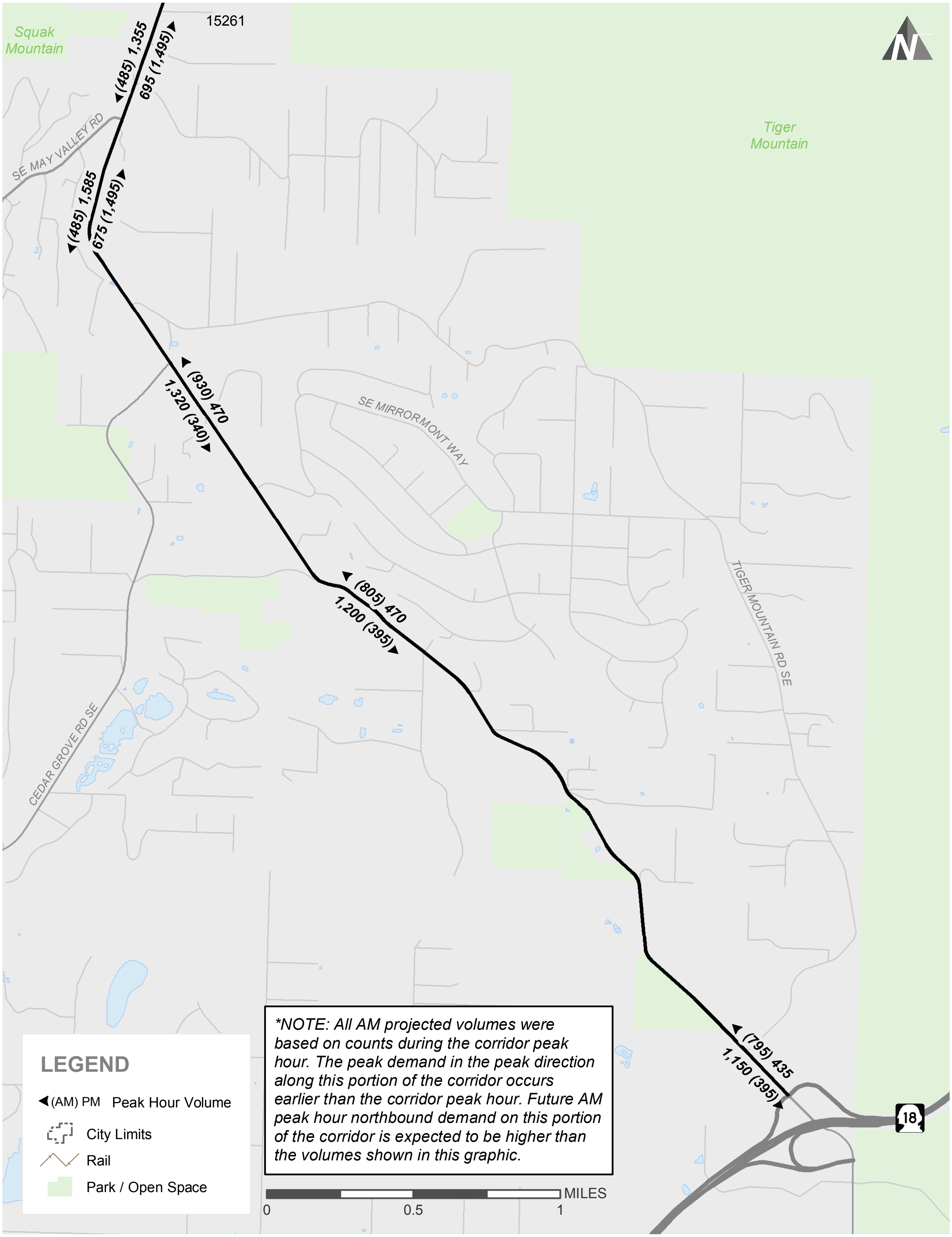
transpogroup

FIGURE 29



Future (2040) Baseline Weekday AM & PM Peak Hour Roadway Volumes - South

Issaquah-Hobart Rd/Front St Corridor Study

FIGURE **30**

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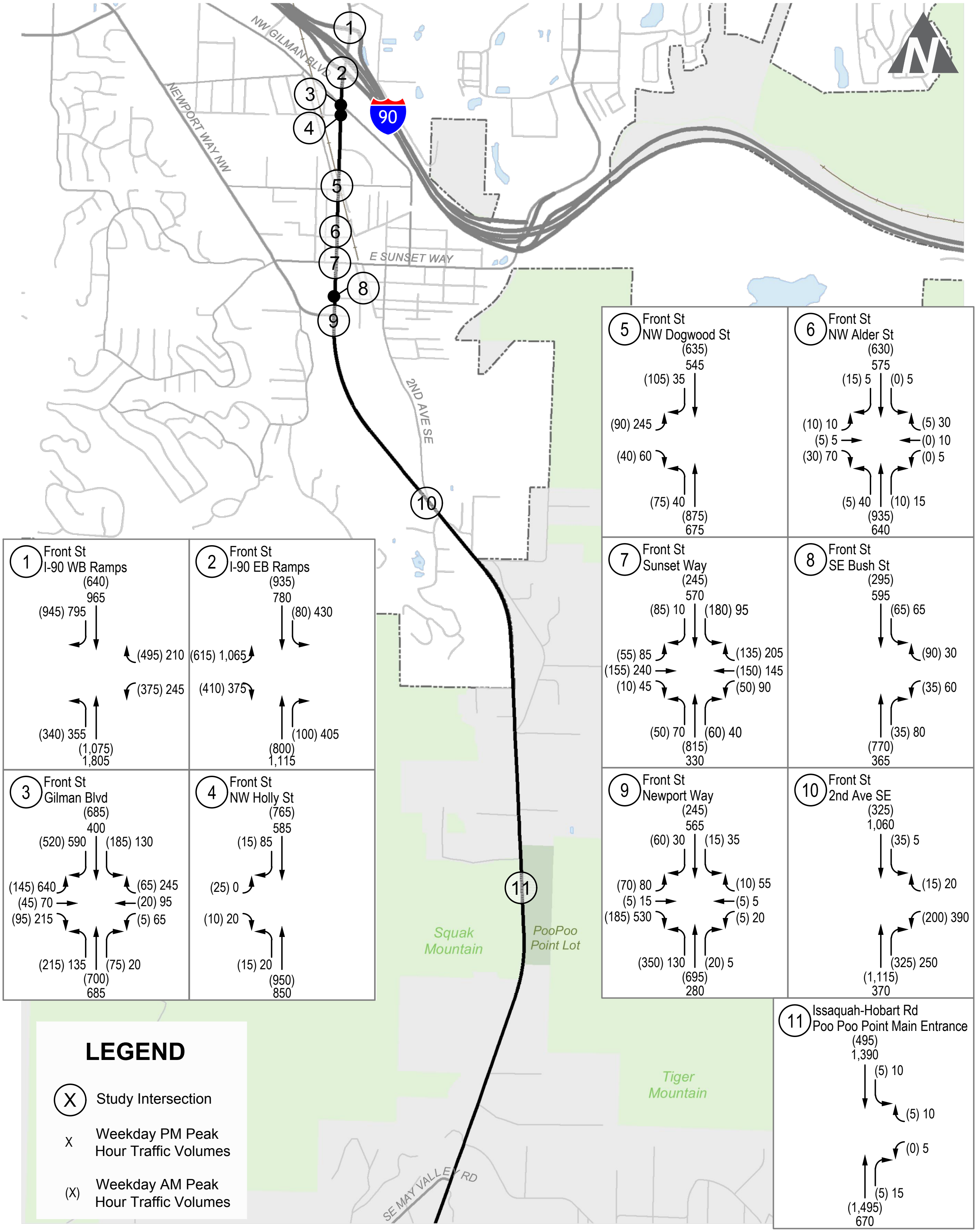
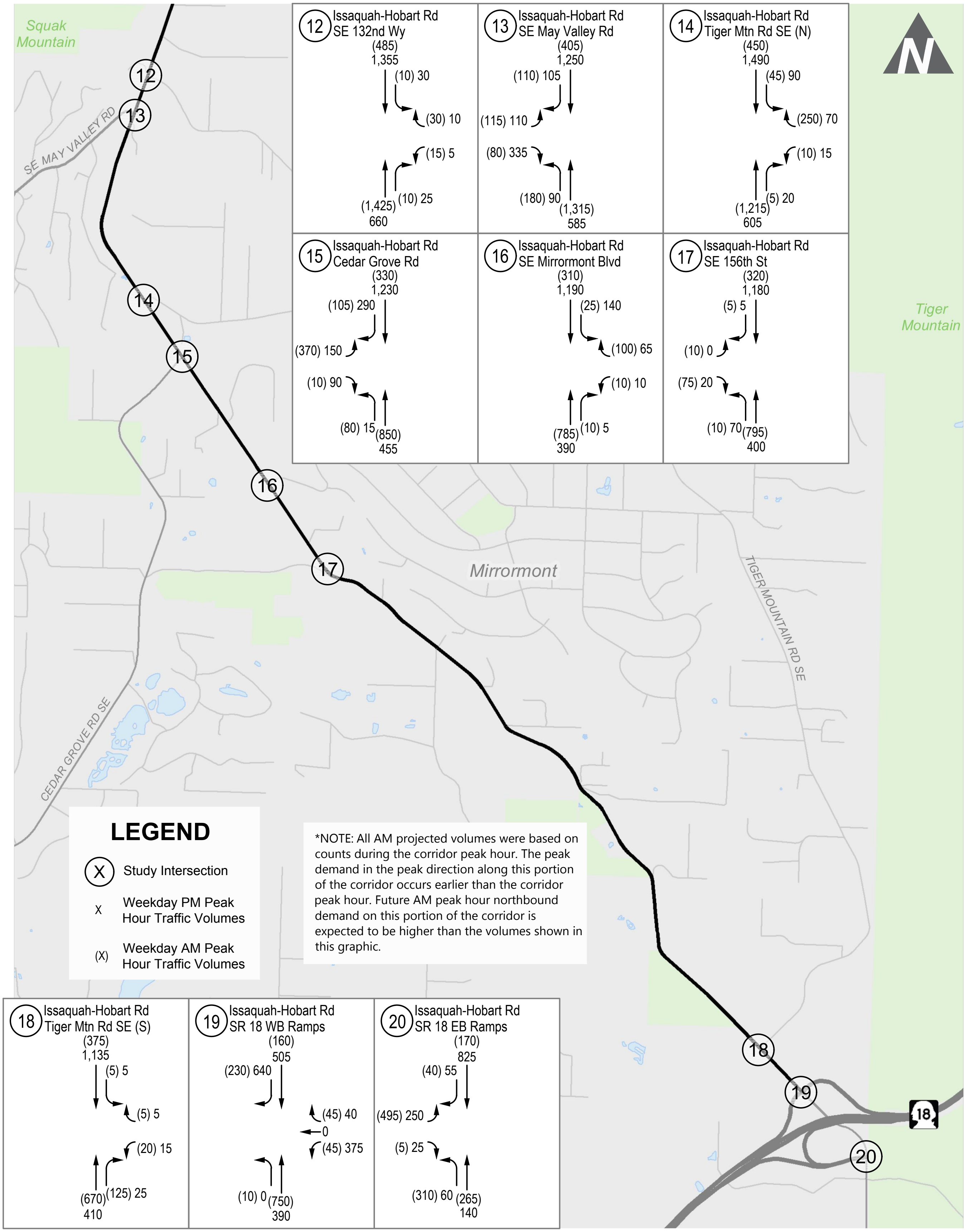


Future (2040) Baseline Weekday AM & PM Peak Hour Intersection Volumes - North

FIGURE 31

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup WHAT TRANSPORTATION CAN BE.



Future (2040) Baseline Weekday AM & PM Peak Hour Intersection Volumes - South

Issaquah-Hobart Rd/Front St Corridor Study

FIGURE 32

transpogroup WHAT TRANSPORTATION CAN BE.

Traffic Operations

Similar to existing conditions, both intersection and corridor operations were evaluated under future 2040 conditions. The following sections detail the methodology and results for both intersection and corridor analyses.

Intersection

Both AM and PM peak hour intersection operations were evaluated for the future baseline 2040 conditions. Intersection LOS was calculated at the study intersections using the LOS method described previously. Just as in existing conditions, the LOS methodology was adjusted at intersections along the corridor to more accurately represent intersection operations. Due to the nature of travel in the peak directions, the original methodology did not take into account the large demand of vehicles that were not getting through the intersection and as such the LOS was artificially better than what actually occurs on the corridor. The same saturation flow rate and speed adjustments that were used in the existing conditions analysis were used in the future conditions analysis. Signal timing at each intersection was optimized for future conditions. Tables 15 and 16 summarize the 2040 weekday AM and PM peak hour LOS, respectively. Figures 33 and 34 show both the existing and future AM and PM peak hour LOS along the corridor, respectively. The detailed LOS worksheets are provided in Appendix E, while queues and LOS by movement are provided in Appendix F.

Table 15. AM Peak Hour Intersection LOS Summary Comparison

	2017 Existing			2040 Future (Baseline)		
Intersection	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
City Intersections						
1. Front St/I-90 WB Ramps	C	23.6	0.90	C	30.0	0.93
2. Front St/I-90 EB Ramps	B	18.2	0.67	B	16.4	0.69
3. Front St/Gilman Blvd	C	22.9	0.68	C	22.6	0.89
4. Front St/NW Holly St	B	10.6	EB	B	14.6	EB
5a. Front St/NE Dogwood St (east leg)[5]	-	-	-	E	47.9	WB
5b. Front St/NW Dogwood St (west leg)	D	22.7	EB	F	277.6	EB
6. Front St/NW Alder St	C	18.1	EB	E	35.1	EB
7. Front St/Sunset Wy[5]	D	44.4	0.89	F	104.9	1.19
8. Front St/SE Bush St	C	15.0	WB	C	18.7	WB
9. Front St/Newport Wy	C	24.3	0.75	C	25.8	0.91
10. Front St/2nd Ave SE	B	14.8	0.82	D	48.2	1.05
County Intersections						
11. Issq-Hobart Rd/Poo Poo Pt	C	21.3	WB	D	31.1	WB
12. Issq-Hobart Rd/SE 132nd Wy	D	32.9	WB	F	68.3	WB
13. Issq-Hobart Rd/SE May Valley Rd	E	56.9	1.10	E	78.8	1.18
14. Issq-Hobart Rd/Tiger Mtn Rd SE (N)	F	78.9	WB	F	271.7	WB
15. Issq-Hobart Rd/Cedar Grove Rd	F	107.4	1.22	F	194.9	1.64
16. Issq-Hobart Rd/SE Mirrormont Blvd	B	13.2	WBR	C	18.3	WBR
17. Issq-Hobart Rd/SE 156th St	B	11.0	EB	B	11.8	EB
18. Issq-Hobart Rd/Tiger Mtn Rd SE (S)	C	18.4	WB	C	22.7	WB
19. Issq-Hobart Rd/SR 18 WB Ramps	C	17.5	WBTL	C	22.1	WBTL
20. Issq-Hobart Rd/SR 18 EB Ramps	D	36.4	0.79	E	63.0	0.93

1. Level of service, based on Synchro methodology for signalized intersections and 2010 Highway Capacity Manual (HCM) methodology for unsignalized intersections. LOS reports in Appendix E provide information on which methodology was used at which intersection. Appendix F provides more detailed information regarding LOS and queues by movement.
2. Volume-to-capacity ratio reported for signalized intersections.
3. Worst movement reported for unsignalized intersections.
4. Intersection is exempt from LOS D standard, per 18.15.250 of Issaquah City Code.

5. Counts were only collected for the west leg of Dogwood Street, however the east leg was in the future model and generating volumes.
6. Intersection is exempt from LOS D standard, per 18.15.250 of Issaquah City Code.

As shown in the table, all intersections that operate at LOS E or F under existing conditions in the AM peak hour are expected to continue to operate at LOS E or F. In addition, the intersections of Front Street/Dogwood Street (both legs), Front Street/NW Alder Street, Front Street/Sunset Way, Issaquah-Hobart Road/SE 132nd Way, and Issaquah-Hobart Road/SR 18 EB Ramps are expected to operate at LOS E or F under future baseline conditions.

The intersections which are expected to see the highest increase in delay during the AM peak hour are Front Street/NW Dogwood Street, with an increase of roughly 250 seconds of delay Issaquah-Hobart Road/Tiger Mountain Road (North), with an increase of 193 seconds of delay, and Issaquah-Hobart Road/Cedar Grove Road, with an increase of 88 seconds of delay. At the first intersection, the eastbound, minor street movement has the highest delay. It is a stop-controlled movement that grants right of way to two high-volume northbound and southbound through movements, both over 650 vehicles, leaving few gaps for traffic on the minor leg to turn onto Front Street.

At the second intersection of Issaquah-Hobart Road/Tiger Mountain Road (North), the westbound leg experiences the most delay. Similar to the Front Street/NW Dogwood Street intersection, this is due to the heavy amount of northbound traffic along Issaquah-Hobart Road, which doesn’t leave many gaps in traffic for vehicles on the minor westbound leg to turn onto Issaquah-Hobart Road.

At the intersection of Issaquah-Hobart Road/Cedar Grove Road, the northbound through and eastbound left movements both experience delay as they compete for green time to get through the signal. Northbound there are over 650 vehicles and eastbound is just under half that at 275 vehicles.

Table 16. PM Peak Hour Intersection LOS Summary Comparison

Intersection	2017 Existing			2040 Future		
	LOS[1]	Delay[2]	V/C[3] or WM[4]	LOS	Delay	V/C or WM
City Intersections						
1. Front St/I-90 WB Ramps	C	21.8	0.80	B	17.0	0.85
2. Front St/I-90 EB Ramps	D	35.1	0.90	D	41.9	1.00
3. Front St/Gilman Blvd	C	33.2	0.82	D	39.7	0.87
4. Front St/NW Holly St	B	10.7	EB	B	13.1	EB
5a. Front St/NE Dogwood St (east leg)[5]	-	-	-	D	29.6	WB
5b. Front St/NW Dogwood St (west leg)	C	18.9	EB	F	632.7	EB
6. Front St/NW Alder St	C	20.1	WB	E	47.8	WB
7. Front St/Sunset Wy[6]	F	132.7	1.41	F	242.5	1.72
8. Front St/SE Bush St	C	17.3	WB	D	32.4	WB
9. Front St/Newport Wy	D	42.2	0.92	E	64.6	1.11
10. Front St/2nd Ave SE	C	26.8	0.96	C	33.5	0.99
County Intersections						
11. Issq-Hobart Rd/Poo Poo Pt	B	14.7	WB	C	18.8	WB
12. Issq-Hobart Rd/SE 132nd Wy	C	21.2	WB	E	41.5	WB
13. Issq-Hobart Rd/SE May Valley Rd	E	60.8	1.13	F	117.0	1.32
14. Issq-Hobart Rd/Tiger Mtn Rd SE (N)	D	27.2	WB	F	52.0	WB
15. Issq-Hobart Rd/Cedar Grove Rd	B	17.1	0.85	C	28.2	0.98
16. Issq-Hobart Rd/SE Mirrormont Blvd	C	20.9	WBL	D	28.1	WBL
17. Issq-Hobart Rd/SE 156th St	C	18.0	EB	C	23.7	EB
18. Issq-Hobart Rd/Tiger Mtn Rd SE (S)	D	25.0	WB	E	36.5	WB
19. Issq-Hobart Rd/SR 18 WB Ramps	C	21.3	WBTL	F	219.9	WBTL
20. Issq-Hobart Rd/SR 18 EB Ramps	C	30.4	0.76	E	60.0	1.01

7. Level of service, based on Synchro methodology for signalized intersections and 2010 Highway Capacity Manual (HCM) methodology for unsignalized intersections. LOS reports in Appendix E provide information on which methodology was used at which intersection. Appendix F provides more detailed information regarding LOS and queues by movement.
8. Average delay in seconds per vehicle.
9. Volume-to-capacity ratio reported for signalized intersections.
10. Worst movement reported for unsignalized intersections.
11. Counts were only collected for the west leg of Dogwood, however the east leg was in the future model and generating volumes.
12. Intersection is exempt from LOS D standard, per 18.15.250 of Issaquah City Code.

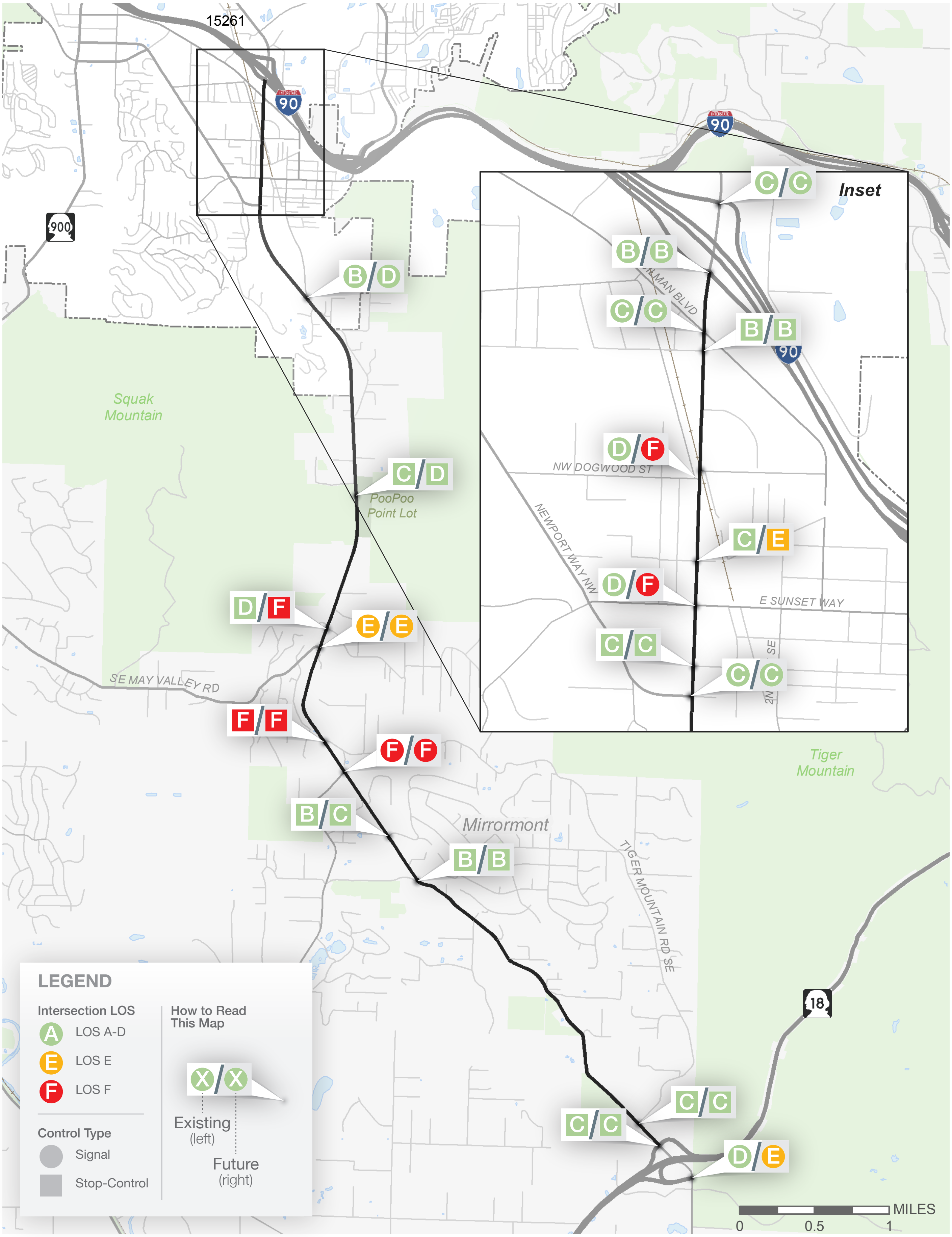
As Table 16 shows, all intersections that operate at LOS F under existing conditions in the PM peak hour are expected to continue operating at LOS F. Additionally, the following intersections are anticipated to drop below LOS D: Front Street/NW Dogwood Street, Front Street/NW Alder Street, Front Street/Newport Way, Issaquah-Hobart Road/SE 132nd Way, Issaquah-Hobart Road/Tiger Mountain Road SE (N), Issaquah-Hobart Road/Tiger Mountain Road SE (S), and the two SR 18 ramp intersections. The intersection of Issaquah-Hobart Road/May Valley Road is expected to drop from LOS E to LOS F.

The intersections which are expected to see the highest increase in delay during the PM peak hour are Front Street/NW Dogwood Street, with an increase of over 600 seconds of delay, Front Street/Sunset Way, with an increase of 110 seconds of delay, Issaquah-Hobart Road/May Valley Road with an increase of 56 seconds, and Issaquah-Hobart Road/SR 18 WB Ramps, with an increase of 199 seconds of delay. At the first intersection, the same situation that happens in the AM peak hour happens in the PM peak hour. The eastbound, minor street movement has the highest delay due to yielding right of way to two high-volume northbound and southbound through movements. This leaves few gaps for traffic on the minor leg to turn onto Front Street.

At the next intersection of Front Street/Sunset Way, all four legs of the intersection have at least 370 vehicles competing for green time to get through the intersection. The eastbound and westbound through movements each have their own “green time” to get through the intersection, as opposed to going through the intersection at the same time. This leaves less time overall for all vehicles to get through the intersection, which increases overall delay at the intersection.

The same issues that occur in existing conditions are made worse in the future at the Issaquah Hobart Road/May Valley Road intersection. The southbound movement increases from just under 1,000 vehicles to 1,250 vehicles, taking more green time to get through the intersection. This increases delay for the nearly 450 vehicles turning off of May Valley Road, which worsens the overall LOS at the intersection.

At the intersection of Issaquah-Hobart Road/SR 18 WB Ramps, the westbound thought-left movement, which is traffic from the off-ramp, is expected to experience the most delay. Similar to the intersection of Front Street/NW Dogwood Street, this intersection is unsignalized and delay is mostly caused by the heavy through movements, particularly in the southbound direction which is expected to have over 1,100 vehicles in the PM peak hour. Westbound lefts are having to wait for gaps in traffic in both the northbound and southbound directions in order to travel south on Issaquah-Hobart Road.



AM Peak Hour Existing & Future Baseline Intersection LOS

Issaquah-Hobart Rd/Front St Corridor Study

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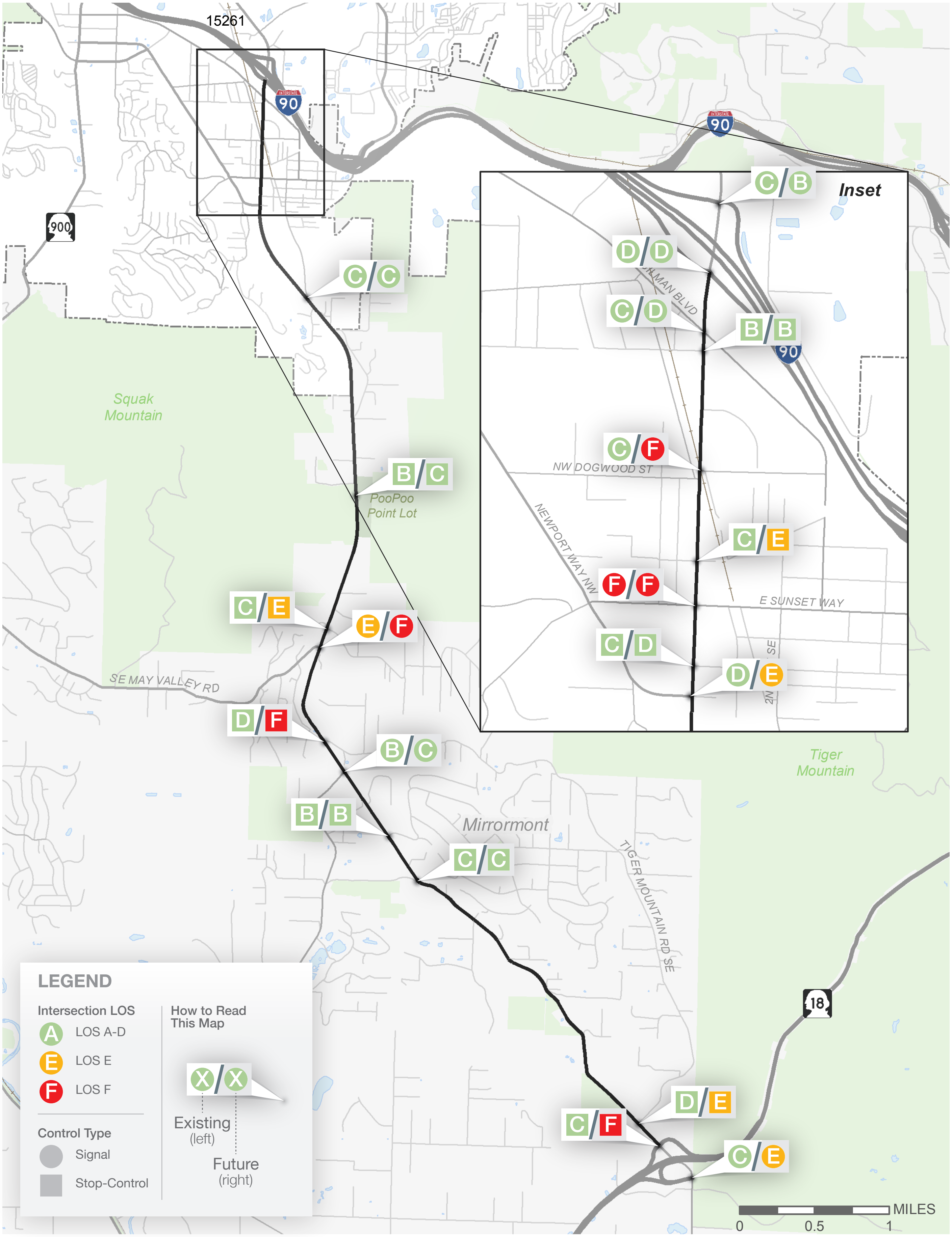
FIGURE
33



PM Peak Hour Existing (2017) & Future (2040) Baseline Intersection LOS

Issaquah-Hobart Rd/Front St Corridor Study

FIGURE

34

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Corridor

In addition to analyzing intersection operations, corridor operations were also analyzed to provide context at a larger scale and for comparison to existing conditions. The changes made to the existing network for corridor operations were continued in the future. Corridor operations evaluated future travel speeds and compared them either to LOS thresholds outlined in Exhibit 16-4 in HCM 2010 for City segments or to the King County LOS criteria for County segments, as defined in the King County Code. The following tables show the LOS corridor results in both directions during the AM and PM peak hours, respectively.

Table 17. AM Peak Hour Corridor LOS Summary

	2017 Existing				2040 Future (Baseline)[3]			
	SB		NB		SB		NB	
Location	**Speed[1]**	**LOS[2]**	**Speed[1]**	**LOS[2]**	**Speed**	**LOS[2]**	**Speed**	**LOS[2]**
City								
Gilman Blvd to Sunset Way	17 mph	B	26 mph	A	10 mph	D	10 mph	D
Sunset Way to Newport Way	9 mph	E	6 mph	F	3 mph	F	1 mph	F
Newport Way to 2nd Ave	32 mph	A	21 mph	C	31 mph	A	18 mph	C
2nd Ave to South City Limits	39 mph	A	21 mph	C	39 mph	A	15 mph	E
County								
South City Limits to May Valley Rd	44 mph	A	19 mph	D	44 mph	A	13 mph	F
May Valley Rd to Cedar Grove Rd	33 mph	B	12 mph	F	30 mph	B	10 mph	F
Cedar Grove Rd to SR 18	41 mph	A	10 mph	F	38 mph	A	9 mph	F

1. Existing speed data is based off travel time data collected on Tuesdays and Thursdays in April and May,2017.
2. LOS criteria according to Exhibit 16-4 in HCM 2010 for the City segments and section 14.70.220 in the King County Code for the County segments.
3. 2040 Baseline travel times calculated using Synchro, version 9.0. The meso model was only developed for the PM peak hour and could not be used for the AM peak hour.

Though there is a large amount of land use growth projected in the region in the future, the corridor already operates at or near capacity during peak periods. This explains why there is only minor decreases in travel speeds along certain segments of the corridor that are already congested. In the AM peak hour, the following segments are expected to degrade below LOS D:

County Segment:
May Valley Road to City Limits (Northbound). This segment is expected to degrade from LOS D to LOS F, with a decrease of 6 mph in travel speed. May Valley Road to the City Limits experiences a rolling queue of stop and go traffic. The segment is at or near capacity, therefore few additional vehicles can get through, explaining why the travel times do not decrease more. The intersection at 2nd Avenue, in the City segment, can act as a bottleneck or meter for traffic, particularly when school-related traffic is competing for time to get through the signal.

City Segment:
City Limits to 2nd Avenue (Northbound). This segment is expected to degrade from LOS D to LOS E, with a decrease of 6 mph in travel speed. Similar to the County segment detailed above, this segment experiences a rolling queue of stop and go traffic. The segment is also at or near capacity, therefore few additional vehicles can get through, explaining why the travel times do not decrease more. The intersection at 2nd Avenue can act as a bottleneck for traffic, particularly when school-related traffic is competing for time to get through the signal.

A number of segments currently operating at LOS E or F and are expected to continue to operate as such in the future. This is particularly true in the northbound direction, which is the peak commuting direction during the AM peak hour. The slowest travel speeds on the corridor are expected to continue to occur in both the northbound and southbound direction at the north end of the corridor between Sunset Way and Newport Way.

Table 18. PM Peak Hour Corridor LOS Summary

	2017 Existing				2040 Future (Baseline)[3]			
	SB		NB		SB		NB	
Location	**Time[1]**	**LOS[2]**	**Time**	**LOS[2]**	**Time**	**LOS[2]**	**Time**	**LOS[2]**
City								
Gilman Blvd to Sunset Way	2 mph	F	14 mph	C	1 mph	F	9 mph	E
Sunset Way to Newport Way	2 mph	F	7 mph	F	1 mph	F	6 mph	F
Newport Way to 2nd Ave	8 mph	F	27 mph	B	7 mph	F	27 mph	B
2nd Ave to South City Limits	19 mph	D	34 mph	B	20 mph	D	34 mph	B
County								
South City Limits to May Valley Rd	17 mph	E	41 mph	A	19 mph	D	41 mph	A
May Valley Rd to Cedar Grove Rd	31 mph	B	42 mph	A	31 mph	B	41 mph	A
Cedar Grove Rd to SR 18	37 mph	B	41 mph	A	37 mph	B	39 mph	A

1. Travel time data collected on Tuesdays and Thursdays in April and May, 2017.
2. LOS criteria according to Exhibit 16-4 in HCM 2010 for the City segments and section 14.70.220 in the King County Code for the County segments.
3. 2040 Baseline travel times calculated using the meso model.

Similar to the AM peak hour, a number of segments which currently operate at LOS F are expected to continue to operate at LOS F in the future. This is particularly true in the City segments north of 2nd Avenue in the southbound direction, which is the peak direction. As explained previously, though there is a large amount of growth projected along the corridor, the corridor already operates at or near capacity in the peak direction during peak periods. This explains why there is only minor decreases in travel speeds along certain segments that are already congested. In the PM peak hour, the following segments are expected to have changes to the corridor LOS.

County Segment:
City Limits to May Valley Road (Southbound). This segment is expected to improve, from LOS E to LOS C. Travel speeds are expected to increase by 2 mph. This change in LOS represents the shifting of some of the congestion into the City. Similar to the AM peak hour, 2nd Avenue acts as a congestion point along the corridor. As shown in the table, the travel speed drops 1 mph between Newport Way and 2nd Avenue. After 2nd Avenue it increases 1 mph, then increases even more up to May Valley Road. Despite the improvement in LOS, the travel speed increase is only by 2 mph, up to 19 mph. This still indicates stop and go traffic along this segment of the corridor.

City Segment:
Sunset Way to Gilman Boulevard (Northbound). This segment is expected to decrease from LOS C to LOS E, declining in travel speed by 5 mph. While this is not the peak direction in the PM peak hour, this segment of roadway does see a lot of activity during the PM peak hour as it has retail and restaurants that become busy. With higher through volumes as well as more vehicles using side streets, it creates further congestion.

Figures 35 and 36 show the corridor LOS by segment for AM and PM peak hours, respectively.

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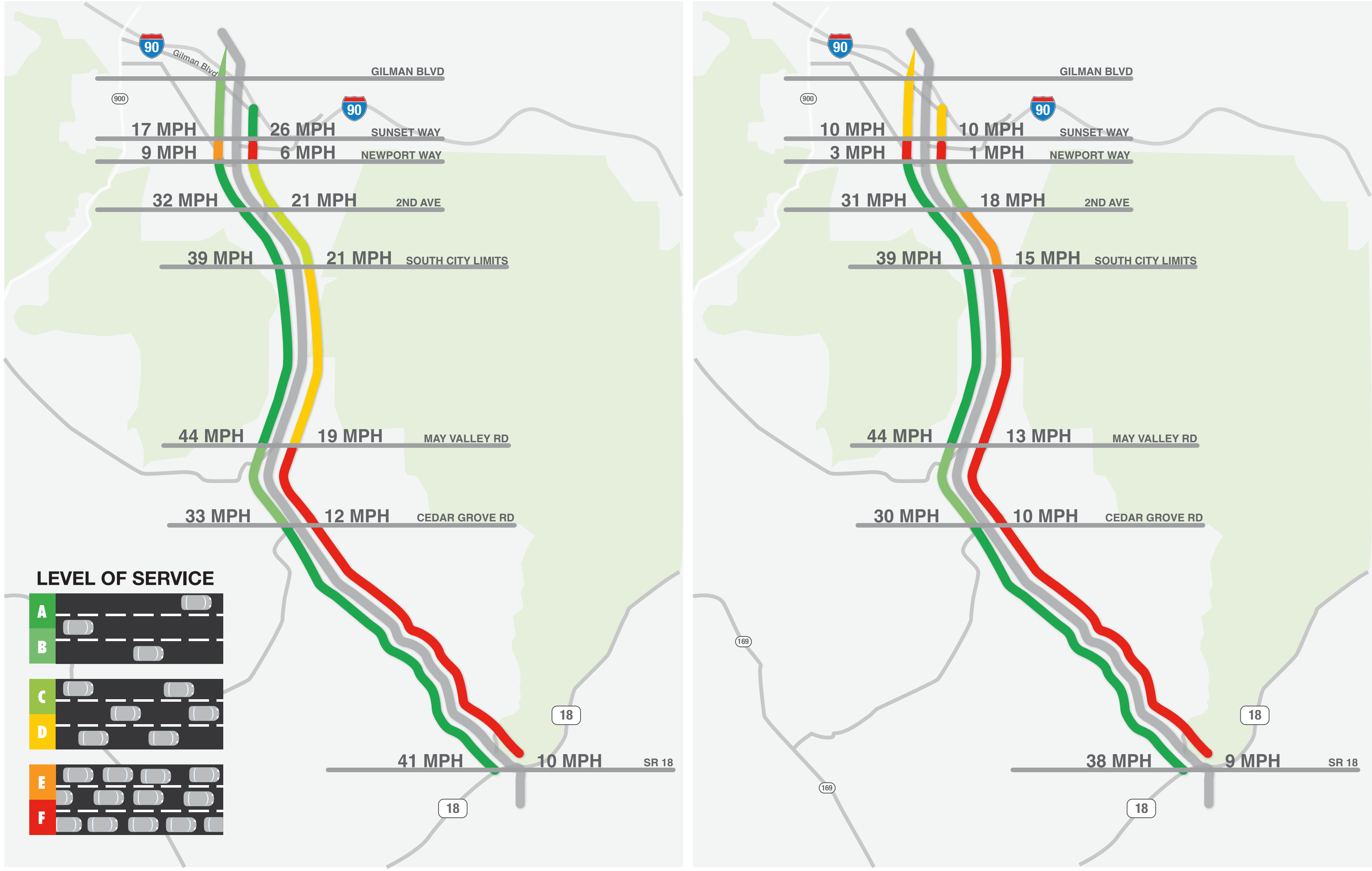

AM Peak Hour Existing (2017) & Future (2040) Baseline Corridor LOS

Issaquah-Hobart Rd/Front St Corridor Study

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FIGURE 35

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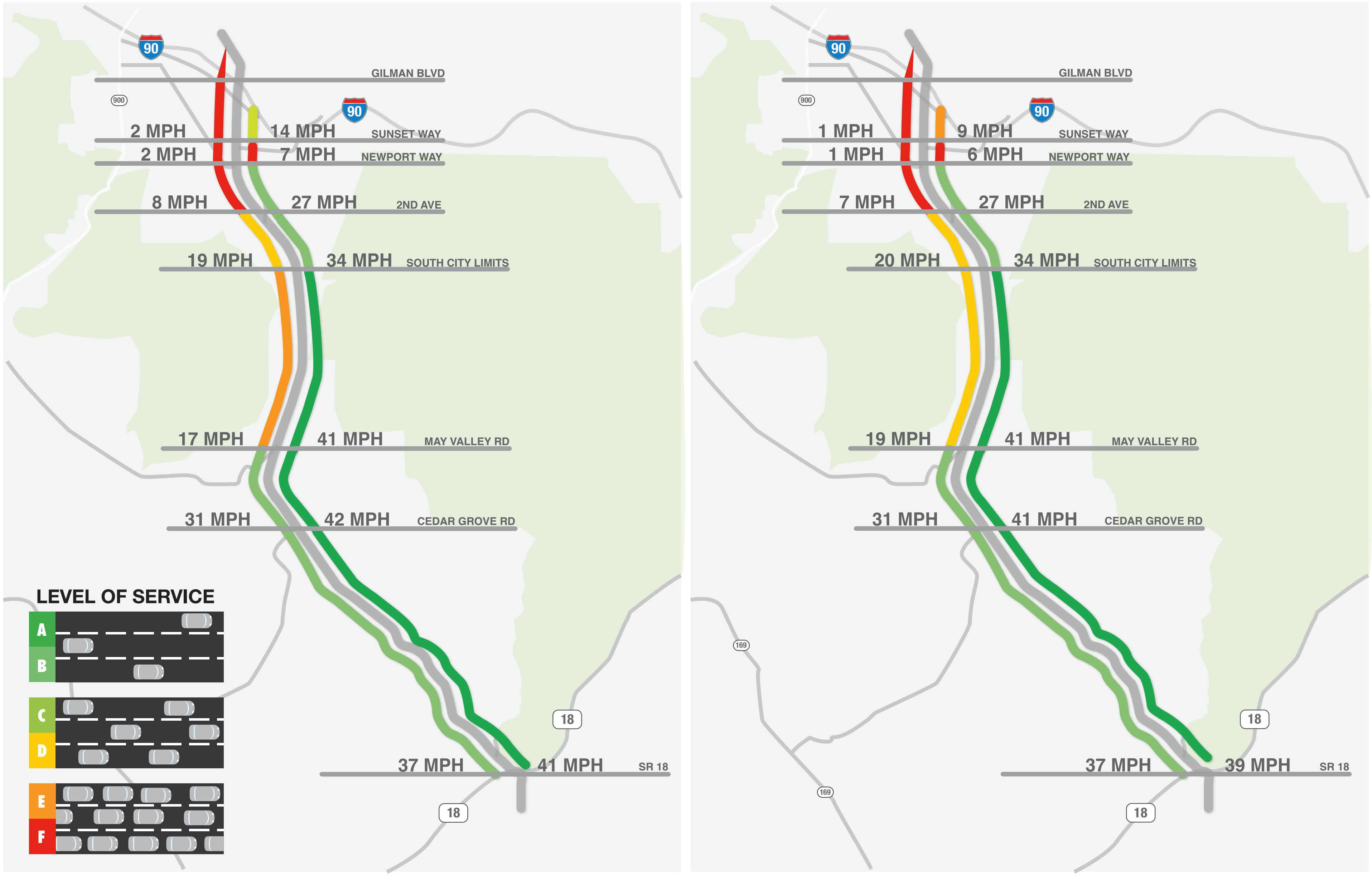


PM Peak Hour Existing (2017) & Future (2040) Baseline Corridor LOS

Issaquah-Hobart Rd/Front St Corridor Study

transpogroup

FIGURE
36

Interpretation/Summary

The land use data show that a large amount of growth is anticipated in the region. The household growth is expected to be relatively spread out, with higher concentrations at both the north and south ends of the corridor. The employment growth is very concentrated in the Issaquah area.

The future intersection and corridor operations do not worsen to the degree that might be expected given the magnitude of anticipated growth. This is due to the corridor currently operating at or near capacity and not being able to accommodate many more vehicles, particularly in the peak directions. However, there are intersections and corridor segments which do degrade in LOS and/or are expected to experience increases in delay (at intersections) and decreases in travel speeds (along corridor segments).

Now that operational issues have been identified, potential solutions are explored to address the identified issues and analyze the ability of the solutions to improve operations. The following chapter summarizes the process for evaluating improvement projects and developing a project list for the corridor.

Solutions Identification

Based on the conditions assessment presented in the previous chapters, this chapter evaluates potential solutions for the corridor. It introduces and applies a ‘toolbox’ of strategies designed to identify potential solutions, setting the stage for the development of a prioritized list of potential investments to maintain and improve corridor mobility and reliability between today and the planning horizon year of 2040.

Solutions Framework

In addition to the analytical process of applying toolbox strategies to known problem areas, the process of identifying solutions also considers both emerging trends and stakeholder feedback. These emerging trends may modify future transportation in ways that are not fully understood yet and the stakeholder feedback provides additional context of corridor users, both of which were taken into consideration in identifying problems and potential solutions.

Emerging Trends

As growth occurs in the Puget Sound region and the dynamics of travel change, jurisdictions adapt their goals and priorities to meets those changing needs. Trends in population growth and demographics have impacts on the transportation system. These trends are discussed below.

Growth in Urban Centers

Population growth in the Puget Sound region is expected to be most concentrated near the Puget Sound and along the I-5 corridor, though on the outer edges of urban areas. This is supported by land use policies which encourage growth in urbanized areas. King County saw nearly half of the growth in the Puget Sound area between 2000 and 2017[5]. Urban centers such as Seattle, Bellevue, and Tacoma have seen an increase in growth, as have large master-planned communities like Issaquah Highlands and Snoqualmie Ridge upon completion.

Generational Travel Patterns

Two distinct populations are growing and having impacts on travel patterns: senior citizens (those over age 65) and millennials (people under age 30). The proportion of the population which is 65 and older is expected to double by 2040[6]. Current senior citizens are showing a higher preference for more urban housing choices than previous generations, considering things like non-motorized and transit access.[7]

[5] http://www.commerce.wa.gov/serving-communities/growth-management/puget-sound-mapping-project/
[6] http://www.thefuturestaskforce.org/wp-content/uploads/2016/03/Transportation-Futures-TF-Final-Report.pdf
[7] http://www.thefuturestaskforce.org/wp-content/uploads/2015/03/CAI-CDM-Smith-PSRC-Demographics-2015-0316-no-draft-stamp.pdf

However, as people age, they are more likely to favor travel by auto due to difficulty with walking to and stepping into transit vehicles. As people drive less, they are more likely to be passengers in a car.

Millennials are showing the most preference for urban living compared to other age groups, valuing areas with pedestrian, bicycle, and transit access. They are the most likely age group to use transit and, as a group, are delaying obtaining their driver's license[8]. A range of travel choices will be needed to meet these differing demands.

Increase in Information Technology

Technology and transportation are becoming more intertwined, with things like electronic tolling and billing, advanced variable message signs, traffic apps for cell phones, and in-vehicle displays. Technology makes it possible to change your travel route on a moment's notice, or to forgo driving all together and use a car service like Uber or Lyft. Jurisdictions on many levels (local, regional, and statewide) are incorporating technology into their transportation systems to both respond to system needs and to assist drivers in their travel choices.

Advances in Vehicle Technology

As more autonomous vehicle technology emerges, the prospect of having travel lanes, or even entire corridors, be used for only these types of vehicles becomes more realistic. Google has already started testing its self-driving car program in the City of Kirkland and the City of Bellevue is exploring the use of autonomous shuttles[9] and considering investing in infrastructure to begin testing self-driving cars.[10]

Along the corridor, both local and regional land use will increase travel demand, however there is limited room for additional roadway capacity. As shown in the Future Conditions section, congestion is expected to increase and the peak period is likely to extend. The next step to understand future needs was to gather feedback from the community, those who use the roadway daily. This is described in the next section.

Stakeholder Feedback

To gain insight and understanding of the Front Street / Issaquah-Hobart Road corridor from different stakeholders, the team interviewed individuals that have an interest in the corridor. Interviews were conducted to gain broad perspectives on the current and anticipated challenges in the corridor, as well as potential opportunities.

An initial broad list of stakeholders was vetted with project partners, the City of Issaquah and King County. The list of stakeholders representing a range of constituents interviewed are listed below:

- Emergency Services
  - Issaquah Police Department
  - Eastside Fire and Rescue
- Transportation Providers
  - Washington State Department of Transportation (WSDOT)
  - Issaquah School District Transportation
  - King County Metro
  - Sound Transit
- Property/Business Owners
  - Issaquah Downtown Association
  - Mirrormont Community Association
- Agencies and Service Providers
  - King County Parks
  - Issaquah Public Works

[8] http://transitcenter.org/wp-content/uploads/2014/08/WhosOnBoard2014-ForWeb.pdf
[9] http://mynorthwest.com/817252/bellevue-driverless-shuttle-potential/
[10] https://www.geekwire.com/2017/bellevue-poised-beat-seattle-race-toward-self-driving-cars/

- King County Staff

Many different viewpoints were expressed, and a summary of the main feedback points from stakeholders are as follows:

- Congestion and safety were seen as the highest priority. Other priorities mentioned were economic vitality, regional coordination, and partnership.
- Peak period traffic congestion was stated as extensive and worsening. Expectations for congestion improvement are limited, particularly with growing communities to the east and south. The congestion impacts productivity for stakeholders, such as increased travel time for first responders and inefficient school bus operations due to safety issues with children crossing or walking alongside the roadway.
- Congestion blocks businesses along Front Street and does not result in increased business. Parking along Front Street is a premium and leads to vehicles circling the area.
- Concerns over safety were voiced, such as speeding on cut through routes like 2nd Ave SE, using two-way left-turn lanes as travel lanes, and illegal passing of school buses. Lack of illumination was mentioned with impacts to safety (for non-motorized users and school children), as was issues with overflow shoulder parking for the Poo Poo Point trailhead.

Stakeholders were asked for potential solutions to help improve corridor issues. The following are some of the suggested solutions:

- Demand management strategies such as reserving spaces at park and rides for carpools, building a parking and ride near the SR 18 interchange and partnering with local companies (i.e. Microsoft, Amazon, etc.) for private shuttles, and adding transit to the corridor and putting speed and reliability improvements in place like queue jumps along the corridor once transit is in place.
- More driver information to make advanced choices, like at decision points along SR 18, or providing information to smart devices.
- New connections to take traffic off the corridor, such as the former Southeast Issaquah Bypass project that connected to the Sunset interchange or a new roadway connecting May Valley Road and Cedar Grove Road.
- Improve lighting along the corridor to increase safety for picking up students and for other non-motorized users.

As evidenced by stakeholder remarks, there was some agreement regarding the biggest issues along the corridor, mainly congestion and safety. Not only do these issues impact commuters, but also area businesses and schools. This feedback was considered as the solutions toolbox, described below, was developed.

Solutions Toolbox

To evaluate potential improvements along the corridor, the complex nature of the corridor was taken into consideration. The northern portion of the corridor is a more urban area, with low speed limits and lots of surrounding activity (such as on-street parking and non-motorized users). As the corridor moves south, the area becomes more rural, with higher speeds and less adjacent activity. These differing environments have some similar issues, but also some issues that are particular to that segment of the corridor. Each potential solution idea is explained, broken down by if solutions apply to the full corridor, or to just the City portion or County portion.

Full Corridor

These solutions apply to multiple sections of the corridor.

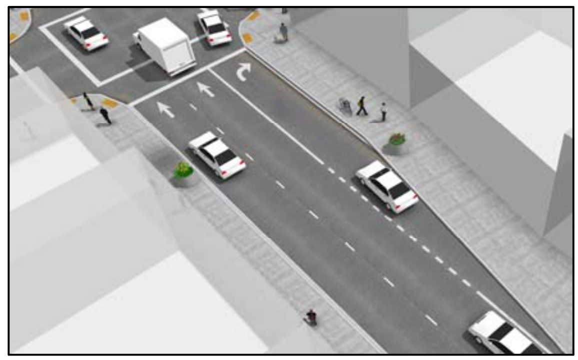
Access Management

Solutions under this concept would help traffic along the corridor avoid conflicts and improve traffic congestion, both a result of vehicles turning from and onto the corridor. Potential improvements could include on-street parking management or consolidation of driveways, particularly along Front Street. Medians and left turn pockets, as well as potential redevelopment of adjacent land uses could also be considered along the full length of the corridor. These types of improvements are typically less costly than larger-scale improvements and are able to be completed in a relatively short time frame (5 years or less).

A restricted right-in, right-out example.

Intersection Improvements

Improvements to intersections typically enhance the safety and mobility of vehicles and non-motorized users. Potential improvements could include intersection realignments, changes in intersection traffic control, restrict left turns at intersection during peak hours, constructing a roundabout, or adding turn lanes or turn pockets. Typically, these improvements can be completed in a short time frame (5 years or less) and cost roughly between $1 million and $5 million dollars.



Example of a right turn pocket.

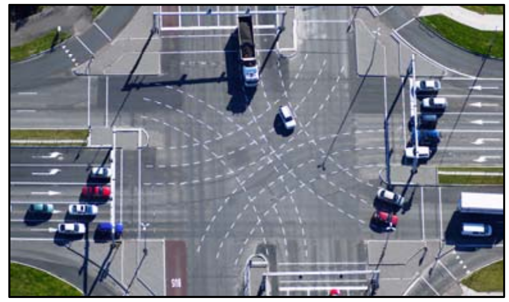
Traffic Signal Improvements

Similar to general intersection improvements, traffic signal improvements generally enhance the safety and mobility of mostly vehicles, but also non-motorized users. These improvements could include phasing changes, a Prepare to Stop When Flashing (PTSWF) System, or adaptive signal control that can respond to changes in current traffic conditions. The time frame and cost range are also similar to intersection improvements (5 years or less and between $1 million and $5 million dollars).

A Prepare to Stop When Flashing sign.

Channelized Intersections

Channelizing intersections typically involves painting lines, arrow, or symbols on the pavement to delineate traffic flow. This enhances safety of the vehicles and non-motorized users as it shows exactly the lanes of travel and/or whether a lane is a shared lane with bicyclists. As with other intersection improvements, the time frame for these improvements is fairly short (5 years or less) and the costs are roughly between $1 million and $5 million dollars.



A channelized intersection example.

Shuttle/Vanpool Access

This improvement focuses on access to transit destinations, either to the Issaquah Park and Rides for the northern segment or to a new location near SR 18 at the south end of the corridor. The purpose of this improvement would be to improve congestion along the corridor by removing some of the single-occupancy vehicles currently using it. Other options to go along with this improvement include temporary transit subsidies, performance monitoring, and a marking and education campaign. The time frame for this type of improvement would be roughly 5-10 years and the costs are expected to be in the $1 million to $5 million dollars range.

Additional Travel Lanes

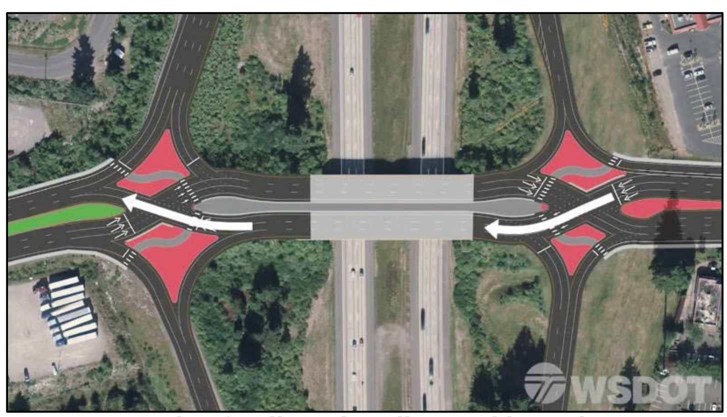
Adding travel lanes to the corridor could mean the addition of lanes in each direction at all times of day or having one additional lane that changes direction during peak hours. It could also include widening the shoulders and using those as travel lanes during peak hours. These improvements would relieve corridor congestion, however they may not be feasible given some of the higher costs (likely over $10 million dollars) and the difficulties in acquiring right-of-way. The time frame for these improvements would likely be 5 to 10 years.

Non-Motorized Improvements

In the County, non-motorized improvements could include widening shoulders for non-motorized use or installing appropriate signage and pavement marking. Both would enhance safety for non-motorized users. While the second project would likely cost less than the first, both are expected to be between the $1 million and $5 million dollar range and take between 1 and 5 years to complete.

Off-Corridor Solutions

Off-corridor solutions could include improvements to the I-90/SR 18 interchange, which are currently underway by WSDOT and would benefit the entire corridor. Or it could be a future Issaquah bypass that would alleviate traffic on Front Street. Either way, the purpose types of these solutions is to improve congestion and mobility along the corridor. The costs of these would be very high compared to other considered improvements, and the time frame could be between 5 to 10 years, or even more depending on right-of-way acquisition.



Example of a diverging diamond interchange, as planned for I-90/SR18.

Technology Solutions

Mentioned previously, these types of solutions include electronic tolling and billing, Changeable Message Signs (CMS), traffic apps for cell phones, and traveler time signs. They can help improve traffic flow and intersection level of service, as well as increase safety by directing traffic away from collisions or alerting vehicles of hazardous conditions. These types of projects can have different time frames and costs depending on the type and scope of the project.

A Changeable Message Sign on Front Street

City Portion

The following solutions are specific non-motorized improvements that apply to existing facilities – either connecting them or enhancing them.

Crosswalk Improvements

Improvements at crosswalks are meant to enhance mobility and safety, as well as potentially reduce congestion. These types of improvements could include removing mid-block crossings in certain locations to improve traffic flow, introducing a pedestrian scramble phase at an intersection, or placing infrastructure like wayfinding signs or Overhead Rectangular Rapid Flashing Beacons (RRFB) to improve safety. These types of projects have a shorter time frame (1 to 5 years) and lower costs than larger-scale projects, ranging from under $1 million for removal of a mid-block crossing up to the $1 million to $5 million dollar range for infrastructure improvements.

An example of a pedestrian scramble.

Bicycle Facility Improvements

Bicycle facility improvements enhance safety and encourage use of bicycles. These could be spot improvements at an intersection, like bike boxes or carrying shared-use markings through intersections, corridor wide improvements, like place 3-foot buffers along the roadway, or specific improvements like providing connections between Front Street and the Rainier Trail. Spot improvements would be on the low end of the cost range (under $1 million) and take roughly 1 to 5 years. Corridor wide improvements would still be lower cost but take more time, roughly 5 to 10 years.

A bicycle pavement marking example.

County Portion

The following solution applies to just the County portion as school bus-related congestion along the corridor is due to school bus stops, which are mostly south of the City Limits.

School Bus Improvements

This type of improvement is meant to decrease congestion along the corridor and increase student safety by creating school bus pullouts for drop off and pick up. However, this improvement could create difficulties with school buses reentering traffic. The time frame for this type of project would be 1 to 5 years and the expected cost range would be $1 million to $5 million dollars.

Table 19 shows the resulting Solutions Toolbox, broken down by County and City segments.

Issaquah-Hobart Rd/Front St Corridor Solutions Toolbox

Numbers	Potential Solution Ideas	Type	Strategies/Improvements	Timeline	Cost	Notes
Front Street						
1A	Access Management	Vehicles	• Consolidation of driveways and minor approaches along Front Street • Medians and left turn pockets • On-street parking management • Redevelopment of adjacent land uses.	1 - 5 years	$	Would provide benefits for avoiding conflicts and improving traffic congestion
1 B	Crosswalk Management	Vehicles, Non-Motorized	• Remove pedestrian mid-block crossings in select locations to improve traffic flow • Redirect pedestrians with signs and symbols	1 – 5 years	$	Would enhance mobility and reduce congestion
1 C	Crosswalk Safety	Non-motorized	• Sign/wayfinding improvements • Pedestrian Scramble • Overhead Rectangular Rapid Flashing Beacon (RRFB) ped crossing signals	1 - 5 years	$$	Would enhance safety
1 D	Intersection Improvements	Vehicles, Non-Motorized	• Added turn-lanes/turn-pockets • Restrict Left Turns during peak-hour traffic • Intersection traffic controls • Realignments	1 - 5 years	$$	Would enhance safety and mobility
1 E	Bike Facilities - Intersections	Non-motorized	• Carry shared-use markings through intersections • Bike boxes • Two-stage turn queue boxes	1 - 5 years	$	Would improve safety and encourage bike use
1 F	Channelized Intersections	Vehicles, Non-motorized	• Pavement paint (lines, arrows, and shared use pavement marking symbols) all the way through intersections to delineate traffic flow • Aprons to slow/channelize traffic at select intersections	1 - 5 years	$$	Would improve safety
1 G	Traffic Signal Improvements	Vehicles, Non-motorized, Transit/Parking	• Adaptive signal control to respond to changing traffic conditions and priorities • Left-turn restrictions • Phasing Changes • Prepare to Stop when Flashing (PTSWF) System	1 - 5 years	$$	Would enhance safety and mobility
1 H	Bike Facilities - Corridor	Non-motorized	• Improve connections and wayfinding between Front St. and Ranier Trail • Marked mixing zones through high-traffic merging areas • 3' buffers where space allows	5 -10 years	$	Improves access and encourages bike use
1 I	Shuttle/vanpool access to Issaquah Park & Ride Locations	Transit/Parking	• Transit oriented roadway and operational design elements, such as priority signals and queue jump lanes • Shuttle/vanpool staging areas • Marketing and educational campaign • Temporary travel subsidies • Performance Monitoring	5 - 10 years	$$	Would improve congestion along the corridor
1 J	Additional vehicle travel lanes	Vehicles	• Adding vehicle travel lanes along segments of Front Street to improve capacity, alleviate congestion, and improve level of service along the corridor • Alternating, peak hour travel lanes	5 - 10 years	$$$$	May not be feasible to implement given cost and other difficulties in acquiring ROW
1 K	Off-Corridor Solutions	Vehicles, Non-Motorized, Transit/Parking	• Develop short and long term off-corridor solutions such as the I-90/SR 18 Interchange or a future Issaquah bypass to alleviate congestion along Front St.	5 - 10 years	---	Would improve congestion and mobility along the corridor

Cost Parameters: $: <$1,000,000 $$: $1,000,000-$5,000,000 $$$: $5,000,000-$10,000,000 $$$$: >$10,000,000

Numbers	Potential Solution Ideas	Type	Strategies/Improvements	Timeline	Cost	Notes
Issaquah-Hobart Road						
2 A	Access Management	Vehicles	• Consolidation of driveways and minor approaches along Front Street • Medians and left turn pockets • On-street parking management • Redevelopment of adjacent land uses.	1 - 5 years	$	Would provide benefits for avoiding conflicts and improving traffic congestion
2 B	Intersection Improvements	Vehicles, Non-Motorized	• Added through-lanes within 400' of intersection • Added turn-lanes/turn-pockets, extending turn lanes to 400' from intersection • Restrict left turns during peak-hour traffic • Intersection traffic controls • Realignments • Roundabouts • Targeted safety improvements	1 - 5 years	$$	Would enhance safety and mobility Added through or turn lanes could cause conflicts with driveways and reentry of vehicles after intersection
2 C	Traffic Signal Improvements	Vehicles, Non-motorized, Transit/Parking	• Adaptive signal control to respond to changing traffic conditions and priorities • Left-turn restrictions • Phasing Changes • Prepare to Stop when Flashing (PTSWF) System	1 – 5 years	$$	Would enhance safety and mobility
2 D	School Bus Improvements	Vehicles, Transit/Parking	• School bus pullouts to allow traffic to pass during drop off/pick up	1 – 5 years	$$	Could create difficulties with school buses reentering travel lanes
2 E	Parking Improvements at select locations	Transit/Parking	• Assessment and use of wasted space in current on and off-street parking areas • Changes to parking geometry • Development of new, accessible parking areas	1 - 5 years	$$	Enhanced mobility through improved parking availability and circulation and reduced congestion around high demand areas
2 F	Widen shoulders, providing markings and signage for non-motorized users	Non-Motorized	• Minimum 5' shoulders along entire length of Issaquah-Hobart Rd • Install Bike/Ped signs and pavement markings • Marked mixing zones through shared use areas (e.g. Intersections) • Double white lines and rumble strips can be used to provide an additional buffer between vehicle and non-motorized traffic	1 - 5 years	$$	Would enhance safety
2 G	Channelized Intersections	Vehicles, Non-motorized	• Pavement paint (lines, arrows, and shared use pavement marking symbols) all the way through intersections to delineate traffic flow • Aprons to slow/channelize traffic at select intersections	1 - 5 years	$$	Would enhance safety
2 H	Shuttle/vanpool access from locations South of Issaquah-Hobart Rd	Transit/Parking	• Transit oriented roadway and operational design elements, such as priority signals and queue jump lanes at key intersections • Park and Ride at Issaquah-Hobart Rd and SR-18 • Marketing and educational campaign • Temporary travel subsidies • Performance Monitoring	5 - 10 years	$$	Would improve congestion along the corridor
2 I	Widen shoulders for use as peak hour lane	Vehicles	• Add 12' width shoulders along entire corridor. Signs, pavement markings, and enforcement to allow for use of shoulders as additional lane during peak hours.	5 – 10 years	$$$	Would improve congestion along the corridor
2 J	Additional vehicle travel lanes on Issaquah-Hobart Road	Vehicles	• Adding vehicle travel lanes along segments of Front Street to improve capacity, alleviate congestion, and improve level of service along the corridor • Alternating, peak hour travel lanes	5 - 10 years	$$$$	May not be feasible to implement given cost and other difficulties in acquiring ROW

Cost Parameters: $: <$1,000,000 $$: $1,000,000-$5,000,000 $$$: $5,000,000-$10,000,000 $$$$: >$10,000,000

All of these options were then narrowed down to a list of feasible improvements for the corridor as a whole, as well as for the City and County segments. Criteria to evaluate each project was established, which is described in the next section.

Solutions Application

To develop an initial project list, intersections and roadway segments were identified based on where existing and future deficiencies were expected to occur. After considering a range of projects from other planning efforts, the ideas from the solutions toolbox were applied to address gaps in previous planning and programming efforts.

Operational Deficiencies

Intersections and roadway segments where the level of service was below the corresponding jurisdictional standard for either the AM or PM peak hour were identified. In the AM peak hour, nine intersections operated at LOS E or worse; in the PM peak hour, ten intersections did the same. These intersections and their respective level of service are shown in Table 20.

Table 20. 2040 Future (Baseline) Intersections with Deficient LOS

	Level of Service[1]	
Intersection	**AM Peak Hour**	**PM Peak Hour**
City Intersections		
5a. Front St/NE Dogwood St (east leg)	**E**	D
5b. Front St/NW Dogwood St (west leg)	**F**	**F**
6. Front St/NW Alder St	**E**	**E**
7. Front St/Sunset Wy[2]	**F**	**F**
9. Front St/Newport Wy	C	**E**
County Intersections		
12. Issq-Hobart Rd/SE 132nd Wy	**F**	**E**
13. Issq-Hobart Rd/SE May Valley Rd	**E**	**F**
14. Issq-Hobart Rd/Tiger Mtn Rd SE (N)	**F**	**F**
15. Issq-Hobart Rd/Cedar Grove Rd	**F**	C
18. Issq-Hobart Rd/Tiger Mtn Rd SE (S)	C	**E**
19. Issq-Hobart Rd/SR 18 WB Ramps	C	**F**
20. Issq-Hobart Rd/SR 18 EB Ramps	**E**	**E**

1. Level of service, based on Synchro methodology for signalized intersections and 2010 Highway Capacity Manual (HCM) methodology for unsignalized intersections. LOS reports in Appendix E provide information on which methodology was used at which intersection.
2. Intersection is exempt from LOS D standard, per 18.15.250 of Issaquah City Code.

For the corridor segments, all of them are expected to experience an LOS deficiency in the future in at least one direction in either the AM or PM peak hour.

Previously Identified Projects

Planning efforts in both the City and County, as well as with WSDOT and Sound Transit, have already identified a number of transportation improvement projects that are on or would affect the corridor. Previously identified projects on the corridor and in the vicinity are summarized in Table 21.

Table 21. Study Area Planned Transportation Improvements

Project Description	Responsible Agency	Expected Completion Year	Funded?[1]
1. **I-90 & Front Street IJR:** A study evaluating potential improvements to the interchange	WSDOT	2019	Yes
2. **I-90 & SR 18 Interchange Improvements.** Reconstruction of the interchange to improve travel times and safety. Includes widening of SR 18 to four lanes between 1-0 and Deep Creek. Currently in the design phase.	WSDOT	2022	Yes
3. **SR 18 Widening from Issaquah Hobart Road to Deep Creek.** Widen to four lanes.	WSDOT	2040	No
4. **Link Light Rail to Central Issaquah.** Part of ST3, an extension of the light rail to Central Issaquah	Sound Transit	2041	Yes
5. **I-90 & Front Street Interchange.** Construction of the reconfiguration as proposed by the IJR.	WSDOT	Unknown	No
6. **Front St & Gilman Blvd.** Pre-design study for modification to the intersection.	City of Issaquah	Unknown	No
7. **Front St & Dogwood St.** Modification of the intersection, including a traffic signal.	City of Issaquah	Unknown	No
8. **Front St & Sunset Way.** Construction of left turn lanes on Sunset Way and according signal timing adjustments.	City of Issaquah	Unknown	No
9. **2nd Avenue Bike Facility.** Construction of an on-street bike facility south to Front St and north Sunset Way.	City of Issaquah	Unknown	No
10. **Sunset Way Bike Facility.** Construction of an on-street bike facility to connect west to Front St and east to I-90.	City of Issaquah	Unknown	No
11. **Fifteen Mile Creek Bridge Replacement**[2]	King County	Unknown	No
12. **Issaquah-Hobart Rd from City Limits to Cedar Grove Rd.** [2] Congestion relief measures (specific unidentified).	King County	Unknown	No
13. **Issaquah-Hobart Rd from Cedar Grove Rd to SR 18.** [2] Install ITS devices including cameras, message signs, and weather stations.	King County	Unknown	No
14. **Issaquah-Hobart Rd & May Valley Rd.** [2] Construction of a roundabout.	King County	Unknown	No
15. **Issaquah-Hobart Rd & Cedar Grove Rd.** [2] Construction of a roundabout.	King County	Unknown	No
16. **Issaquah-Hobart Rd from City Limits to SR 18**. [2] Roadway reconstruction (specific unidentified).	King County	Unknown	No

1. "Yes" means the project is fully funded for construction and "no" means the project is not fully funded as of 2017.
2. These projects are dependent on the outcomes of this study effort.

The projects shown in the table are located, and provide benefits, both on and off the corridor. In the development of the project list for this study, these projects were revisited from the perspective of corridor benefit and the identified evaluation criteria. Several of the projects shown in the table overlap with the identified intersection deficiencies shown in Table 20. Where applicable, these projects were modified and refined to match corridor needs.

Matching Toolbox Solutions to Operational Deficiencies

The toolbox consists of a 'menu' of improvement options that represent the types of improvements that could be implemented easily, and/or improve safety or mobility. The toolbox solutions were applied to the deficient intersections and roadway segments developed from the operational analysis. If necessary, toolbox solutions were also applied to previously identified projects to adjust elements of the description or scope of the project to better address corridor needs. The treatments were grouped into the following categories:

- Widening/Alignment
- Non-Motorized Network

- Safety
- Traffic Control/Operations
- Transportation Alternatives

Feedback from the project team generated a number of projects to fill the gaps not covered by previously identified projects. The entire list of projects is shown in the following chapter, in Table 27.

Evaluation Criteria

Evaluation criteria were generated to assess the effectiveness of the initial project list. The criteria focus on solutions which could the rate and severity of collisions, maintain the ability to meet current and future multimodal travel demands, and provide a predictable/reliable experience in terms of travel times and roadway conditions along the Issaquah-Hobart Road/Front Street corridor. These metrics were the result of stakeholder input and discussions with the City and County. Table 22 summarizes the evaluation criteria, separated into three main categories – Safety, Mobility, and Implementation.

Table 22. Evaluation Criteria

Category	Description	Rating *Low to High*		
Safety				
Crash Reductions	Addresses safety needs for all vehicles	Limited safety benefit	→	Targets high collision locations
Non-Motorized	Provides safer facilities for non-motorized users	No specific non-motorized element	→	Includes non-motorized safety improvement
Emergency Response	Enhances emergency response operations	No specific benefit to emergency response	→	Includes emergency response improvements
Access Management	Actively manages access points	Maintains redundant access points	→	Standardizes driveways and controls access
Mobility				
Reliability	Improves travel time reliability	Limited LOS or travel time benefit	→	Significantly improves travel time
Intersections	Reduces delays and queuing at intersections	Limited intersection LOS benefit	→	Significantly improves intersection delay and operations
Public Transportation	Provides alternative transportation options that provide mobility for more individuals per vehicle mile traveled (VMT)	Limited benefits in the number of individuals traveling per VMT	→	Significantly improves the number of individuals traveling per VMT
Parking	Physical or operational improvements for parking along the corridor	Limited benefits to existing parking	→	Includes improvements for parking along corridor
Freight Movement	Manages the safe and efficient movement of freight along the corridor	Limited benefits to freight operations	→	Includes improvements for freight operations
Implementation				

Preservation	Preservation of existing transportation facilities	Does not further preservation of existing transportation facilities	→	Furthers preservation of existing transportation facilities
Costs	Relative cost of project	High cost compared to benefits of overall list of projects	→	Low cost compared to benefits of overall list of projects
Funding Ability	Availability of funding for project	Funding will be difficult to obtain	→	Funding is available or easily obtainable
Project Readiness	Project is timely and implementable	Long anticipated project delays or push back	→	Time frame for project is reasonable and meets identified needs
Neighborhood Impacts	Relative impact of construction or use of improvement on local neighborhoods	Large negative impact on local neighborhoods	→	Limited impact on local neighborhoods
Phasing	Opportunity for Phasing	All costs and benefits of project must be enacted at one time	→	Implementation timeline can be optimized through phasing

Each project or group of projects would be rated according to the criteria on a low to high scale. Projects would be assigned a rating of 1 (low), 2 (medium), or 3 (high) points according to how well they met the evaluation criteria described in Table 22. The project or projects that scored highest in each of the three categories would be moved forward for final consideration in determining a list of high-priority projects along the corridor.

Project List Evaluation

Before projects could be evaluated with the criteria, the intersection and corridor operations were analyzed to help inform the selection process. The same LOS methodology was used as discussed previously. The operational results then helped inform scoring on the evaluation criteria.

Project Operations Analysis

Potential projects were analyzed at each intersection. The resulting with-project LOS are shown in Table 23. The baseline results are included for comparison purposes. Appendix E provides the LOS worksheets showing these results while Appendix F shows queues and LOS by movement.

Table 23. 2040 Future Intersections with Deficient LOS – Baseline and With-Project Comparison

Intersection	Improvements	AM Peak Hour LOS[1]		PM Peak Hour LOS[1]	
		Baseline	With Project	Baseline	With Project
City Intersections					
5. Front St/NW Dogwood St	Signal w/ east-west alignment	**F**	A	**F**	C
6. Front St/NW Alder St	Right-in, right-out only east & west	**E**	C	**E**	C
7. Front St/Sunset Wy[2]	EB left turn, WB left & right turn lanes	**F**	D	**F**	**F**
7. Front St/Sunset Wy[2]	Pedestrian Scramble	**F**	**F**	**F**	**F**
9. Front St/Newport Wy	Southbound right turn/through lane	C	C	**E**	D
County Intersections					
12. Issq-Hobart Rd/SE 132nd Wy		**F**	-	**E**	-
13. Issq-Hobart Rd/SE May Valley Rd	2 through lanes NB/SB with merge	**E**	C	**F**	**E**
13. Issq-Hobart Rd/SE May Valley Rd	2 lane roundabout with NB slip lane	**E**	B	**F**	C
14. Issq-Hobart Rd/Tiger Mtn Rd SE (N)		**F**	-	**F**	-
15. Issq-Hobart Rd/Cedar Grove Rd	2 lanes NB/EB with merge	**F**	**F**	C	C
15. Issq-Hobart Rd/Cedar Grove Rd	2 lane roundabout with NB slip lane	**F**	C	C	A
18. Issq-Hobart Rd/Tiger Mtn Rd SE (S)		C	-	**E**	-
19. Issq-Hobart Rd/SR 18 WB Ramps		C	-	**F**	-
20. Issq-Hobart Rd/SR 18 EB Ramps		**E**	-	**E**	-

1. Level of service, based on Synchro methodology for signalized intersections and 2010 Highway Capacity Manual (HCM) methodology for unsignalized intersections. LOS reports in Appendix E provide information on which methodology was used at which intersection. Appendix F provides more detailed information regarding LOS and queues by movement.
2. Intersection is exempt from LOS D standard, per 18.15.250 of Issaquah City Code.
3. Intersection LOS not deficient but improvement included due to bottleneck nature of the intersection.

Each project, as well as its impact, is described in more detail below.

- **NW Dogwood Street: traffic signal with east and west realignment.** This project was already identified in the City of Issaquah 2018-2022 Capital Improvement Plan (CIP). The east and west legs of the intersection would be realigned to form a four-way intersection and a traffic signal would be installed (a pedestrian signal currently exists at this location). The east and west legs of the intersection would have a single lane in each direction and the north and south legs would have a left turn lane and a shared through-right lane. Safety would be improved at this intersection due to the reduction in conflict points between all modes and added signal control for vehicles. Both the AM and PM peak hour LOS improve with this project as the minor street approaches would now be signal controlled for improved access to Front Street. The improvements would have some impacts to travel times along Front Street as the signal would decrease green times for vehicles traveling north and south.

- **NW Alder Street: east and west legs restricted to right-in and right-out only.** For this project, vehicles would only be able to take a right in or out of the east and west legs of the intersection. This would cut down on delays caused by left-turning vehicles. Similar to the prior improvement, this project would also improve safety by reducing conflict points for all modes. The LOS improves to C for both the AM and PM peak hours with this improvement. In the AM peak hour the worst movement (eastbound) is expected to improve from LOS E to LOS B and in the PM peak hour both the eastbound and westbound movements improve from LOS E to LOS C. In all three cases the queues are expected to decrease from 2 vehicles to 1 vehicle on each approach.

- **Sunset Way: left turn lanes on the east and west legs.** This project was also identified in the City of Issaquah 2018-2022 CIP. It would involve the construction of left turn lanes on both legs of Sunset Way and the removal of on-street parking on the south side of the east leg to make room for the turn lane. Local mobility would be improved at this intersection, as would safety by separating out vehicular movements. While the overall PM peak hour LOS does not change by the improvement, the AM peak hour LOS improves to LOS D. The project does decrease delay in both peak hours compared to baseline conditions – by 55 seconds in the AM peak hour and 95 seconds in the PM peak hour. In the AM peak hour the worse movement is expected to improve delay from 182 seconds to 83 seconds, with queues expected to decrease by over 175 feet. In the PM peak hour the southbound through-right lane is expected to have a decrease in delay of over 100 seconds. Queues at this intersection are expected to decrease overall, though still range from 135 feet to 1,000 feet in the AM peak hour and 145 feet to 875 feet in the PM peak hour. This intersection is exempt from the City's LOS standard.

- **Sunset Way: pedestrian scramble phase.** Another option evaluated for Sunset Way, at the request of the City, was a pedestrian scramble phase at the intersection. This would create a traffic signal movement where all vehicles were stopped and pedestrians could cross the intersection in any direction, including diagonally. While the overall intersection operations remains at LOS F, the intersection delay gets much worse – an increase of 111 seconds in the AM peak hour and 179 seconds in the PM peak hour. Queues are also expected to lengthen due to the change in signal operations. In the AM peak hour, eastbound and westbound queues would be expected to increase between 40 and 50 feet, with an approximately 180 foot increase for the southbound queue and an over 400 foot increase for the northbound queue. During the PM peak hour, the eastbound and westbound queues would be expected to increase between 50 and 60 feet and the northbound and southbound queues would be expected to increase approximately 80 feet. Given that a pedestrian scramble movement stops all vehicular traffic, these results are not unexpected. While a pedestrian-only phase does enhance safety for pedestrians at that intersection, it also creates a large amount of additional delay and increased queueing on all approaches, and as a result, would negatively impact operations downstream and upstream along the corridor. Further detail on the impact of this option is provided in Appendix H.

- **Newport Way: southbound right turn/through lane.** This project would create a southbound combined right turn and through lane by removing existing parking. In addition, a merge lane south of the intersection would be constructed to accommodate the additional through traffic. This project would also improve safety by reducing existing conflict points where the eastbound-right turn merges with Issaquah-Hobart Road, as well as creating a shorter walking distance for pedestrians to cross the intersection. The project improves the PM peak hour results to LOS D, but at the cost of removing utilized on-street parking in the downtown area. In addition, the planned Front Street park just north of the project location may need the current on-street parking to remain.

- **2nd Avenue SE: westbound left and shared left/right turn lanes with merge lanes to the south.** While the operations at this intersection are not deficient, it does serve a high number of vehicles and can create a bottleneck for traffic along the corridor. A potential improvement was evaluated to see if operations could be improved to move more traffic through the intersection. By turning the existing westbound right turn lane into a shared left/right turn lane, the LOS is not expected to improve in either the AM or PM peak period significantly. The delay is only expected to improve by less than 5 seconds in either time period. Queues at this location are expected to stay roughly the same during the AM peak hour with the project,but increase by over 300 feet for the westbound left during the PM peak hour since right-turning vehicles will now need to wait behind vehicles wanting to turn left.

- **SE May Valley Road: two through lanes northbound & southbound with merge lanes.** This project would involve adding through lanes in both the northbound and southbound direction, as well as merge lanes on the opposite sides of the intersections. The north and southbound through movements have the heaviest volumes. The project would enable more traffic to get through the intersection without having to increase the green time of the signal, however traffic would still need to merge back together after the intersection. The AM peak hour LOS improves from E to C and the PM peak hour LOS improves from F to E. Queues are expected to stay roughly the same during the AM peak hour, except the northbound through is expected to decrease in queue length from 2,635 feet to 1,915 feet. The same is true for the PM peak hour, with the queue length of the southbound through movement expected to drop from 2,606 feet to 1,934 feet.

- **SE May Valley Road: two-lane roundabout with northbound slip lane.** A second option for May Valley Road would be to install a two-lane roundabout with a slip lane in the northbound direction. The northbound direction is highest during the AM peak hour, with traffic predominantly in the through movement. A slip lane would remove this traffic from the intersection, creating less delay for both that movement and others using the roundabout. In the existing PM peak hour, the intersection creates a chokepoint as vehicles from May Valley Road wait for available gaps in traffic while also competing for green time with the heavy southbound movement. The intersection operations are expected to improve to LOS A in both the AM and PM peak hours with this improvement. Vehicle queues at this location are expected to be below 155 feet on all legs in the AM peak hour and below 170 feet on all legs in the PM peak hour.

- **Cedar Grove Road: two through lanes northbound & left turn lanes westbound with merge lanes.** A similar project to the first project option at May Valley Road, this project involves adding a through lane northbound and a westbound left turn lane, as well as a merge lane on the northern portion of the intersection. It would enable more northbound traffic on both the southern and western legs to get through the intersection without increasing the green time of the signal. Traffic would still need to merge back into a single lane after the intersection. The overall intersection LOS is not expected to improve in either time period with this option. In the AM peak hour, the worst movement (eastbound) is expected to improve from LOS F to LOS E and queues are expected to be less than 400 feet, except for the northbound through with a queue of 1,205 feet (compared to 1,585 feet without the project). In the PM peak hour, the worse movement (eastbound) is expected to improve from LOS F to LOS D, but queues would stay similar to existing conditions.

- **Cedar Grove Road: two-lane roundabout with northbound slip lane.** Another option for Cedar Grove Road would be the same improvement as at May Valley Road – a two-lane roundabout with a slip lane in the northbound direction. With heavy traffic in the northbound through direction during the AM peak hour and another heavy movement turning from Cedar Grove Road to the north, these movements compete for traffic signal green time. The slip lane would remove the northbound through direction and give traffic from Cedar Grove Road easier turning access. The AM peak hour would improve to LOS A, with a decrease in delay of roughly 189 seconds. All movements are predicted to improve to LOS A with the project and the queues are projected to be no larger than 70 feet. During the PM peak hour, the intersection is expected to improve from LOS C to LOS A with a decrease of 24 seconds of delay. The PM peak hour worst movement, the eastbound direction, is expected to improve from LOS F to LOS B and queues on all legs are expected to be under 155 feet in length (compared to over 1,200 feet without the project).

Improvement projects were not developed for all intersections showing future deficiencies. In some cases, such as at the intersections at 132nd Avenue SE and Tiger Mountain Road (N), the congestion and poor intersection operations is a result of congestion occurring at adjacent intersections, therefore no project is necessary. Since both 132nd Avenue SE and Tiger Mountain Road (N) are impacted by congestion occurring at May Valley Road, and Tiger Mountain Road (N) is impacted by congestion at Cedar Grove Road, projects were not identified for those locations.

For the intersections at the south end of the corridor, the Tiger Mountain Road (S) intersection is impacted by high through volumes but has very low minor-street volumes. Signal warrants were run at this intersection, however they were not met and as such, no improvement is recommended at this time. The SR 18 ramp intersections were included in the analysis, however are under WSDOT jurisdiction and are not part of this study effort. These intersections are likely to be included as part of future widening on SR 18. As such, no mitigation was evaluated as these intersections.

Corridor operations were also evaluated with improvement projects that add capacity. Tables 24 and 25 show the AM and PM peak hour Corridor LOS results, respectively.

Table 24. Future AM Peak Hour Corridor LOS Summary

	2040 Baseline[3]				2040 With-Project[3,4]			
	SB		NB		SB		NB	
Location	**Speed[1]**	**LOS[2]**	**Speed[1]**	**LOS[2]**	**Speed**	**LOS[2]**	**Speed**	**LOS[2]**
City								
Gilman Blvd to Sunset Way	10 mph	D	10 mph	D	10 mph	D	10 mph	D
Sunset Way to Newport Way	3 mph	**F**	1 mph	**F**	4 mph	**F**	2 mph	**F**
Newport Way to 2nd Ave	31 mph	A	18 mph	C	30 mph	A	19 mph	C
2nd Ave to South City Limits	39 mph	A	15 mph	**E**	39 mph	A	15 mph	**E**
County								
South City Limits to May Valley Rd	44 mph	A	13 mph	**F**	44 mph	A	13 mph	**F**
May Valley Rd to Cedar Grove Rd	30 mph	B	10 mph	**F**	43 mph	A	13 mph	**F**
Cedar Grove Rd to SR 18	38 mph	A	9 mph	**F**	38 mph	A	11 mph	**F**

1. Existing speed data is based off travel time data collected on Tuesdays and Thursdays in April and May,2017.
2. LOS criteria according to Exhibit 16-4 in HCM 2010 for the City segments and section 14.70.220 in the King County Code for the County segments.
3. 2040 Baseline and With-Project travel times calculated using Synchro, version 9.0. The meso model was only developed for the PM peak hour and could not be used for the AM peak hour.
4. With-Project corridor analysis includes the following improvement projects: realigned and signalized Dogwood Street, eastbound & westbound left turn lanes at Sunset Way, and roundabouts with a northbound slip lane at May Valley Road and Cedar Grove Road.

The travel speeds during the AM peak hour improve slightly in the northbound direction, as well as several segments in the southbound direction. There is not a big increase in speed expected in the City segment of the corridor as the improvements mainly increase intersection capacity but do not impact corridor capacity. The biggest increase in travel speed is expected between May Valley Road and Cedar Grove Road, due to the assumed roundabout improvements at those locations.

Table 25. PM Peak Hour Corridor LOS Summary

	2040 Baseline[3]				2040 With-Project[3,4]			
	SB		NB		SB		NB	
Location	**Speed[1]**	**LOS[2]**	**Speed[1]**	**LOS[2]**	**Speed[1]**	**LOS[2]**	**Speed[1]**	**LOS[2]**
City								
Gilman Blvd to Sunset Way	1 mph	**F**	9 mph	**E**	1 mph	**F**	8 mph	**E**
Sunset Way to Newport Way	1 mph	**F**	6 mph	**F**	2 mph	**F**	6 mph	**F**
Newport Way to 2nd Ave	7 mph	**F**	27 mph	B	7 mph	**F**	27 mph	B
2nd Ave to South City Limits	20 mph	D	34 mph	B	20 mph	D	35 mph	B
County								
South City Limits to May Valley Rd	19 mph	D	41 mph	A	45 mph	A	44 mph	A
May Valley Rd to Cedar Grove Rd	31 mph	B	41 mph	A	34 mph	B	45 mph	A
Cedar Grove Rd to SR 18	37 mph	B	35 mph	A	37 mph	B	41 mph	A

1. Existing speed data is based off travel time data collected on Tuesdays and Thursdays in April and May,2017.
2. LOS criteria according to Exhibit 16-4 in HCM 2010 for the City segments and section 14.70.220 in the King County Code for the County segments.
3. 2040 Baseline travel times calculated using the meso model.
4. With-Project corridor analysis includes the following improvement projects: realigned and signalized Dogwood St, eastbound & westbound left turn lanes at Sunset Wy, and roundabouts with a northbound slip lane at May Valley Rd and Cedar Grove Rd.

During the PM peak hour, the biggest difference is expected in the southbound direction between the City Limits and May Valley Road which goes from LOS D with a travel speed of 19 mph to LOS A with a travel speed of 45 mph. This is likely due to the assumed roundabout improvement at the May Valley Road intersection. Other County segments are also expected to see higher travel speeds than under Baseline conditions. In the City, most travel speeds stay the same, with a couple of segments changing by only 1 mph up or down. This is expected since, as previously noted, improvements along City segments mainly increase intersection capacity but do not impact corridor capacity.

Prioritizing Projects

The initial projects were then evaluated one by one with the previously identified evaluation criteria based on the Safety, Mobility and Implementation categories. The criteria were rated for each project on a scale from 1 to 3. The entire project list showing the evaluation results for each project is included in Appendix I. The evaluation results, coupled with the operational analysis, helped categorize projects into three categories: recommended projects, low-priority projects, and projects not recommended at this time. The three categories reflect current information and the relative importance of projects to enhance travel on the corridor, as well as provide guidance in implementing the improvements.

The following chapter identifies which projects were recommended and reviews funding strategies for the projects.

Recommendations

This section of the report introduces the recommended project list. The projects noted in this section are designed to address immediate safety and mobility needs, but also provide for the needs over the next 20-years. The projects are based on available data and analysis, and will need to be implemented over time. Future implementation will be determined by the City and County decision makers and other coordinating agencies in consideration of need, funding, environmental review, and coordination with other modes.

Recommended Projects

In the following sections, projects are listed according one of three prioritization categories: recommended, low-priority, or not recommended. The prioritization category is based on the evaluation criteria and feedback from the City and County. Some of the projects are anticipated to be completed earlier in the life of the plan and as funding is available, while others will be completed later. As conditions change along the corridor and within the region, the list will need to be revisited to address the changing needs, funding availability and opportunities, and suggested project timelines. The full project list is shown in Table 26.

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Cost Key		Timing Key
$	$0 - $100K	2031 + Long
$$	$100K - $1M	2025-2030 Mid
$$$	$1 - $5M	2018-2024 Short
$$$$	$5 - $10M	
$$$$$	$10M+	

Transportation Improvement Projects and Programs

Issaquah-Hobart Rd/Front St Corridor Study

Type	Project ID	In Adopted Plan?	Jurisdiction	Project Name	Project Description	Benefits	Impacts	Notes	Cost Range	Cost Estimate (2018 $)	Timing
RECOMMENDED PROJECTS											
Widening/ Realignment	W-1	King County CIP (1129598)	King County	**Issaquah-Hobart Rd / May Valley Rd Intersection Improvement** *Intersection*	Construct intersection improvements that include either additional through lanes with a signal or a 2-lane roundabout at the intersection of Issaquah-Hobart Rd and May Valley Rd .	• Alleviate congestion and improve intersection LOS • Improve system reliability • Improve safety by reducing congestion which can lead to rear-end collisions.	• Potential ROW impacts • Traffic will be required to merge when the extra lane begins and ends • Potential impacts to heavy trucks • Potential environmental impacts	Conceptual Design Prepared for the roundabout option. The project is recommended for additional detailed design evaluation to evaluate feasibility and costs. The final analysis shall include a Sidra Analysis that takes into account the corridor between just north of May Valley to south of Cedar Grove. The detailed analysis will include effects of upstream and downstream queueing, stop controlled intersections between May Valley and Cedar Grove, and merge delays for each alternative. This analysis will be completed prior to final project design.	$$$	$2,353,000	Short
Widening/ Realignment	W-2	King County CIP (1129597)	King County	**Issaquah-Hobart Rd / Cedar Grove Rd Intersection Improvement** *Intersection*	Construct intersection improvements that include either additional through lanes with a signal or a 1 to 2-lane roundabout at the intersection of Issaquah-Hobart Rd and Cedar Grove Rd .	• Alleviate congestion and improve intersection LOS • Improve system reliability • Improve safety by reducing congestion which can lead to rear-end collisions.	• Potential ROW impacts • Traffic will be required to merge when the extra lane begins and ends • Potential impacts to heavy trucks • Potential environmental impacts	Conceptual Design Prepared for the roundabout option. The project is recommended for additional detailed design evaluation to evaluate feasibility and costs. The final analysis shall include a Sidra Analysis that takes into account the corridor between just north of May Valley to south of Cedar Grove. The detailed analysis will include effects of upstream and downstream queueing, stop controlled intersections between May Valley and Cedar Grove, and merge delays for each alternative. This analysis will be completed prior to final project design.	$$$	$3,303,000	Mid
Widening/ Realignment	W-3	Issaquah CIP (T-37)	City of Issaquah	**Front St / Sunset Way** *Intersection*	Design and construct left-turn lanes on Sunset Way. Parking to be removed along Sunset Way and traffic signal operation to change to 8 phases instead of split phased on Sunset Way.	• Alleviate congestion and improve intersection LOS • Improve safety by reducing potential for collisions, particularly left-turn and rear-end • Provides local mobility	• Removal of roughly 7 on-street parking stalls along south side of W Sunset Way west of Front St • Removal of pedestrian bulb-out on southwest corner of intersection • Greater pedestrian crossing length	Conceptual Design Prepared The project is recommended to provide improved intersection and corridor operations along Sunset Way. The City will also be conducting a parking study that can further inform this project.	$$	$671,000	Mid
Widening/ Realignment	W-4	-	King County	**Issaquah-Hobart Rd/ May Valley Rd (interim)** *Intersection*	Extend northbound left and eastbound left turn lanes at this intersection to prevent turning traffic from backing into through lanes. Adjust eastbound right turn radius to account for trucks turning onto Issaquah-Hobart Road.	• Alleviate congestion and improve intersection LOS • Improve safety for truck movements	• Potential ROW impacts • Potential environmental issues	Conceptual Design Prepared The project was recommended for additional design evaluation to evaluate feasibility and costs, however the project primarily benefits heavy vehicles so more substantial improvements are necessary (see project W-1).	$$$	$1,267,000	Short
Non-Motorized Network	NM-1	-	City of Issaquah	**Trail Connection at 2nd Ave** *Intersection with Front St*	Construct an 8 to 10-foot sidewalk connecting and directing non-motorized traffic at Front St and 2nd Ave onto the Rainier Trail. Sidewalk will be on the southeast side of 2nd Avenue SE and will follow the roadway alignment. Includes corresponding signage.	• Improve safety and comfort for non-motorized users at intersection • Decrease conflict points between motorized and non-motorized users along Front Street • Direct non-motorized users to the Rainier Trail	• Potential ROW impacts	Planning Level Costs Prepared The project is recommended to better connect non-motorized users to the Rainier Trail and eventual extension of a trail south to Poo Poo Point. Improvement of this trailhead is part of the City of Issaquah Parks Strategic Plan and may be included in the City's Complete Streets Improvements.	$$	$761,000	Short
Safety	S-1	-	City of Issaquah	**Front St Access Management** *Holly St and Alder Pl*	Restrict left-turn movements along Front Street at Holly Street and Alder Place either permanently or during peak hours to alleviate congestion caused by turning vehicles backing up traffic in through lanes on Front Street and reduce potential for collisions. C-curbs to be placed for permanent restrictions, to restrict movements to right-in, right-out only movements, but only where alternate routes are available.	• Alleviate congestion • Improve safety for pedestrian and vehicular traffic by reducing conflict points	• Delay or rerouting for those who wish to access destinations off Front Street	Planning Level Costs Prepared. Project is recommended for implementation to improve corridor safety and travel time reliability. Additional outreach and notification to adjoining property and business owners will be needed.	$	$30,000	Mid
Safety	S-2	Issaquah CIP (T-30)	City of Issaquah	**Front St / NW Dogwood St** *Intersection*	Design and construction of intersection improvements, potentially re-aligning the intersection(s), new surfacing, curbs and gutters, storm drainage, utility adjustments, street lights, new traffic signal, and sidewalks to meet ADA requirements.	• Improve pedestrian and vehicular safety by reducing conflict points and adding signal control for vehicles • Improve access and trail crossing • Provide improved local mobility options and reduce side street delay	• Potential ROW impacts • Increased delays along Front Street	Planning Level Costs Prepared The project is recommended to provide for improved side street access, and crossing safety for pedestrians and bicyclists.	$$$	$2,734,000	Mid
Traffic Control / Operations	C-1	-	City of Issaquah	**Adaptive Signal Control System** *2nd Ave to Dogwood St, including crossing corridors Newport Way, Sunset Way and 2nd Ave*	Update and integrate new signal technology at 8 intersections to accommodate changing traffic volumes and optimize travel times along the corridor and at adjacent intersections. Upgrades would include controller hardware and software, stop bar vehicle detection, and advance vehicle detection. New technologies for bicycle recognition can also be included.	• Improve travel time reliability and intersection level of service • Improve safety at intersections and segments along the corridor by reducing congestion which can cause collisions (particularly rear-end)	• Potential additional delays to minor street approaches	Conceptual Design Prepared. This project would link to adaptive signal control (ASC) along Newport Way, Sunset Way and 2nd Avenue, as they operate as an interconnected system. ASC is most effective in the case of unusual traffic delays or events, such as a collision. Day to day benefits are slight, though can be experienced during the peak fringe hours before the roadway becomes overly congested. Additional analysis will be needed to determine the specific benefits of ACS on the corridor.	$$	$938,000	Short
Traffic Control / Operations	C-2	-	King County & City of Issaquah	**Digital Travel Time Signs** *N of the I-90 interchange, S of the SR-18 interchange, and on SR-18*	Up to 6 Changeable Message Signs (CMS) & 6 Bluetooth/WiFi readers placed at major traveler decision points. Locations include north of the intersection of Front St and I-90, south of the intersection of Issaquah-Hobart Rd and SR-18, on I-90 near Front Street and Sunset Way, and on SR-18 near Issaquah-Hobart Rd. These signs would indicate the average travel times along north-south corridors in the area, based on traffic levels.	• Improve awareness for drivers of current travel conditions • Improve safety for drivers as they're alerted when road is closed for traffic or weather conditions	• Coordination with WSDOT • Potential ROW impacts	Conceptual Design Prepared. The project is recommended to provide improved traveler information to people to make informed choices about which route to take.	$$$	$2,172,000	Short
Transportation Alternatives	TA-1	-	King County & City of Issaquah	**Carpool / Vanpool Incentives** *Marketing, Education, Performance Monitoring, Travel Subsidies*	A campaign of marketing, education, incentives, and performance monitoring to encourage use of vanpools, carpools, transit, and other alternative transportation options along the corridor	• Decrease single-occupancy vehicles along the Issaquah-Hobart Rd/Front St corridor • Improve travel options	• Ongoing operational costs	This project is regional in nature and will need buy-in from other jurisdictions to implement.	$$$	-	-

Cost Key	
$	$0 - $100K
$$	$100K - $1M
$$$	$1 - $5M
$$$$	$5 - $10M
$$$$$	$10M+

Timing Key
2031 + Long
2025-2030 Mid
2018-2024 Short

Transportation Improvement Projects and Programs

Issaquah-Hobart Rd/Front St Corridor Study

Type	Project ID	In Adopted Plan?	Jurisdiction	Project Name	Project Description	Benefits	Impacts	Notes	Cost Range	Cost Estimate (2018 $)	Timing
LOW-PRIORITY PROJECTS											
Widening/ Realignment	W-5	Issaquah CIP (T-11 / T-24)	City of Issaquah	**Front St / Gilman Blvd** *Intersection*	Widen roadway to develop two southbound through-lanes along Front Street on either side of the intersection with Gilman Blvd. Through-lanes should extend far enough beyond intersection to allow traffic to safely merge, and to prevent queuing spillback into the intersection. Could be incorporated as part of any outcomes from the I-90/Front Street IJR.	• Alleviate congestion and improve intersection LOS • Improve system reliability • Improve safety as allows more vehicles through intersection to reduce speeding through or rear-end collisions	• Potential ROW impacts • Traffic will be required to merge when the extra lane ends • Greater pedestrian crossing length	This project was not recommended at this time as it is closely related to potential improvements at the I-90 interchange ramps. WSDOT is conducting an Interchange Justification Report (IJR) to evaluate improvements at the interchange. Future improvements at Gilman Boulevard should be coordinated with the outcomes of that study.	$$$	-	N/A
Widening/ Realignment	W-6	-	King County	**Fifteen-Mile Creek Bridge** *South of May Valley Rd*	Replace and widen Fifteen-Mile Creek Bridge to add shoulders.	• Brings bridge design up to standard • Allows room for non-motorized users	• High cost of widening bridge	The project is not recommended at this time as it provides little benefit to congestion relief or overall improvement in mobility.	$$$$	-	N/A
Non-Motorized Network	NM-2	-	City of Issaquah	**Wayfinding for Rail Trail** *Various Locations in City*	Signs, pavement markings, curb cuts, and other features directing non-motorized users to the Rainier Trail.	• Increase use of the Rainier Trail • Improve non-motorized travel	• None	Consider implementation as part of other wayfinding improvements throughout the City.	$	-	N/A
Safety	S-3	-	King County	**Rumble Strips (both shoulders)** *Cedar Grove to SR 18*	Rumble strips along both sides of the roadway from Cedar Grove Rd to SR 18 to alert drivers when they are leaving travel lanes and drifting onto shoulders	• Improve awareness for drivers, and improved safety for all users	• Potential negative impact on bicycles	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$$	-	N/A
Safety	S-4	-	King County	**Shoulder pedestrian improvements** *North of Poo Poo Point Parking Lot*	Improvements along the shoulder from areas north of the Poo Poo Point Trailhead, which could include an off road trail, shoulder treatments, or a visual or physical barrier between traffic and pedestrians.	• Improve awareness for drivers, and improved safety an comfort for pedestrians traveling from the northern parking lot to the Poo Poo point trailhead	• Potential for faster vehicle speeds	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location. City Parks Dept requested connections to N & S Squak Valley Park, however would require crosswalk.	$$	-	N/A
Safety	S-5	-	King County	**Reflectors or flashing "curve ahead" signs** *Mirrormont Blvd to SR 18*	Reflectors, curves ahead sign (W1-5) and flashing beacon to warn drivers of upcoming curves	• Improve awareness for drivers, and improved safety for all users	• None	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$	-	N/A
Safety	S-6	-	King County	**Prepare to Stop when Flashing Sign** *N of May Valley to S of Cedar Grove*	Prepare to stop when flashing (PTSWF) sign with warning beacon, placed in conjunction and after the Signal Ahead (W3-3) sign, per MUTCD	• Improve awareness for drivers, and improved safety for all users	• None	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$	-	N/A
Safety	S-7	-	King County	**Intersection Ahead Sign** *Various locations*	Intersection Ahead sign placed at limited visibility intersections along the corridor, potentially including SE 156th St.	• Improve awareness for drivers, and improved safety for all users	• None	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$	-	N/A
Safety	S-8	-	King County	**Illumination** *Issaquah-Hobart Rd n/o Tiger Mtn Rd (S)*	Improve lighting at this location	• Improve visibility for all users along the corridor	• Street lights can create more light impacts for adjoining property owners	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$	-	N/A
Safety	S-9	-	King County	**Overhead Flashing Beacon at SE 156th St** *Intersection w/ Issaquah-Hobart Rd*	An overhead flashing beacon at the intersection between Issaquah-Hobart Rd and SE 156th St	• Improve awareness for drivers, and improved safety for all users	• None	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$$	-	N/A
Safety	S-10	-	King County	**Queueing Ahead Signs** *Issaquah-Hobart Rd (NB), north of Hwy 18*	Place queueing ahead signs along Issaquah Hobart Rd in the northbound direction, north of Hwy 18	• Improve awareness for drivers, and improved safety for all users	• None	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$$	-	N/A
Safety	S-11	-	King County	**High Friction Surface Treatment** *Issaquah Hobart Rd n/o Tiger Mtn Rd*	Pave roadway with High Friction Surface Treatment in area where run-off roadway collisions are more frequent than rest of corridor.	• Improve safety along corridor	• Increase in maintenance and lifecycle costs	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$	-	N/A
Safety	S-12	-	King County	**Digital Speed Reader** *South of Mirrormont Blvd*	A changeable message sign (CMS), displaying the speed of approaching vehicles, placed in conjunction with speed limits signs per MUTCD, R2-1. Signs would be placed south of Mirrormont Blvd, on the section of the corridor that saw the greatest number of off-road collisions	• Improve awareness for drivers, and improved safety for all users	• None	Would be implemented at which time the corridor segment meets King County thresholds for a High Collision Location.	$$	-	N/A
Traffic Control / Operations	C-3	-	King County	**Enhanced Signal Control System - Adaptive or Traffic Responsive** *May Valley Rd to Cedar Grove Rd*	Update and integrate new signal technology to accommodate changing traffic volumes and optimize travel times along the corridor. Implementation would require an upgraded detection and fiber optic communications system.	• Improve travel times and intersection level of service, and safety at intersections and segments along the corridor	• Potential negative impacts on level of service and travel times along minor approaches	The project can function in an interim measure to help alleviate congestion while permanent solutions are designed and constructed.	$$	-	N/A
Transportation Alternatives	TA-2	-	King County & City of Issaquah	**City / County Express Shuttle** *Entire Corridor*	An express shuttle operated by the city of Issaquah and/or King County would provide non-stop or limited-stop travel, connecting park-and-ride locations to the south and north of the corridor. Could be coupled with intersection prioritization strategies (such as intersection queue lanes).	• Decrease single-occupancy vehicles along the Issaquah-Hobart Rd/Front St corridor	• Cost of owning and operating vehicle(s) • Potential operational impacts along the corridor	This project is regional in nature and will need buy-in from other jurisdictions to implement.	$$$$	-	N/A

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	Cost Key	Timing Key
$	$0 - $100K	2031 + Long
$$	$100K - $1M	2025-2030 Mid
$$$	$1 - $5M	2018-2024 Short
$$$$	$5 - $10M	
$$$$$	$10M+	

Transportation Improvement Projects and Programs

Issaquah-Hobart Rd/Front St Corridor Study

Type	Project ID	In Adopted Plan?	Jurisdiction	Project Name	Project Description	Benefits	Impacts	Notes	Cost Range	Cost Estimate (2018 $)	Timing
PROJECTS NOT RECOMMENDED AT THIS TIME											
Widening/ Realignment	W-7	-	City of Issaquah	**Front St / 2nd Ave SE** *Intersection*	Signal enhancement with a westbound left turn lane and shared left/right turn lane. Includes an additional southbound receiving lane that merges.	• Slight decrease in intersection delay	• Potential ROW impacts • Traffic will be required to merge when the extra lane begins and ends	The project is not recommended at this time as not enough reduction in delay would be realized compared to the potential costs of the improvement.	$$$	-	N/A
Widening/ Realignment	W-8		King County	**Issaquah-Hobart Rd** *City Limits to Cedar Grove Rd*	Widen roadway to add two-way left-turn lane and shoulders. Does not include widening of Fifteen-Mile Creek Bridge.	• Alleviates spot congestion issues due to turning vehicles • Improves corridor safety • Improves safety and access to adjoining properties	• High cost of widening roadway • Potential environmental issues • Potential ROW impacts	The project is not recommended at this time due to the high cost and impacts of widening the corridor.	$$$$$	-	N/A
Widening/ Realignment	W-9	-	City of Issaquah	**Front St / Newport Way Southbound Right Turn/Through Lane** *Intersection*	Widen roadway to add a southbound right turn/through lane (see project AM-1 for details). Includes widening south of the intersection and signal upgrades	• Alleviate congestion and improve intersection LOS • Eliminate channelized eastbound right-turn • Provide for transit or HOV queue jump • Improve safety by eliminating free eastbound right turn, which eliminates potential merging issues and decreases number of conflict points for non-motorized users	• Potential ROW impacts • Potential conflicts with pedestrians • Potential loss of on-street parking • Greater pedestrian crossing length	The project is not recommended at this time as not enough travel time benefit would be realized compared to the potential costs of the improvement.	$$$	-	N/A
Widening/ Realignment	W-10	-	King County	**Channelized Left Turn Expansions** *Intersections*	Extend left turn lanes along the corridor that are over capacity to a minimum of 400' to prevent turning traffic from backing into through-lanes. Locations include May Valley Rd & Cedar Grove Rd	• Alleviate congestion and improve intersection LOS • Improve safety by creating more space for turning vehicles so they don't block through movements, lessening likelihood of rear-end collisions	• Potential ROW impacts	The project is not recommended because the installation of roundabouts at the two intersections will address the need for left-turn lanes.	$$$	-	N/A
Widening/ Realignment	W-11	-	King County	**Issaquah-Hobart Rd** *City Limits to SR 18*	Widen shoulders along length of the corridor to allow for shoulder use during peak commuting hours. Shoulders could also be used for school bus pullouts. See also NM-1.	• Alleviate congestion and improve intersection LOS	• High cost of widening roadway and reconfiguring curb cuts • Potential conflicts with pedestrians • Potential environmental issues	The project is not recommended due to the high cost and impacts of widening the corridor. In addition, using shoulders for peak commuting hours would likely create unnecessary safety issues with bicycles, pedestrians, or turning vehicles.	$$$$$	-	N/A
Widening/ Realignment	W-12	-	King County	**School Bus Pullouts** *City Limits to May Valley Rd*	Designated areas off-roadway with enough room for buses to exit and enter traffic safely.	• Reduce congestion during school pick up and drop off hours • Improve safety for children boarding and alighting bus	• Buses could experience significant difficulty re-entering traffic • The location of bus stops change over time	The project is not recommended as there is no support from the school district and most bus stops are off corridor, or change locations over time.	$$	-	N/A
Widening/ Realignment	W-13	-	City of Issaquah	**Time of Day Parking Restrictions** *Downtown Front St*	Restrict on-street parking on Front St between Sunset and Newport for southbound traffic during the PM peak hours to allow for transit/HOV queue jump. Lane would be used as right-turn only lane during non-peak hours	• Alleviate congestion by reducing parking maneuvering delays	• Limited access to businesses without off-street parking during peak hour travel	The project is not recommended at this time as the City is conducting a parking study that will look at enforcement of parking restrictions and further restrictions in this area. Project would need to be coordinated with Parks Department as Front Street Park (currently undeveloped) may need on-street parking.	$$	-	N/A
Widening/ Realignment	W-14	-	City of Issaquah	**Front St / Sunset Way** *Intersection*	Restrict left-turns onto Sunset Way from Front Street during peak hour traffic to prevent turning traffic from backing up into through lane.	• Alleviate congestion • Improve pedestrian and vehicular safety with fewer conflict points	• Limited access to Sunset Way during peak hour traffic • Left-turn traffic distributed to other roadways may cause congestion at other intersections/roadway	Project is not recommended as it would be difficult to restrict left-turns during the peak hours, and would result in reduced overall access and mobility in the City's downtown business district.	$	-	N/A
Non-Motorized Network	NM-3	-	King County & City of Issaquah	**Multi-use Trail** *2nd Ave to Poo Poo Point Parking Area*	Construct a 10' to 12' wide multi-use trail installed on the east side of the roadway from 2nd Ave to Poo Poo Point parking area.	• Improve traffic operations, safety, and comfort for non-motorized users along the corridor • Improve park and trail access	• Cost of new trail ROW, and associated utility placement or replacement costs • Cost of implementation • Potential environmental issues	The project is not recommended at this time due to other higher priorities. If this project were revisited in the future, it would be a first phase to build off-corridor facilities for pedestrians and bicyclists to connect to Poo Poo Point and other designations south of Issaquah. It supports the City of Issaquah Parks Strategic Plan vision for more north/south connections.	$$$	-	N/A
Non-Motorized Network	NM-4		King County	**Multi-use Trail** *Poo Poo Point Parking Area to Cedar Grove Rd*	10' multiuse trail installed on the east side of the roadway from Poo Poo Point parking lot to Cedar Grove Rd. Dependent upon widening of Fifteen-Mile Creek bridge.	• Improve traffic operations, safety, and comfort for non-motorized users along the corridor	• Cost of new trail ROW, and associated utility placement or replacement costs • Cost of implementation • Potential environmental issues	The project would likely be a second phase to build off corridor facilities for pedestrians and bicyclists to connect to designations south of Poo Poo Point.	$$$$	-	N/A
Non-Motorized Network	NM-5	-	King County & City of Issaquah	**Non-Motorized Shoulders** *Entire Corridor*	Widen shoulders to at least 5' along length of the corridor, and designate as bike lane. Include 2' buffers, such as dashed white lines, between car travel lanes and bicycle lane. See also W-8.	• Improve traffic operations, safety, and comfort for non-motorized users along the corridor	• High cost of widening roadway • Potential environmental issues	The project is not recommended at this time due to the high cost and impacts of widening the corridor, and still results in facilities not attractive to pedestrians or bicyclists.	$$$$	-	N/A
Non-Motorized Network	NM-6	-	City of Issaquah	**Pedestrian Scramble at Sunset Way / Front St** *Intersection*	Implement a bike/ped only phase at the intersection of Front St and Sunset Blvd, with no vehicle through or turning movements allowed.	• Improve safety and comfort for non-motorized users at intersection • Fewer delays for turning vehicles during green phases	• Negative impact on intersection LOS and travel times along this section of the corridor • Longer wait times between cycles for both vehicles and pedestrians	The project is not recommended for further consideration due to significant impacts to the overall operations of the signal resulting in long queues, and delays for all users.	$	-	N/A
Safety	S-13	-	King County	**Poo Poo Point** *Trailhead Parking*	Move entrance to the north end and exit to the south end of parking lot, and narrow lanes as enter and exit only. Create additional parking spaces as this allows. Alternative could include expansion of parking lot.	• Space for 5 to 6 additional parking spaces at Poo Poo Point Trailhead • Alleviated need for spillover parking along the shoulders of Issaquah-Hobart Rd	• Potential parking lot maneuverability impacts	Planning Level Costs Prepared. King County Parks Department has a planned improvement for the Poo Poo Point parking lot and will construct when funding is available.	$$	-	N/A
Transportation Alternatives	TA-3	-	King County & City of Issaquah	**Park & Ride / Car Share Site** *South end of Issaquah-Hobart Rd*	Park and ride site near the intersection of Issaquah-Hobart Rd and SR-18 to accommodate carpools, vanpools, shuttles, and other alternative transportation along the corridor. Site would also accommodate future transit development opportunities serving the corridor.	• Decreased single-occupancy vehicles along the Issaquah-Hobart Rd/Front St corridor • Improve travel options	• Cost of land, design, construction, and associated ROW/access	This project is not recommended at this time as it is regional in nature and will need buy-in from other jurisdictions to implement. The details are beyond the scope of the corridor study.	$$$$	-	N/A

Recommended Project List

The recommended projects either scored highest in the project prioritization process or were highlighted as important by stakeholders. They are considered most important for near to mid-term implementation. These projects address the intersections and corridor segments that are critical to the movement of both vehicles and people. They comprise a combination of new and previously-identified improvements. The recommended projects along with their evaluation criteria scores are shown in Table 27. A map of the recommended projects has also been prepared and is illustrated in Figure 37.

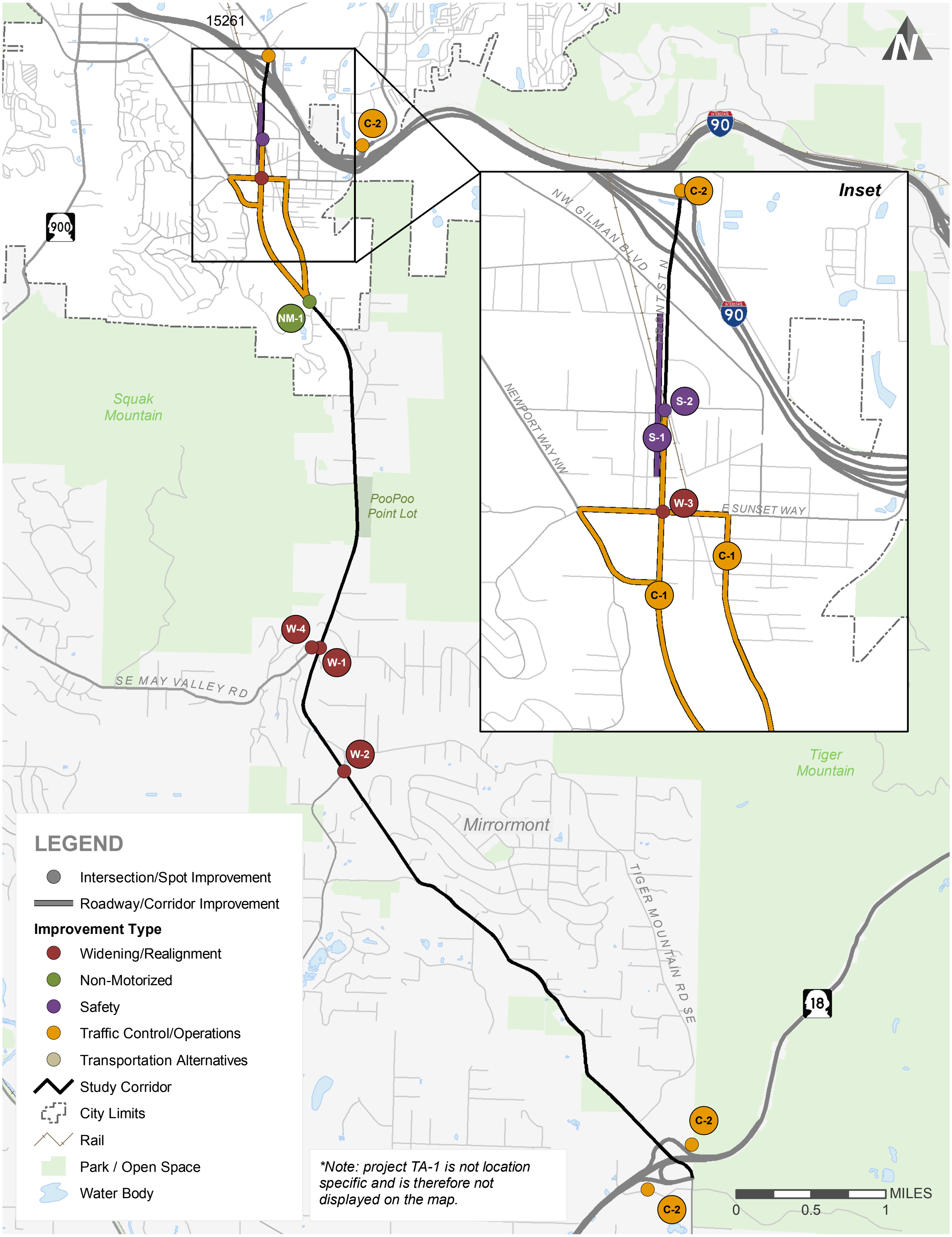
Projects that were recommended for immediate implementation were also summarized in project cut-sheets to assist with grant funding proposals and/or future capital planning. Cut sheets with project descriptions and details related to costs are contained in Appendix J.

Table 27. Recommended Project List

		Evaluation Criteria Scores[1]		
No.	**Project Description**	**Safety**	**Mobility**	**Implementation**
W-1	**Issaquah-Hobart Rd & May Valley Rd. Intersection Improvement.** Construction of a roundabout or additional through lanes.	◑	◑	○
W-2	**Issaquah-Hobart Rd & Cedar Grove Rd. Intersection Improvement.** Construction of a roundabout or additional through lanes.	◑	◑	○
W-3	**Front St & Sunset Way.** Construction of left turn lanes on Sunset Way, a westbound right turn lane, and according signal timing adjustments.	◑	◑	○
W-4	**Issaquah-Hobart Rd & May Valley Rd. Interim** Extend northbound and eastbound left turn lanes.	○	◑	◑
NM-1	**Front St & 2nd Ave SE.** Construct a trail connection and direct non-motorized traffic onto the Rainier Trail.	◑	○	◑
S-1	**Front St at Holly St & Alder Pl.** Restrict turning movements onto Front Street so that both minor street approaches would be right-in/right-out, either permanently or during peak periods.	◑	◑	◑
S-2	**Front St & NW Dogwood St.** Modification of the intersection, including a traffic signal.	◑	◑	○
C-1	**Front St from Dogwood St to 2nd Ave SE.** Update and integrate new signal technology to accommodate changing traffic volumes and optimize travel times.	◑	◑	◑
C-2	**North of Front St, South of Issaquah-Hobart Road, and on SR-18.** Place up to 6 Changeable Message Signs near the corridor, indicating average travel times based on current traffic levels.	◑	◑	◑
TA-1	**Off-Corridor.** A campaign of marketing, education, incentives, and performance monitoring to encourage alternative transportation options.	○	◑	◑

1. Refers to rounded average score for each category. A score of 3 (greater benefit) = ●, a score of 2 (some benefit) = ◑**,** a score of 1 (limited to no benefit) = ○.

As Table 27 shows, none of the projects scored a three (greater benefit) in any category. The reason that no project scored a three was because each project provides benefits to specific locations or segments along the corridor, but by themselves, do not provide significant corridor-wide benefits.



Recommended Improvement Projects

FIGURE **37**

Issaquah-Hobart Rd/Front St Corridor Study

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transpogroup

Project Cost Estimates

Planning level cost estimates are shown in Table 28. Cost estimates were prepared based on bid tabs provided by the City and County, typical unit costs, the functional classification of the roadway, right-of-way needs, and type of improvement, among other factors. The costs shown are preliminary planning level cost estimates that will need to be refined as further project definition is developed.

Table 28. Recommended Project List Cost Estimates

No.	Project Description	Cost Estimates (2018 dollars)[1]	Timeframe
W-1	**Issaquah-Hobart Rd & May Valley Rd. Intersection Improvement.** Construction of a roundabout or additional through lanes.	$2,353,000	Short
W-2	**Issaquah-Hobart Rd & Cedar Grove Rd. Intersection Improvement.** Construction of a roundabout or additional through lanes.	$3,303,000	Mid
W-3	**Front St & Sunset Way.** Construction of left turn lanes on Sunset Way, a westbound right turn lane, and according signal timing adjustments.	$671,000	Mid
W-4	**Issaquah-Hobart Rd & May Valley Rd. Interim** Extend northbound and eastbound left turn lanes.	$1,267,000	Short
NM-1	**Front St & 2nd Ave SE.** Construct a trail connection and direct non-motorized traffic onto the Rainier Trail.	$761,000	Short
S-1	**Front St at Holly St & Alder Pl.** Restrict turning movements onto Front Street so that both minor street approaches would be right-in/right-out, either permanently or during peak periods.	$30,000	Mid
S-2	**Front St & NW Dogwood St.** Modification of the intersection, including a traffic signal.	$2,734,000	Mid
C-1	**Front St from Dogwood St to 2nd Ave SE.** Update and integrate new signal technology to accommodate changing traffic volumes and optimize travel times.	$938,000	Short
C-2	**North of Front St, South of Issaquah-Hobart Road, and on SR-18.** Place up to 6 Changeable Message Signs near the corridor, indicating average travel times based on current traffic levels.	$2,172,000	Short
TA-1	**Off-Corridor.** A campaign of marketing, education, incentives, and performance monitoring to encourage alternative transportation options.[2]	-	-
	City Estimated Subtotal[3]	***$5,858,000***	
	County Estimated Subtotal[3]	***$7,647,000***	
	Outside Jurisdiction Subtotal[4]	***$724,000***	
	TOTAL PROJECT COSTS	**$14,229,000**	

1. Cost details are shown in the cut sheets in Appendix J.
2. Costs were not estimated for this project as not enough information is known about location or level of effort.
3. City and County subtotals include costs of projects in their respective jurisdictions and assume an equally split cost for projects across both jurisdictions.
4. Outside jurisdiction costs come from project C-2, which is split three ways between the City, the County, and an outside jurisdiction(s).

Of the recommended projects, five are located in the City, three are located in the County, and two span across both jurisdictions. The estimated subtotal for the City is roughly $5.9 million dollars and the estimated subtotal for the County is roughly $7.6 million dollars. Including the outside jurisdiction(s) subtotals, the total cost for the entire project list is about $14.2 million dollars.

It should be noted again that additional design analysis is needed on several of the projects, such as at the intersections of Dogwood Street, May Valley Road, and Cedar Grove Road, where there remains several design options that need to be narrowed down to a specific concept. Specifically, King County has indicated plans to perform a more detailed alternatives analysis for both the May Valley and Cedar Grove intersections prior to design of the chosen improvements. For purposes of developing the costs estimates, the initial conceptual design assumes roundabouts at each location, but as noted in the project list the projects could instead expand the existing signalized intersections at both locations

Low-Priority Projects and Projects Not Recommended

The projects that were designated low-priority or not recommended at this time, were done so for a variety of reasons. Low-priority projects could be dependent on current work that is already occurring, or might be able to be implemented along with future projects if budget allows. For example, improvements to the Gilman Boulevard intersection were shown to be needed, but are dependent on the outcomes of WSDOT's current I-90 interchange study. In other cases, projects may be more regional in nature and need buy-in from other jurisdictions before moving forward. An example would be the addition of a park-and-ride near SR 18, which is not included in King County Metro's long-term plan, and would need to be coordinated through that agency.

For projects that were not recommended, they typically had an issue that was difficult to overcome or did not provide a significant benefit given the likely impacts and costs of the project. For example, for the corridor widening options, the costs and impacts were deemed too high with too little benefit to the corridor safety and operations. In other cases, like widening the shoulder for use during the peak hours, the project would fix a congestion problem for vehicles but could create potential safety issues for non-motorized users or simply move the bottleneck farther north towards downtown Issaquah. Finally, some of the projects overlapped with work already being done by agencies and/or were outside the scope of this study effort.

Cost Estimates

Project cut sheets were prepared that more fully describe the recommended projects. The cut-sheets are included as Appendix J. Some of the projects have a conceptual design prepared with more detailed cost estimates, while others have just high-level planning level cost estimates. The cost estimate assumptions are provided as part of the project cut-sheets.

The cost estimates were derived from current bid tabulations from the City and County as well as bid tabulations from other agencies and the WSDOT online Unit-Bid analysis tool. Further detail on cost estimating assumptions is provided in Appendix K.

Projects with more detail have a cut sheet, an environmental areas map, a concept drawing, and a costing sheet. Projects with planning level estimates have a cut sheet, a cross section, and a costing sheet. Each cut sheet includes a map, description, project elements and benefits, a timeframe, and an overall cost.

Funding Strategy

Overall the City and County do not have funding identified for the recommended transportation projects. As noted in Table 28, in order to fully fund the transportation projects, the City would need approximately $5.9 million (in 2018 dollars) and the County would need approximately $7.6 million. The following identifies grant programs the City and County could aggressively pursue to fund the recommended projects.

Grants Programs

The City and County will likely need to depend on state and federal grants to help implement the recommended transportation projects. However, grant programs are very competitive as all agencies are facing critical funding issues. In addition, gas tax revenues used to fund the grants are declining, and project costs are increasing at a rate faster than inflation. Table 29 lists a variety of grant programs that provide funding to local agencies in implementing high priority transportation projects.

Table 29. Potential Grant Programs

Grant / Funding Source	Eligibility	Description
PSRC		
Surface Transportation Program (STP)	City/County	Funds are allocated based on a regional prioritization and selection process. Can fund roadway improvements along designated principal or minor arterials.
Transportation Alternatives Program (TAP)	City/County	Provides funds for non-traditional projects such as pedestrian and bicycle facilities, community improvement activities, environmental mitigation, recreational trails, and safe routes to school.
Congestion Mitigation Air Quality Improvement Program (CMAQ)	City/County	Provides funding for transportation projects and programs that help meet the requirements of the Clean Air Act.
WSDOT		
Safe Routes to School	City/County	Projects to improve safety and mobility for children by enabling and encouraging them to walk and bicycle to school. Funding from this program is for projects within two-miles of primary, middle and high schools (K-12). Funds pass from FHWA through WSDOT to local jurisdictions.
Pedestrian and Bicycle Safety	City/County	Projects to improve the transportation system to enhance safety and mobility for people who choose to walk or bike.
Highway Safety Improvement Program (HSIP)	City/County	Provides funding to implement countermeasures to reduce fatal and serious injury collisions. Programs include the County Safety Program and the City Safety Program with funds from the Federal Highway Safety Program.
Local Bridge Program	City/County	Projects to preserve and improve the condition of bridges that are physically deteriorated or structurally deficient.
Regional Mobility Grants	City/County	Projects to improve transit mobility and reduce congestion on our most heavily traveled roadways.
Transportation Improvement Board (TIB)		
Urban Arterial Program (UAP)	City	Provides funding for projects that enhance arterial safety, support growth and development, improve mobility and the physical condition of the roadway.
Arterial Preservation Program (AAP)	City	Provides funding for rehabilitation and overlay of federally classified arterials.
Urban Sidewalk Program (UAP)	City	Provides funding to construct and replace sidewalks to improve pedestrian safety, create system continuity, link pedestrian generators, extend the system and complete gaps.
County Road Administration Board		
Rural Arterial Program (RAP)	County	Provides funding for projects that enhance arterial safety, improve mobility and the physical condition of the roadway.
County Arterial Preservation Program (CAAP)	County	Provides funding for rehabilitation and overlay of county owned arterials.

Matching Grants to Projects

The City and County will need to specifically pursue grants for many of the recommended projects. Each of the projects have been noted in Table 30, along with the grant programs they would be eligible for. In many cases, the projects would be competing with one another for limited funding through each of the programs, so timing, cost, and overall priorities will play a key role in determining the grant strategy developed by each agency. In some situations, it would be advantageous to both agencies to jointly pursue funding by identifying a suite of projects that together provide for regional benefits along the corridor.

In addition, the City and County will need to pursue the grants by recognizing that they will only partially fund the transportation projects, so existing local revenues will need to be utilized to provide for matching amounts. The need for these matching funds requires a larger funding strategy to identify existing or new local revenue sources.

Table 30. Recommended Project Grant Opportunities

No.	Project Description	Grant Opportunities
W-1	**Issaquah-Hobart Rd & May Valley Rd. Intersection Improvement.** Construction of a roundabout or additional through lanes.	• Surface Transportation Program (STP) • Rural Arterial Program (RAP) • Congestion Mitigation Air Quality Improvement Program (CMAQ))
W-2	**Issaquah-Hobart Rd & May Valley Rd. Intersection Improvement.** Construction of a roundabout or additional through lanes.	• Surface Transportation Program (STP) • Rural Arterial Program (RAP) • Congestion Mitigation Air Quality Improvement Program (CMAQ)
W-3	**Front St & Sunset Way.** Construction of left turn lanes on Sunset Way, a westbound right turn lane, and according signal timing adjustments.	• Surface Transportation Program (STP) • TIB Urban Arterial Program (UAP) • Highway Safety Improvement Program (HSIP)
W-4	**Issaquah-Hobart Rd & May Valley Rd. Interim** Extend northbound and eastbound left turn lanes.	• Surface Transportation Program (STP) • Rural Arterial Program (RAP) • Congestion Mitigation Air Quality Improvement Program (CMAQ)
NM-1	**Front St & 2nd Ave SE.** Construct a trail connection and direct non-motorized traffic onto the Rainier Trail.	• Transportation Alternatives Program (TAP) • WSDOT Pedestrian and Bicycle Safety
S-1	**Front St at Holly St & Alder Pl.** Restrict turning movements onto Front Street so that both minor street approaches would be right-in/right-out, either permanently or during peak periods.	• Highway Safety Improvement Program (HSIP)
S-2	**Front St & NW Dogwood St.** Modification of the intersection, including a traffic signal.	N/A[1]
C-1	**Front St from Gilman Blvd to 2nd Ave SE.** Update and integrate new signal technology to accommodate changing traffic volumes and optimize travel times.	• Congestion Mitigation Air Quality Improvement Program (CMAQ)
C-2	**North of Front St, South of Issaquah-Hobart Road, and on SR-18.** Place up to 6 Changeable Message Signs near the corridor, indicating average travel times based on current traffic levels.	• Transportation Alternatives Program (TAP) • Congestion Mitigation Air Quality Improvement Program (CMAQ)
TA-1	**Off-Corridor.** A campaign of marketing, education, incentives, and performance monitoring to encourage alternative transportation options.	• Regional Mobility Grant

1. A project that is likely not very competitive for any of the identified grant programs.

It is expected that the City and County will work to integrate the project recommendations into the next update of their respective Capital Improvement Plans.