Factoria Blvd SE, Bellevue, King County, Washington
STEP Pedestrian Road Safety Assessment Report

July 12-13, 2021

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Acknowledgements

The City of Bellevue would like to thank the following organizations for providing valuable input throughout the RSA process:

- Complete Streets Bellevue
- King County Metro
- Washington State Department of Transportation
- usRAP & Road Safety Foundation
- Transoft Solutions
- FHWA Resource Center

The City would also like to thank the FHWA Office of Safety for facilitating the RSA through the STEP Program.

Introduction

Background

The purpose of this study was to complete a road safety assessment (RSA), focusing on pedestrian safety, for Factoria Blvd SE from SE Newport Way to SE 36th St (hereafter "study area"). The Federal Highway Administration (FHWA) supported the RSA through the Safe Transportation for Every Pedestrian (STEP) program. STEP is an innovation of the Every Day Counts (Rounds 4 and 5) initiative. Factoria Blvd SE was selected per the request of the City of Bellevue in consultation with the FHWA Washington Division. The City of Bellevue is home to approximately 150,000 people, and the King County Metro transit agency (Metro) and City provide operations and maintenance of their respective facilities along the major and minor arterials.

RSA Site Location

The corridor is under the jurisdiction of the City of Bellevue. This roadway is primarily a two-way, four- to five-lane minor arterial with curb and gutter throughout and sidewalks on both sides. From SE Newport Way to SE 41st Pl, the roadway cross-section is four lanes with a two-way left-turn lane (TWLTL). From SE 41st Pl to SE 36th St, the cross-section varies from four to five through lanes with concrete medians and occasional turn bays. The posted speed limit is 35 miles per hour (mph) along the length of the corridor. Annual average daily traffic (AADT) is estimated to be 37,400 vehicles per day (vpd). AADT overall has

fallen during the COVID-19 pandemic, but City staff report that volumes have rebounded to near pre-pandemic levels.

The central and northern portions of the corridor feature primarily retail and office space, with large shopping centers on either side of Factoria Blvd. The southern end of the corridor features multi-family and single-family housing, as well as Newport High School. Pedestrian counts indicate that there is higher pedestrian activity in the central and northern portions of the corridor, though the High School also generates pedestrian traffic. There are several transit routes through the corridor, with the highest daily ridership at stops near SE 40th Ln and SE 38th St. These stops see approximately 200 to 300 riders per day.

Robbie Frankel (King County Metro) noted during the RSA that King County Metro performs a county-wide equity analysis. The analysis scores areas based on a variety of data as either low, medium, or high priority in terms of equity. The analysis identified the RSA study area as an area of high priority. Figure 1 shows a map of the study area and surrounding area with the equity priority scores overlaid.

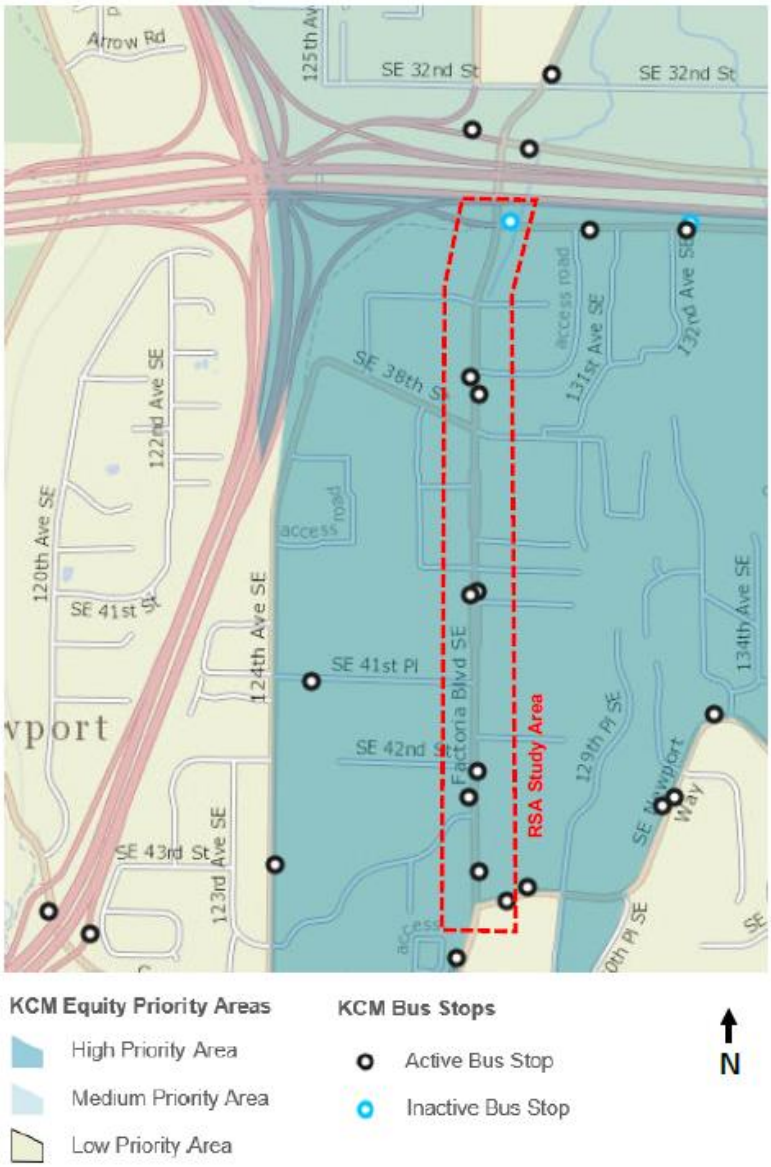


Figure 1 – King County Metro Equity Priority Area Map for vicinity of RSA study area. Credit: King County Metro.

The Washington State Department of Transportation (WSDOT) provided the pedestrian and bicyclist-involved crash data. ***Arterials such as Factoria Blvd SE represent 94 percent of the City's traffic fatalities and serious injuries, but account for only 33 percent of the City's streets***.[1] The Factoria Blvd SE corridor is also part of the City's High Injury Network. This overrepresentation of reported crashes reinforced the need to address safety within the study area.

The RSA reviewed the following five segments of Factoria Blvd SE (Figure 2). Each segment is approximately 1,000 ft long.

- Segment 1: SE Newport Way to south of SE 42nd St
- Segment 2: SE 42nd St to North of SE 41st Pl
- Segment 3: North of SE 41st Pl to SE 39th St
- Segment 4: SE 39th St to SE 3600 Block (Theater Entrance)
- Segment 5: SE 3600 Block (Theater Entrance) to SE 36th St

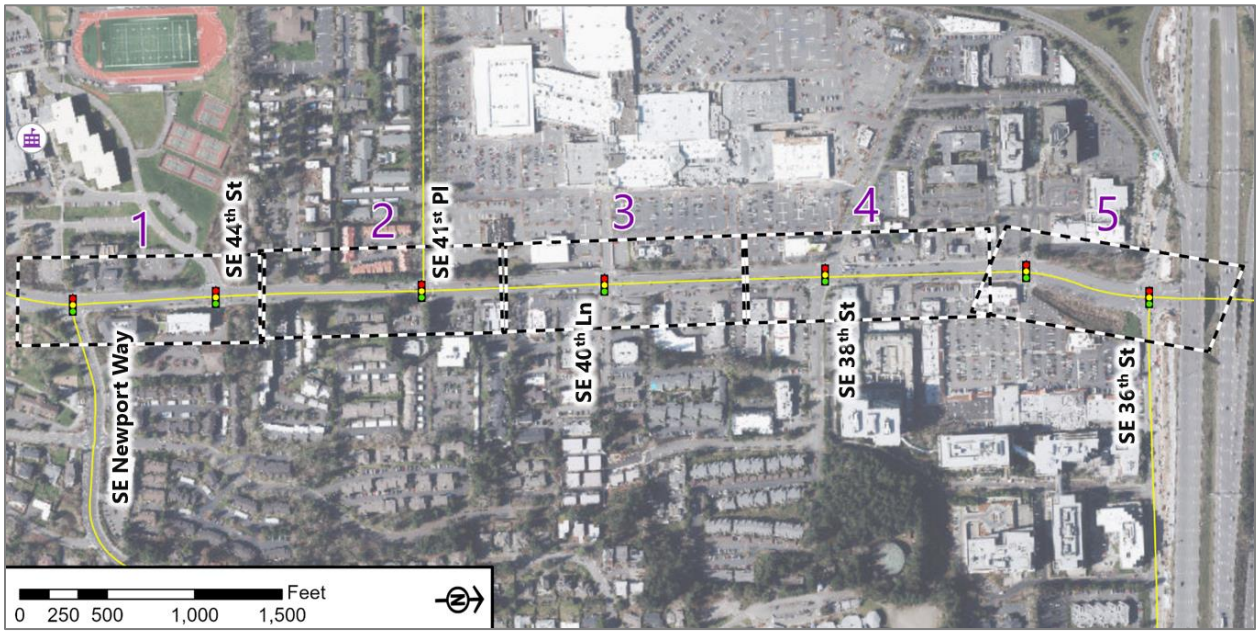


Figure 2 - Study Area Map Segments

RSA Process

RSA Team

The RSA team comprised the following people (presented in alphabetical order by last name):

- Olivia Aikala, City of Bellevue
- Darcy Akers, City of Bellevue
- Joel Barnett, FHWA Washington Division
- Matt Diemer, City of Bellevue
- Michael Dunn, VHB on behalf of FHWA
- Matthew Enders, WSDOT

[1] Vision Zero Strategic Plan – City of Bellevue, WA, https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-strategic-plan-120120.pdf

- Peter Eun, FHWA Resource Center
- Robbie Frankel, King County Metro
- Phil Harris, WSDOT
- Bruce Hamilton, usRAP
- Doug Harwood, usRAP *(guest speaker)*
- Vanessa Humphreys, City of Bellevue
- Chris Iverson, City of Bellevue
- Paul Krawczyk, City of Bellevue
- Bismark Ledezma, Transoft *(guest speaker)*
- Franz Loewenherz, City of Bellevue
- Orooba Mohamed, City of Bellevue
- Justin Nawrocki, WSDOT
- Stela Nikolova, City of Bellevue
- Kristi Oosterveen, City of Bellevue
- Chris Randels, Complete Streets Bellevue *(guest speaker)*
- Max Scheideman, City of Bellevue
- Joe Seymour, VHB on behalf of FHWA
- Raid Tirhi, City of Bellevue
- Ellen Webster, City of Bellevue

RSA Agenda

The RSA was conducted over a two-day period. Due to travel and group size restrictions from the pandemic, the traditional STEP RSA format was modified to two virtual meetings held on Microsoft Teams that were supplemented with field work from local RSA team members and a walking audit from Complete Streets Bellevue.[2] The general activities conducted by the RSA team included:

Prior to Day 1: The local RSA team members met at the study area to conduct a field review and take photos.

Day 1: The RSA team conducted a kick-off meeting. This portion includes reviews of the RSA process, the context of the study area, past and future projects on the corridor, usRAP's analysis of the study area, and Complete Streets Bellevue's recent walking audit. After the kick-off meeting, the RSA team began a review of the corridor's segments to document noted issues. Following the conclusion of Day 1's virtual session, several RSA team members returned to the field to complete a nighttime corridor review.

Day 2: The RSA team reconvened over Microsoft Teams to continue discussing the corridor, including new findings and photos from the Day 1 the nighttime field review. Discussion included a review of the STEP countermeasures and rapid-build implementation techniques, potential applications, and initial site-specific and corridor-wide recommendations.

[2] The organization Complete Streets Bellevue conducted a walking audit of the corridor on July 8th and July 10th, 2021 with community members. The group used the STEP RSA segmentation and walking audit structures from AARP and the Pedestrian Bicyclist Information Center. Walking audits have been previously deployed to complement formal safety investigations, develop support for improvements, and build relationships between transportation practioners and community representatives. See FHWA STEP case study, "Broward MPO Plans for Pedestrian Safety," https://safety.fhwa.dot.gov/ped_bike/step/resources/docs/step_case_studies_broward_county.pdf.

The Appendix includes the RSA's daily agendas, background briefing materials, and other supporting items.

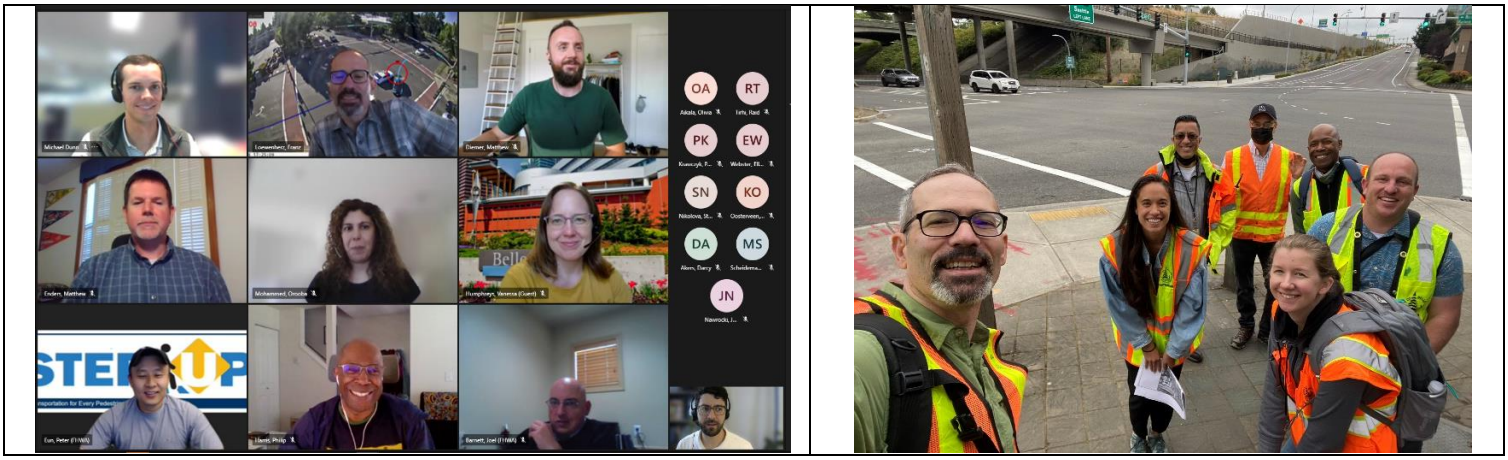


*Figure 3 – **Left:** Screenshot of Day 2 virtual introductions during the RSA. Credit: FHWA. **Right:** RSA team members during the field review prior to Day 1. Credit: City of Bellevue.*

Assessment Findings

Area-Wide Positive Features

The study area includes numerous features that promote pedestrian safety. These include marked crosswalks and pedestrian signal heads, audible signals, protected WALK phases, and countdown features at signalized intersections. Sidewalk is present along both sides of the corridor, and intersection curb ramps have been upgraded and include detectable warning strips. RSA team members noted that speeds are typically around the posted speed limit of 35 mph during uncongested conditions. Congestion and traffic signal progression likely contribute to traffic speeds at or below the posted speed limit.

King County Metro operates three all-day transit service along the corridor, with significant boardings and alightings at the stop pair at SE 40th Ln, followed closely by the stop pair at SE 38th St. Of the seven transit stops in the study area, six have shelters. All have some level of amenities such as lighting or benches. More information on transit ridership and stop conditions is included in the Appendix.

Street illumination is present throughout the corridor. There is lighting on both sides of Factoria Blvd SE through much of the study area, with the exception being Segment 2, where light fixtures are only present on the west side of the road south of 41st Pl. There are some areas with vegetation issues that reduce illumination of pedestrians and sidewalks.

The area demonstrates high pedestrian demand and activity through the combination of retail, transit, schools, major employers, and housing. These land uses present support for the improvement and expansion of the existing pedestrian facilities. The Mountains to Sound Greenway (MTSG) crosses the corridor on the northern end near SE 36th St. A grade-separated greenway flyover was recently completed across Factoria Blvd, which mitigated several existing pedestrian and bicyclist safety issues at the SE 36th St intersection. The improvements to the greenway are expected to increase pedestrian and bicyclist traffic in the study area.

The City coordinated with usRAP to perform an analysis of the corridor using the iRAP software as part of an effort to perform the usRAP star rating analysis on the City's high-priority corridors. usRAP coded the corridor according to the iRAP methodology, specifying attributes such as sidewalk, travel speeds, vehicle

volumes, and cross section details every 100 meters. This initial analysis indicated that the existing corridor scored three stars for pedestrians and two stars for bicyclists out of five stars. The usRAP analysis results are included in the Appendix.

Area-Wide Reported Pedestrian Crashes

The corridor had 15 reported pedestrian and bicyclist crashes from 2016 through 2020 (Figure 4 and Table 1). In addition to Figure 4, the Appendix contains the map packet that was used by RSA team members throughout the RSA. This packet includes a crash data summary table and aerial images of each segment with crash locations mapped. Bicyclist crashes were included in the RSA analysis because of potentially similar travel characteristics (i.e., riding on sidewalk in lieu of on-street bicycle lanes) and the City's commitment to Vision Zero. Thirteen of the 15 crashes were pedestrian crashes. The RSA team also acquired crash data for the first five months of 2021, but no pedestrian or bicyclist crashes occurred in the study area during that time.

WSDOT provided the pedestrian and bicyclist crash data in advance of the RSA to support analysis and preparation of the field materials and presentation. The City also provided access to conflict zone analyses from Transoft Solutions for the SE 36th St intersection that detailed "close calls" between all road users (the Transoft findings are included in the Appendix and described briefly in Segment 5). The FHWA facilitators prepared the crash summaries and segment crash maps.

Figure 4 – Map of reported pedestrian and bicyclist crashes, 2016-2020.

Table 1 – Summary of reported pedestrian and bicyclist crashes, 2016-2020.

Year	Type		Time of Day			Lighting			Injury Severity			First Vehicle Action				Total
	Pedestrian	Bicyclist	AM Peak	PM Peak	Off Peak	Dark-Street Lights On	Daylight	Dawn/Dusk	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Going Straight Ahead	Merging (Entering Traffic)	Making Left Turn	Making Right Turn	
2016	3	1	1		3	2	2		1	1	2	1	1	1	1	**4**
2017	1		1				1				1	1				**1**
2018	3	1		2	2	2	1	1	1	1	2	1		1	2	**4**
2019	5			1	4	2	3			2	3		1	2	2	**5**
2020	1				1		1			1				1		**1**
Total	**13**	**2**	**2**	**3**	**10**	**6**	**8**	**1**	**2**	**5**	**8**	**3**	**2**	**5**	**5**	**15**

Two of the 15 reported pedestrian and bicyclist crashes resulted in suspected serious injuries. Five resulted in suspected minor injuries and the remaining eight resulted in possible injuries. Segment 3 experienced seven crashes, while the other segments had three or fewer crashes at the intersections or driveway locations. This may indicate increased exposure for pedestrians in the area of the SE 40th Ln intersection. Most crashes occurred outside of peak traffic hours and during daylight conditions (67 percent and 53 percent, respectively). However, it remains important to address the nonoperational and obscured lighting revealed in several corridor segments during the nighttime field review, as 47 percent of the reported pedestrian and bicyclist crashes occurred in dark conditions or at dawn/dusk.

Crash mapping and reporting indicated conflicts at intersections. All 15 of the reported crashes occurred at an intersection or driveway. Most crashes involved a motor vehicle turning movement (33 percent turning left, 33 percent turning right, and another 13 percent merging). The remaining 20 percent of crashes involved a vehicle going straight. The most commonly-reported contributing circumstance was that drivers "failed to yield right-of-way" (53 percent). This may indicate pedestrian visibility issues at intersections, lack of bicycle facilities (or expectation of bicyclists), and insufficient opportunities to cross the roadway outside of signalized intersections.

To aid in the crash data analysis portion of the RSA, the RSA team examined a crash tree diagram for the study area, shown in Figure 5, produced using the FHWA Crash Tree Diagram tool. Crash tree diagrams are visual representations of crash data, where each "branch" represents a variable of interest. They can be particularly helpful in identifying focus crash types and crash risk factors, especially when informed by local knowledge and other data analysis. In the case of Figure 5, the biggest branch is possible injury crashes occurring at driveways. These six crashes represent 40 percent of the total reported pedestrian and bicyclist crashes during this time period.

However, the crash tree may be used to explore other relationships. For instance, while eight out of 15 (53 percent) of crashes were possible injury crashes, and the majority of these possible injury crashes occurred at driveways, the more severe crashes (suspected minor and suspected major injury crashes) more often occurred at intersections. Of the seven suspected minor and suspected major injury crashes, six occurred at intersections.

There are many more combinations of crash tree branches we could use to explore this data from different angles. As part of the data analysis, the RSA team produced a crash data table using the FHWA Crash Data Summary Template. This table summarizes the pedestrian and bicyclist crashes in the study area in detail. It is included in the Appendix.

The FHWA Crash Tree Diagram Tool and Crash Data Summary Template can be accessed on the Local Road Safety Plans (LRSPs) Do-It-Yourself (DIY) webpage.[3]

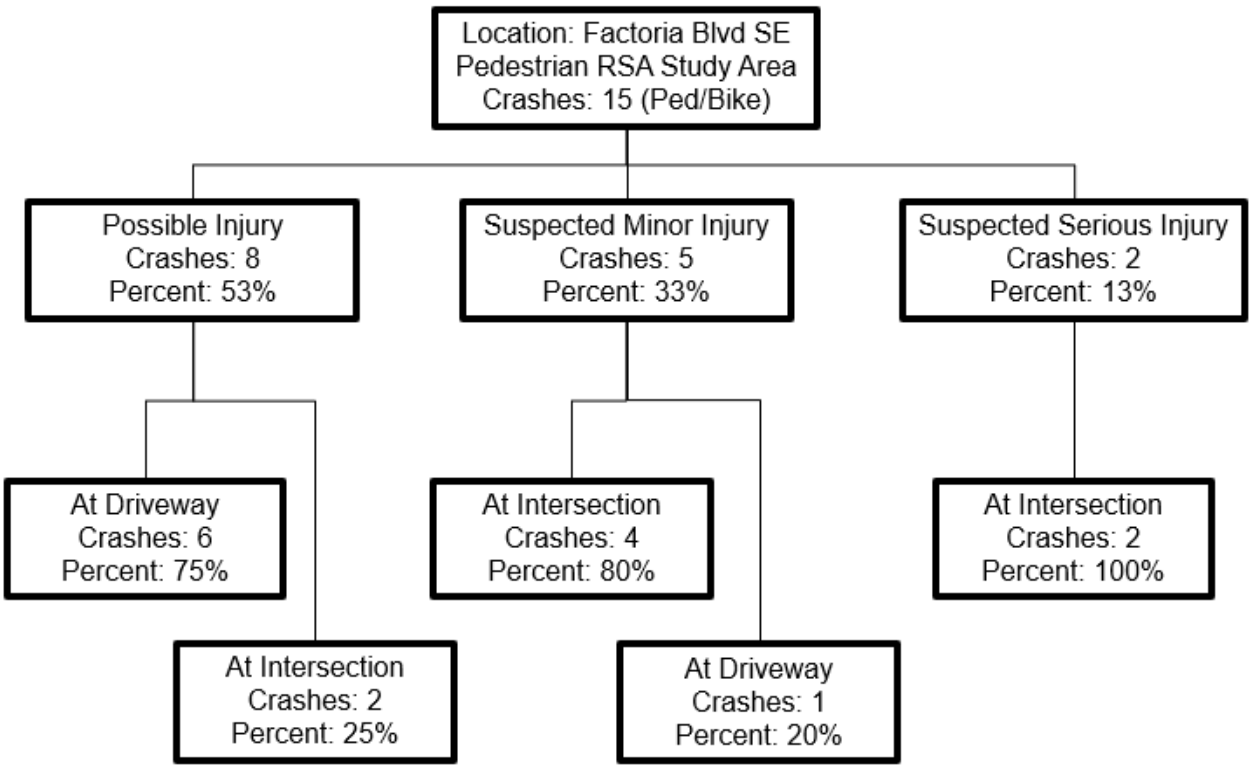


Figure 5 – Crash tree diagram for reported pedestrian and bicyclist crashes in the RSA study area, 2016-2020.

Area-Wide Issues

The RSA observed the following issues affecting pedestrian safety along the study corridor.

- *Roadway Crossing Distances and Curb Radii* – While signal progression and congestion result in average vehicle speeds of 9.7 mph in the southbound direction and 15.3 mph for the overall

[3] https://safety.fhwa.dot.gov/LRSPDIY/safety-data.cfm. Navigate to "Step 2: Use Safety Data" and select the Crash Tree Diagram Tool or Crash Data Summary Template from the list of Systemic Tools.

corridor (based on evening peak travel time study conducted after the latest signal synchronization project), the roadway's cross section and curb radii result in long crossing distances for pedestrians. The corridor's five-lane and four-lane divided sections range from ~55' to 100' wide near the I-90 ramps. Curb radii are often large to accommodate trucks, buses, and other wide-turning vehicles, however these increase the crossing lane crossing distance for pedestrians and may encourage faster turning speeds for motor vehicles.

- *Access Management and Driveway Locations* – The corridor has many businesses with separate driveways, some of which are close to the signalized intersections. Driveways are often steeply angled and disrupt the level path for pedestrians along the sidewalk. Vegetation and retaining walls adjacent driveways also reduce the visibility of pedestrians and bicyclists along the sidewalk.
- *Transit Access* – The corridor has high levels of transit ridership, however numerous transit boarding and alighting areas are constrained by features like tree wells and driveways.

*Figure 6 – **Upper Left:** Picture of Factoria Blvd, looking south at the 3700 Block, showing the median divided cross section at a signalized intersection. Credit: Complete Streets Bellevue. **Upper Right:** Picture of Factoria Blvd, looking south near SE 38th St, showing driveway access to the street and limited visibility of the sidewalk due to vegetation. Credit: City of Bellevue. **Lower Left:** Picture of Factoria Blvd at SE Newport Way, looking east, showing the intersection, wide curb radii, and crossing distance. Credit: City of Bellevue. **Lower Right:** Picture of Factoria Blvd, looking south near 3711 Factoria Blvd, showing a transit stop constrained by two driveways. Credit: City of Bellevue.*

Area-Wide Recommendations

The following suggestions are recommended within three implementation timeframes to promote pedestrian safety throughout the corridor. These suggestions are dependent on funding availability, project feasibility, other local constraints, and coordination between local, State, regional, and private entities. Though these suggestions are recommended in a sequence, they should be revisited depending on funding availability and for compatibility with concurrent improvement opportunities (e.g., roadway overlay schedules, new development, intersection upgrades, and improved school facilities). Segment-based recommendations, implementation timeframes, and responsible parties are described later in this report and summarized in the Appendix.

Near-term (0-2 years)

- The City will conduct a speed study and evaluate signal coordination and additional LPIs at signalized intersections.
- The City will continue to monitor and investigate adding Flashing Yellow Arrow with a ped minus signal phasing feature to protect pedestrians at permitted left turn only phases.
- The City will conduct review of curb radii throughout corridor for suitability with design vehicles and pedestrian safety.
- The City will continue to coordinate pedestrian safety with development projects that occur adjacent to the corridor.
- The City and Metro will collaborate with Sound Transit vis-a-vis the East Link Connections Project (considering candidate speed and reliability improvements).
- The City will evaluate crosswalk widths and markings.
- The City will coordinate with the Bellevue School District to determine preferred all-ages-and-abilities bike access to Newport High School.

Intermediate (2-5 years)

- The City will include reference to Factoria Blvd in its speed management plan.
- The City will develop an access management plan for Factoria Blvd corridor considering driveway and U-turn location consolidation and sightlines.
- The City will seek to improve wayfinding for nonmotorized users throughout the corridor.
- The City and Metro will coordinate to consider increased waiting capacity at transit stops.
- The City and Metro will evaluate integration of pedestrian signal phasing and Transit Signal Priority to enhance pedestrian service.
- Metro will undertake evaluation of bus stop consolidation.
- The City and Metro will coordinate to evaluate candidate transit speed and reliability improvement consistent with the Bellevue Transit Master Plan.
- The City will explore lane width reductions to support additional sidewalk width, increased transit stop depth, shortened pedestrian crossing distances, and refuge islands
- The City will consider locations for rapid-build opportunities, including modular refuge islands and left turn calming.

Long-term (5+ years)

- The City will apply Factoria Boulevard Design Guidelines to realize enhanced pedestrian, bicycle, and transit infrastructure as redevelopment permits are received.

Segment 1 – SE Newport Way to South of SE 42nd St

Reported Crashes

There was one reported pedestrian crash within Segment 1 (Table 2). The crash severity was suspected serious injury and occurred during daylight. The crash occurred at the SE Newport Way intersection and involved a vehicle going straight and a pedestrian not granting right-of-way (ROW) to the vehicle.

Table 2 - Segment 1 Reported Pedestrian and Bicyclist Crashes, 2016-2020

Type	Date	Time	Severity	Lighting	Location	Motor Vehicle Movement	Contributing Circumstance
Pedestrian	9/21/2016	14:25	Suspected Serious Injury	Daylight	At Intersection and Related	Going Straight Ahead	Pedestrian did not grant ROW to vehicle

Observations

- Land Use
  - There is a high school along this segment, and the facility is scheduled to undergo improvements to sidewalks, paths, transit stops, and bicycle facilities beginning in spring 2022.
  - Most of the segment does not have a landscaping planter between the sidewalk and the curb.
- Pedestrian Facilities and Behavior
  - The crosswalks at SE Newport Way and SE 44 St (High School Driveway) are signalized with pedestrian signal heads and have standard transverse lines.
  - Students have been observed crossing outside of the crosswalks.
  - The crossing time at SE Newport Way was reported short by RSA participants.
  - Sidewalks are present on both sides of the road.
  - There is a steep slope next to the sidewalk between SE Newport Way and the high school driveway on the west side of the roadway.
  - The curb radii at SE Newport Way were observed to be large.
- Transit
  - The northbound bus stop close to SE Newport Way does not meet accessibility requirements (8 ft min depth). The southbound bus stop had reported poor lighting.

*Figure 7 – **Left:** of SE Newport Way at Factoria Blvd, looking south, showing the wide crossing distance and standard transverse crosswalk markings. Credit: City of Bellevue. **Right:** Picture of Factoria Blvd, looking north on the west side of the street, showing the transit stop near the high school that was noted as frequently experiencing overflow of waiting riders. Credit: City of Bellevue.*

Recommendations

Near-term (0-2 years)

- The City and Metro will coordinate on feedback received from Newport HS on transit stops.
- The City will review curb radius on the southeast corner of SE Newport Way as candidate for revision.
- The City will explore high visibility markings at crosswalks at SE Newport Way as well as a wider crosswalk on the northern leg.

Intermediate (2-5 years)

- Metro will expand waiting accessibility, capacity, facilities, and lighting at bus stops adjacent to Newport High School as part of development plans.
- Metro will evaluate bus stop placement between SE Newport Way and SE 44th St.

Long Term (2-5 years)

- The City will evaluate whether potential pedestrian lighting improvements should be incorporated on west side of Factoria Blvd between SE 44th St (High School Signal) and SE 41st Pl).
- The City will evaluate the need for the northbound right-turn lane at the SE Newport Way intersection; the City may consider either repurposing this space for a transit queue jump or a wider sidewalk, resulting in shorter crossing lengths for pedestrians at the intersection.

Segment 2 – SE 42nd St to North of SE 41st Pl

Reported Crashes

There was one reported pedestrian crash within Segment 2 (Table 3). The crash was a possible injury crash and occurred during daylight. The crash occurred at the minor road stop-controlled SE 42nd St intersection and involved a vehicle going straight. The contributing circumstance was listed as the pedestrian failing to

use the crosswalk. The nearest marked crosswalk across Factoria Blvd is 260 ft south at SE 44th St (high school entrance) or 460 ft north at SE 41st Pl.

Table 3 - Segment 2 Reported Pedestrian and Bicyclist Crashes, 2016-2020

Type	Date	Time	Severity	Lighting	Location	Motor Vehicle Movement	Contributing Circumstance
Pedestrian	1/5/2017	08:34	Possible Injury	Daylight	At Intersection and Related	Going Straight Ahead	Pedestrian failure to use crosswalk

Observations

- Land Use
  - This segment contains multifamily housing on both sides of the roadway.
  - There is no landscape planter on the east side of roadway.
- Pedestrian Facilities and Behavior
  - The intersection at SE 42nd is missing crosswalk marking and the stop bar was ahead of the curb ramps.
  - High volume of high school students was reported crossing SE 41st on the west side of Factoria Blvd.
  - RSA participant discussion focused on a potential midblock crossing between SE 44th St and SE 41st Ln as the northbound bus stop was ~200 ft from a marked crossing.
- Vegetation
  - Overgrown vegetation and limbs were hanging down on east side just south of 41st Pl.
- Lighting
  - No lighting was observed on west side of road, and the sidewalk was fairly dark north of SE 42nd St.

*Figure 8 – **Left:** Picture of Factoria Blvd, looking west towards SE 42nd St, showing a potential location for an uncontrolled marked crossing. Credit: City of Bellevue. **Right:** Picture Factoria Blvd at SE 42nd, showing the placement of the stop bar in front of the curb ramps and no marked crosswalk. Credit: City of Bellevue.*

Recommendations

Near-term (0-2 years)

- The City will update the stop bar placement and markings at SE 42nd St to match current standards.
- The City and Metro will evaluate the northbound bus stop at SE 42nd St placement and configuration as part of the coordination with Newport High School development.
- The City will trim vegetation encroaching on sidewalk along east side of Factoria Blvd.
- The City will evaluate the need for midblock crossing near SE 42nd St, potentially in combination with a signal at the Fire Station.

Intermediate (2-5 years)

- The City will explore the possibility of raised crosswalk across SE 42nd St at Factoria Blvd.
- The City will explore the possibility of extending the median or other access management strategy into this segment to improve safety for all users.

Long-term (5+ years)

- The City will evaluate whether potential pedestrian lighting improvements should be incorporated on the west side of Factoria Blvd between SE 44th St (High School Signal) and SE 41st Pl.

Segment 3 – North of SE 41st Pl to SE 39th St

Reported Crashes

There were seven reported pedestrian crashes within Segment 3 (Table 4). There were three possible injury crashes and four suspected minor injury crashes. Two occurred during daylight, one during dusk, and the remaining four during dark conditions with streetlights on. Five of the seven crashes occurred at or near the SE 40th Ln intersection: two involved vehicles making right turns and three involved vehicles making left turns. The remaining two crashes occurred at a driveway south of SE 40th Ln. Four of the crashes listed the contributing circumstance as the driver not granting ROW to the pedestrian. In January 2021, the City upgraded the SE 40th Ln intersection to have the pedestrian movements completely protected from left turn phasing in the east/west direction. There have been no pedestrian collisions at the intersection since the changes were made. Prior to this change, there was an LPI at the intersection, but it was removed when left turn phasing was added.

Table 4 - Segment 3 Reported Pedestrian and Bicyclist Crashes, 2016-2020

Type	Date	Time	Severity	Lighting	Location	Motor Vehicle Movement	Contributing Circumstance
Pedestrian	1/9/2018	16:56	Possible Injury	Dark – Street Lights On	At Driveway	Going Straight Ahead	Motorist inattention
Pedestrian	9/26/2016	15:29	Possible Injury	Daylight	At Driveway	Making Right Turn	Other contributing circumstance not listed
Pedestrian	11/15/2019	20:21	Suspected Minor Injury	Dark – Street Lights On	At Intersection and Related	Making Right Turn	Did not grant ROW to nonmotorist
Pedestrian	11/26/2018	16:05	Suspected Minor Injury	Dusk	At Intersection and Related	Making Right Turn	Did not grant ROW to nonmotorist
Pedestrian	12/22/2019	19:05	Possible Injury	Dark – Street Lights On	At Intersection and Related	Making Left Turn	Did not grant ROW to nonmotorist
Pedestrian	12/27/2016	07:06	Suspected Minor Injury	Dark – Street Lights On	At Intersection and Related	Making Left Turn	Pedestrian inattention
Pedestrian	11/23/2020	12:11	Suspected Minor Injury	Daylight	At Intersection and Related	Making Left Turn	Did not grant ROW to nonmotorist

Observations

- Land Use
  - The segment is bounded by multifamily housing and commercial uses.
- Roadway
  - The right-in, right-out driveway to the mall on the west side of Factoria Blvd has marks from vehicles encroaching on curbs.
  - There is a raised median in the center of the segment.
- Pedestrian Facilities and Behavior
  - There was a lack of wayfinding to the ramp on the west side of Factoria Blvd for accessible route into mall property.
- Visibility
  - Steep driveways and vegetation obscure sidewalk visibility and encourage encroachment into sidewalk by vehicles exiting businesses.
- Transit Facilities
  - The northbound bus stop is lacking shelter and is not accessible (less than 8’ distance) and trash was identified as an issue.
  - The southbound bus stop is pull-out stop, which negatively impacts transit speed and reliability.
- Traffic Control
  - The signal at SE 40th St was upgraded in January 2021 to have left turn phasing in the east/west direction with a pedestrian phase that is protected from left turns. However, waiting times for the cycle are perceived as long. This location had a leading pedestrian

interval (LPI), but it was replaced with the protected pedestrian phase given the continued occurrence of pedestrian crashes.

- Right turn on red (RTOR) was reported as creating conflicts with crossing pedestrians.

*Figure 9 – **Left:** Picture of Factoria Blvd near SE 40th Ln, looking south on the east side, showing the northbound transit stop without a shelter. Credit: City of Bellevue. **Right:** Picture of Factoria Blvd at 39th Pl, looking north on the west side, showing tire marks across the sidewalk and curb ramps for the southbound exit of the mall. Credit: City of Bellevue.*

Recommendations

Near-term (0-2 years)

- The City will evaluate Right-Turn-on-Red restrictions at SE 40th Ln.
- Metro will evaluate placement and configuration of inaccessible northbound bus stop near-side SE 40th Ln. Options to consider include widening sidewalk space and improving passenger amenities.
- The City will pursue further study of southbound right turn lane on Factoria Blvd between SE 38th and SE 39th. The City will consider a rapid-build project to re-channelize and shorten the southbound right turn pocket onto SE 39th Pl (access into Factoria Mall) using thermoplastic and posts. This would also include updates to lane channelization to bring markings to current City standards and correct for the dropped lane (see Figure 10) and installation of a stop line with an R1-5b sign (Stop Here for Pedestrians).

*Figure 10 – **Top:** Concept sketch of dropped southbound right turn lane south of SE 38th St. Credit: City of Bellevue. **Bottom:** Concept sketch of updated turn lane channelization markings. Credit: City of Bellevue.*

Long-term (5+ years)

- The City, barring redevelopment of Factoria Mall, will evaluate reconstructing the SE 39th Pl driveway entirely as a raised crosswalk and add a driveway apron.

Segment 4 – SE 39th St to SE 3600 Block (Theater Entrance)

Reported Crashes

There were three reported crashes within Segment 3: two pedestrian crashes and one bicyclist crash (Table 5). The crashes were possible injury crashes. Two occurred during daylight, and the third during dark conditions with streetlights on. The crashes occurred at three different driveways on east side of Factoria Blvd. The contributing circumstance for all three crashes was that the driver did not grant ROW to the pedestrians and bicyclist. The noted crash circumstances and collision types indicate a lack of visibility for pedestrians and bicyclists on the sidewalk by drivers exiting the various driveways on the corridor.

Table 5 - Segment 4 Reported Pedestrian and Bicyclist Crashes, 2016-2020

Type	Date	Time	Severity	Lighting	Location	Motor Vehicle Movement	Contributing Circumstance
Pedestrian	5/3/2019	14:41	Possible Injury	Dark – Street Lights On	At Driveway	Merging (Entering Traffic)	Did not grant ROW to nonmotorist
Pedestrian	11/29/2019	14:12	Possible Injury	Daylight	At Driveway	Making Right Turn	Did not grant ROW to nonmotorist
Bicyclist	4/25/2016	21:00	Possible Injury	Daylight	At Driveway	Merging (Entering Traffic)	Did not grant ROW to nonmotorist

Observations

- Roadway
  - The large U-turn area at the southwest corner of SE 38th may not be needed. Curb radii were noted as large and increased the pedestrian crossing distance.
  - There is a raised median in the center of the segment.
- Visibility
  - Steep driveways and plants obscure sidewalk visibility and encourage vehicle encroachment into sidewalk (Figure 11). Driveway visibility and design also considered in area-wide issues.
- Pedestrian Facilities and Behavior
  - Wheelchair access had been improved into the mall from Factoria Blvd (ramps and railings).
  - Pavers on the sidewalk were observed buckling in some places (Figure 11).
- Transit
  - The southbound bus stop is placed between two driveways, the nearest crosswalk is ~235', and the stop area does not have pedestrian-focused lighting.

*Figure 11 – **Left:** Picture of Factoria Blvd, looking west from a driveway south of SE 38th St, showing the steep driveway and vegetation that reduces visibility of pedestrians along the sidewalk. Crashes related to driveways were a plurality of the corridor's crash types. Credit: City of Bellevue. **Right:** - Picture of Factoria Blvd, looking north on the west side of near SE 38th St, showing raised and buckling paver stones. Credit: City of Bellevue.*

Recommendations

Near-term (0-2 years)

- The City will evaluate potential for rapid build curb radius extensions at SE 38th St.
- Metro will evaluate placement and configuration of the cramped southbound bus stop near-side SE 38th St. Options to consider include widening sidewalk space and improving passenger amenities.
- The City will assess extent of need for paver repair.

Intermediate (2-5 years)

- The City will repair buckling pavers.

Long-term (5+ years)

- The City will revisit previous plan for grade separated crossing at SE 38th St.

Segment 5 – SE 3600 Block (Theater Entrance) to SE 36th St

Reported Crashes

There were three reported crashes within Segment 5: two pedestrian crashes and one bicyclist crash (Table 6). The pedestrian crashes were suspected minor injury crashes and occurred during daylight. The bicyclist crash was a possible injury crash and occurred during dark conditions with streetlights on. One of the pedestrian crashes and the bicyclist crash occurred at the theater entrance intersection, and the other pedestrian crash occurred at the SE 36th St intersection. All three involved vehicles turning onto Factoria Blvd from the side street (two left turns, one right turn). In all instances, the motorist contributing circumstances were either not granting ROW to the nonmotorist or inattention.

Table 6 - Segment 5 Reported Pedestrian and Bicyclist Crashes, 2016-2020

Type	Date	Time	Severity	Lighting	Location	Motor Vehicle Movement	Contributing Circumstance
Pedestrian	3/3/2019	16:35	Suspected Minor Injury	Daylight	At Driveway	Making Left Turn	Did not grant ROW to nonmotorist
Bicyclist	1/20/2018	18:55	Possible Injury	Dark – Street Lights On	At Driveway	Making Right Turn	Motorist Inattention
Pedestrian	1/29/2018	11:05	Suspected Serious Injury	Daylight	At Intersection and Related	Making Left Turn	Did not grant ROW to nonmotorist

This intersection was also included in the Transoft Solutions conflict analytics analysis that identified the north, west, and south crosswalk legs as locations of potential pedestrian crash events. The Appendix contains more detail on the Transoft analysis.

Observations

- Land Use
    - This segment has limited driveway access to the adjacent businesses from the 3600 Block to the I-90 ramps.
- Intersection

- Transoft identified vehicles not yielding to pedestrians in the I-90 ramp crosswalks, especially right turns. While the events were all categorized as minor events, they present opportunities for safety improvements.
- Most pedestrian-focused conflict events were vehicles not yielding to pedestrians crossing within the marked crosswalks during the pedestrian phase. These included:
  - Northbound right turn with pedestrians crossing the eastern leg.
  - Eastbound right turn with pedestrians on the west crosswalk leg.
  - Vehicles encroaching on the crosswalk on the south leg.
- There were reported sight distance issues under the I-90 overpass due to the bridge structure.

- Pedestrian Facilities and Behavior
  - There is no crosswalk on the north side of the SE 36th intersection.
  - Landing space at the interstate curb ramps is tight.
  - There is a new MTSG flyover connection of Factoria Blvd and SE 36th St. There is a MTSG trailhead on the southwest corner of the intersection.
  - There is broken utility cover in the sidewalk on the east side sidewalk Factoria Blvd on the approach to SE 36th St.
- Wayfinding
  - There is no interim wayfinding for the MTSG until Phase II is complete.
  - There is a misleading arrow in westbound bike lane on SE 36th St; a bicyclist was observed riding the wrong way into the oncoming off-ramp (Figure 12).
  - The wrong way signage on the I-90 off-ramp is obscured by vegetation (Figure 12).

*Figure 12 - **Left:** Picture of the Factoria Blvd and SE 36th St intersection, looking north at the east leg, showing a vehicle encroaching into the marked crosswalk during the pedestrian change internal after a pedestrian had crossed. Credit: City of Bellevue. **Right:** Picture of the Factoria Blvd and SE 36th St intersection, looking west, showing a bicyclist riding the wrong way from the marked on-road bicycle lane into the I-90 off ramps. The picture also shows the obscured Wrong Way sign (red circle). Credit: City of Bellevue.*

Recommendations

Near Term (0-2 years)

- The City will evaluate potential for curb extension, rapid build project, or LPI to promote driver visibility of pedestrians at the SE 36th St intersection.
- The City will coordinate with WSDOT to clear vegetation obscuring "Wrong Way" signage on I-90 off-ramp.
- The City will enhance wayfinding implementation for the MTSG.
- The City will replace bike lane arrow marking on WB SE 36th St. Figure 13 shows a possible concept, though the City should revisit this graphic to assess MUTCD compliant wayfinding.

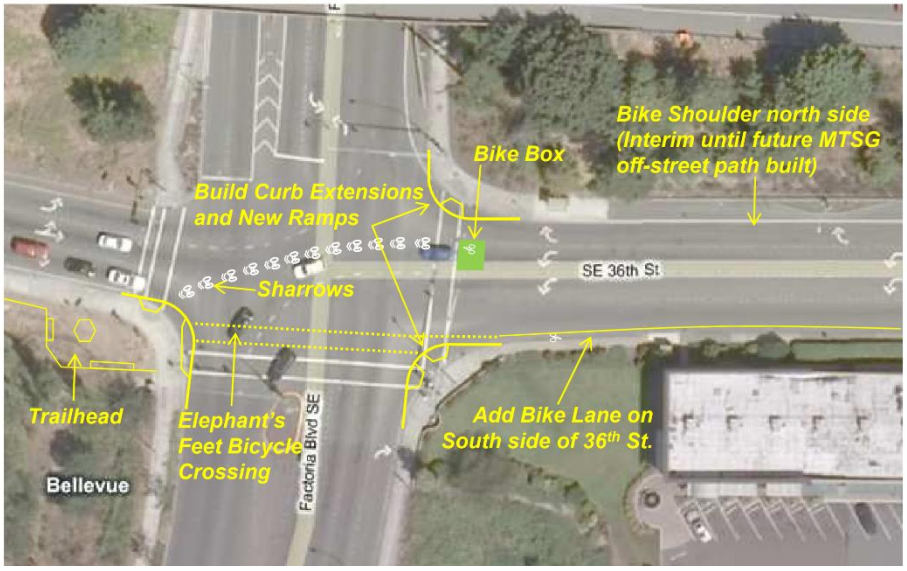


Figure 13 - Concept sketch of potential pavement marking changes for the westbound bicycle lane; subject to follow-up review to determine MUTCD compliant method of wayfinding to the trailhead at the opposite corner. Source: City of Bellevue.

Intermediate (2-5 years)

- The City will develop alternatives for cyclist wayfinding from SE 36th St to the MTSG ramp.
- The City and WSDOT will coordinate on redesigning the Factoria Blvd and SE 36th St intersection to enhance pedestrian and bicycle crossings.

Next Steps

The findings of the RSA should be revisited on a recurring basis. The City, Metro, and WSDOT may choose to review the RSA report with the original RSA team on an annual basis, for up to five years. The City may consider refreshing or revising the RSA process every 5 years. By developing performance measures for ongoing evaluation and review or utilizing those in place through the City's Vision Zero Plan, the City can track progress made at sites discussed by the RSA. Metrics can include the number of sites improved or the percent change in pedestrian crash rates over three or more years. The City, WSDOT, and Metro may also consider short-term and pilot projects to demonstrate and further evaluate concepts noted within this report. These may include further implementation of LPI, increased illumination, relocation of transit stops, and turning vehicle restrictions.

Funding Opportunities

In addition to local funding, the City should work with other agencies such as King County Metro, WSDOT, and other parties for funding opportunities—like transit route and facility updates and spot safety improvements—and the long-range planning process to coordinate project development of safety measures.

Highway Safety Improvement Program (HSIP): The goal of the federally funded HSIP, as authorized in the FAST Act, is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. The City was awarded approximately $640,000 in HSIP funds in 2020 for RRFBs.[4]

Congestion Mitigation and Air Quality Improvement (CMAQ) Non-Mandatory Program: CMAQ is a Federal reimbursement program authorized through the FAST Act and administered by WSDOT. The CMAQ Program provides a flexible funding source to WSDOT and local governments and tribes for transportation projects and programs that help meet the requirements of the Clean Air Act. Bellevue is eligible for CMAQ funds, and it has previously secured funds through the program for design and construction of a separated multi-use trail along the south side of I-90 from I-405, traversing Factoria Boulevard SE, among other projects. Application information and the program guide are distributed by WSDOT.

Regional STP Funds (STP(UL)): STP(UL) funds are allocated from Surface Transportation Block Grant program funding through MPOs and county lead agencies. The City is considered an Urban Large area since its urbanized area is greater than 200,000. The City has been successful in developing recommended projects through the STP(UL) program. Application information and the program guide are distributed by the Puget Sound Regional Council (PSRC).

[4] WSDOT, "2020 City Safety Program—Approved Funding Awards," https://wsdot.wa.gov/sites/default/files/2020/12/03/LP-City-Safety-Program-Awards-2020%20.pdf

Appendix

This Appendix contains the following items related to the RSA:

- Implementation Recommendations
- RSA Agenda
- RSA Map Packet
- Crash Data Summary Table
- Transoft Solutions Conflict Analysis
- usRAP Corridor Analysis
- King County Metro Bus Stop Inventory
- Complete Street Bellevue Walking Audit Slides
- RSA Presentation Slides

Implementation Recommendations

Area-Wide Implementation Recommendations

Location	Timeframe	Recommendation	Responsible Group(s)
Area-Wide	Near-Term	Conduct speed study and evaluate signal coordination and additional LPIs at signalized intersections	City
	Near-Term	Continue to monitor and investigate adding Flashing Yellow Arrow with ped minus signal phasing at permitted left-turn only phases	City
	Near-Term	Review corner radii throughout corridor for suitability with design vehicles and pedestrian safety	City
	Near-Term	Continue to coordinate pedestrian safety with development projects adjacent to the corridor	City
	Near-Term	Collaborate with Sound Transit vis-à-vis the East Link Connections Project (considering speed and reliability improvements)	City, KCM
	Near-Term	Evaluate crosswalk widths and markings	City
	Near-Term	Coordinate with Bellevue School District to determine preferred all-ages-and-abilities bike access to Newport High School	City
	Intermediate	Include reference to Factoria Blvd in speed management plan	City
	Intermediate	Develop access management plan for Factoria Blvd corridor considering driveway and U-turn location consolidation and sightlines	City
	Intermediate	Seek to improve wayfinding for nonmotorized users throughout the corridor	City
	Intermediate	Consider increased waiting capacity at transit stops	City, KCM
	Intermediate	Evaluate integration of pedestrian signal phasing and Transit Signal Priority to enhance pedestrian service	City, KCM
	Intermediate	Undertake evaluation of bus stop consolidation	KCM
	Intermediate	Evaluate candidate transit speed and reliability improvement consistent with the Bellevue Transit Master Plan	City, KCM
	Intermediate	Explore lane width reductions to support additional sidewalk width, increased transit stop depth, shortened pedestrian crossing distances, and refuge islands	City
	Intermediate	Consider locations for rapid-build opportunities, including modular refuge islands and left turn calming	City
	Long-Term	Apply Factoria Boulevard Design Guidelines to realized enhanced pedestrian, bicycle, and transit infrastructure as redevelopment permits are received	City

Segment Implementation Recommendations

Location	Timeframe	Recommendation	Responsible Group(s)
Segment 1 SE Newport Way to south of SE 42nd St	Near-Term	Coordinate on feedback received from Newport HS on transit stops	City, KCM
	Near-Term	Review curb radius on SE corner as candidate for revision	City
	Near-Term	Explore high visibility markings at crosswalks at SE Newport Way as well as wider crosswalk on northern leg	City
	Intermediate	Expand waiting accessibility, capacity, facilities, and lighting at bus stops adjacent to Newport HS as part of development	KCM
	Intermediate	Evaluate bus stop placement between SE Newport Way and SE 44th St	KCM
	Long-Term	Evaluate whether potential pedestrian lighting improvements should be incorporated on west side of Factoria Blvd	City
	Long-Term	At the SE Newport Way intersection, evaluate the need for the NB RTL. Consider either repurposing this space for a transit queue jump, or repurposing the space for a wider sidewalk thus resulting in shorter crossing lengths for pedestrians at the intersection	City
Segment 2 SE 42nd St to North of SE 41st Pl	Near-Term	Correct stop bar placement at SE 42nd St	City
	Near-Term	Evaluate NB bus stop at SE 42nd St placement and configuration as part of the coordination with Newport High School development	City, KCM
	Near-Term	Trim vegetation encroaching on sidewalk along east side of Factoria Blvd	City
	Near-Term	Evaluate need for midblock crossing near SE 42nd St, potentially in combination with a signal at the Fire Station	City
	Intermediate	Explore possibility of raised crosswalk across SE 42nd St at Factoria Blvd	City
	Intermediate	Explore possibility of extending median or other access management strategy	City
	Long-Term	Evaluate whether potential pedestrian lighting improvements should be incorporated on west side of Factoria Blvd	City
Segment 3 North of SE 41st Pl to SE 39th St	Near-Term	Consider Right-Turn-on-Red restrictions at SE 40th Ln	City
	Near-Term	Evaluate placement and configuration of inaccessible northbound bus stop near-side SE 40th Ln. Consider options for widening sidewalk space and improving passenger amenities	KCM
	Near-Term	Pursue further study of southbound RT lane on Factoria Blvd between SE 38th and SE 39th	City
	Near-Term	Consider rapid-build project to rechannelize and shorten SB RT pocket onto SE 39th Pl (access into Factoria Mall) using thermoplastic & posts	City
	Long-Term	Evaluate need for U-turn pockets	City
	Long-Term	Barring redevelopment of Factoria Mall, reconstruct that SE 39th Pl driveway entirely as a raised crosswalk and add driveway apron.	City
Segment 4 SE 39th St to SE 3600 Block (Theater Entrance)	Near-Term	Evaluate potential for rapid build curb radius extensions at SE 38th St	City
	Near-Term	Evaluate placement and configuration of inaccessible southbound bus stop near-side SE 38th St. Consider options for widening sidewalk space and improving passenger amenities	KCM
	Near-Term	Assess extent of need for paver repair	City
	Intermediate	Repair buckling pavers	City
	Long-Term	Reaffirm/revisit previous plan for grade separated crossing at SE 38th St	City
Segment 5 SE 3600 Block (Theater Entrance) to SE 36th St	Near-Term	Evaluate potential for curb extension, rapid build project, or LPI to promote driver visibility of pedestrians.	City
	Near-Term	Clear vegetation obscuring "Wrong Way" signage on I-90 off-ramp	City, WSDOT
	Near-Term	Enhance wayfinding implementation for MTSG	City
	Near-Term	Replace bike lane arrow marking on WB SE 36th St	City
	Intermediate	Develop alternatives for cyclist wayfinding from SE 36th St to MTSG ramp	City
	Intermediate	Redesign the Factoria Blvd and SE 36th St intersection to enhance pedestrian and bicycle crossings	City, WSDOT

RSA Agenda

FHWA STEP Pedestrian Road Safety Assessment Agenda
July 12-13, 2021

Bellevue, WA (Factoria Blvd SE)

Day 1:

Microsoft Teams meeting

1:00 - 2:30 PM	RSA Kick-off Meeting (Online) – Franz Loewenherz • *Welcome and Introduction of RSA team – Franz Loewenherz (10 mins)* • *RSA Process – Joe Seymour (10 mins)* • *Overview of study area and background – Michael Dunn (10 mins)* • *Previous improvements and history – Paul Krawczyk (5-10 mins)* • *UsRAP Analysis – Doug Harwood (10 mins)* • *Complete Streets Bellevue, Walking Audit – Chris Randels (20 mins)* • *Congestion – Darcy Akers (5 mins)* • *Development Projects – Orooba Mohammed (10 min)*
2:30 - 2:45 PM	Break
2:45 -5:00 PM	Document Issues (Online Field Observations) – Darcy Akers • *Segment-wide crash data review – Michael Dunn* • *Segment by segment review: imagery, video, analytics results, other findings* • *Conflict analytics for 36th St– Bismark Ledezma Navarro* • *Assign homework and additional field investigation*
7:30 – 9:00 PM	Nighttime Field Review *(optional)* • *Meet at specified location, TBD* • *Follow health and safety protocols*

Day 2:

Microsoft Teams meeting

Morning (TBD)	Additional Field Investigation *(optional)* • *Meet at specified location, TBD* • *Follow health and safety protocols*
1:00 - 2:30 PM	Recap Previous Day's Findings (Online) – Franz Loewenherz • *Review field and nighttime field observations* • *Summarize corridor issues*
2:30 – 2:45 PM	Break
2:45 - 5:00 PM	Team Discussion/Preliminary Findings (Online) – Darcy Akers • *Prioritize sites* • *Identify potential countermeasures* • *Discuss next steps*

RSA Map Packet

The RSA map packet was distributed to the RSA team prior to the optional field visit. It includes a brief agenda, example field visit prompt list, and overview of the crash records and map segments for the study area. It is included in the following pages.

Factoria Blvd Pedestrian Road Safety Assessment

Map Packet

July 12-13, 2021

Contents

Agenda

Day 1

1:00 – 2:30 PM	**RSA Kick-off Meeting** • Introduction of stakeholders and RSA team • Introduction to the RSA process • Pedestrian safety overview • Review background data and input from neighborhood/schools
2:30 – 2:45 PM	**Break**
2:45 – 5:00 PM	**Begin to document the issues collectively, assign homework (to document potential solutions)**
7:30 – 9:00 PM	**Nighttime Site Review (optional field visit for locals)**

Day 2

Morning TBD	**Additional Field Investigation (optional)**
1:00 – 2:30 PM	**Recap Previous Day's Findings**
2:30 – 2:45 PM	**Break**
2:45 – 5:00 PM	**Team Discussion/Preliminary Findings**

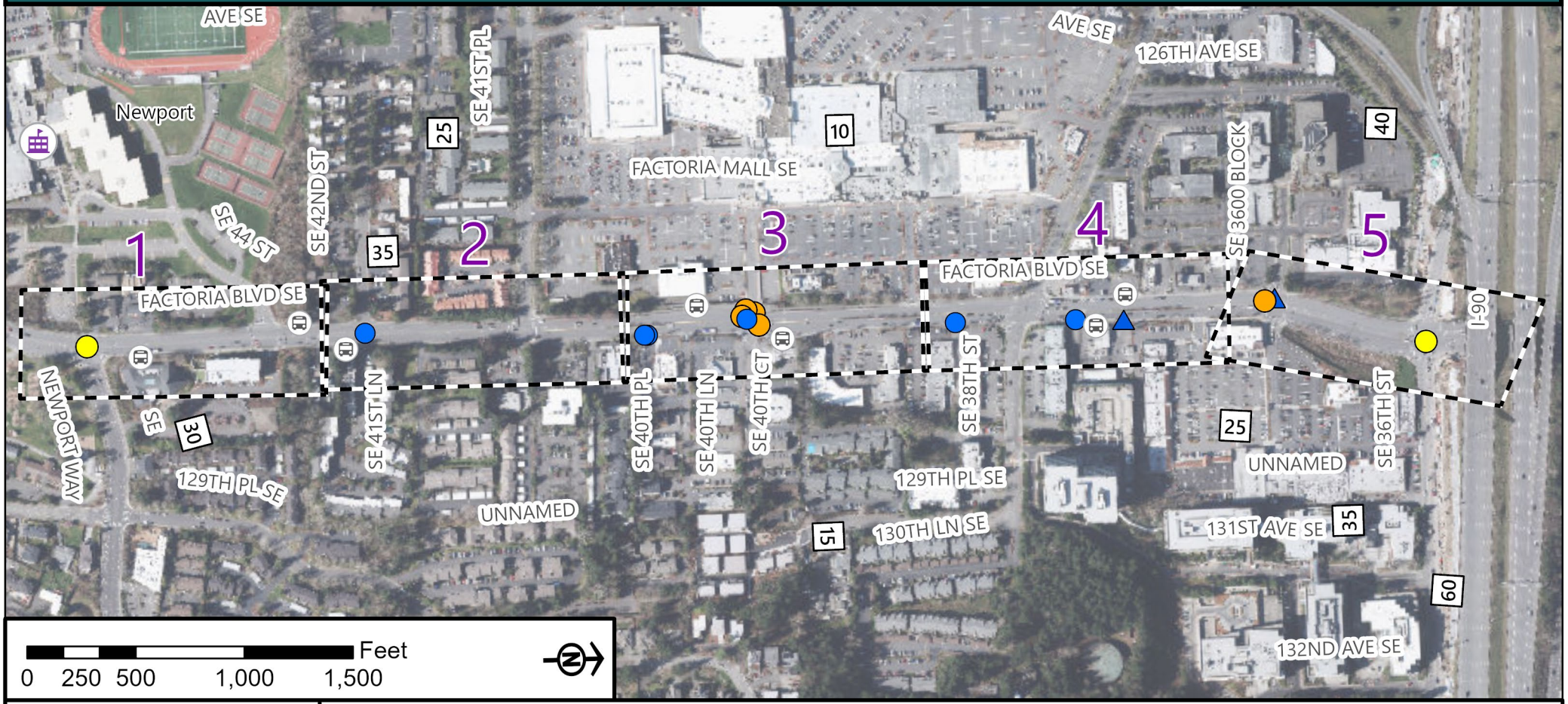
To ToC

Field Visit Guidance

Observe and record what you see for physical elements and behaviors that may affect pedestrian safety along Broadway:

- ❑ Presence and continuity of facilities (ped and transit)
  - ❑ Sidewalks
  - ❑ Curb ramps
  - ❑ Bus stop
  - ❑ Bus stop shelter
  - ❑ Paved trail
  - ❑ Informal paths (e.g. "goat paths"
- ❑ Quality of facilities (ped and transit)
- ❑ Overhead lighting
- ❑ Visibility of expected pedestrians
- ❑ Driveways and other conflicts
- ❑ Signs
- ❑ Pavement markings
- ❑ Signals: pedestrian signals and phase timing
- ❑ Destinations (e.g. businesses, schools, recreation, homes)
- ❑ Observed traffic behaviors, including speeding, turning movements, and gaps in traffic
- ❑ Observed pedestrian behaviors (travel and crossings)

Map Segments – *Factoria Blvd*



Injury Severity (2016-2020)

- Fatal
- Suspected Serious Injury
- Suspected Minor Injury
- Possible Injury
- No Apparent Injury

Crash Type (2016-2020)

- Pedestrian
- Bicycle
- City Parks
- School
- Factoria Transit Stops
- Map Segments

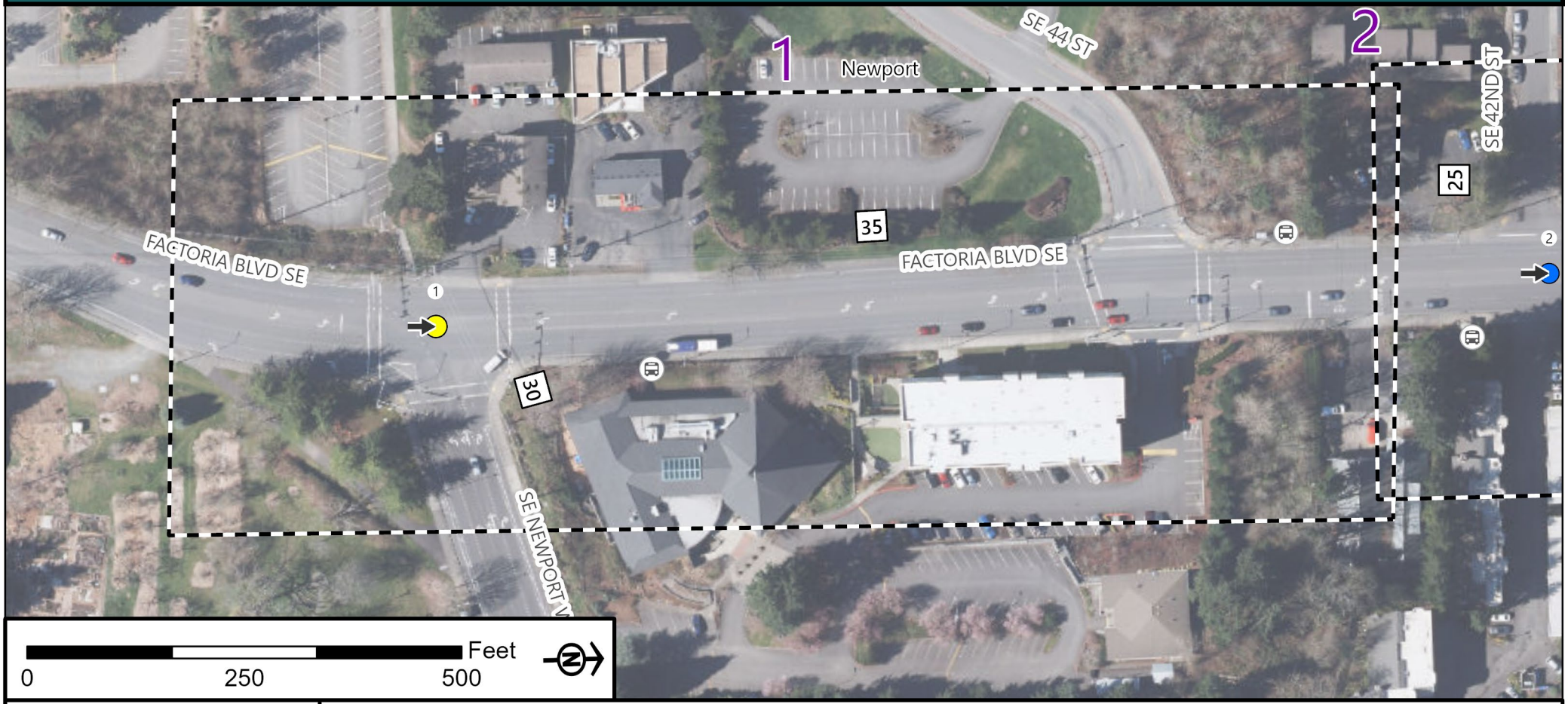
Field Notes

Crash Records by Crash ID and Map Segment

(Reported Bicycle and Pedestrian Crashes Along Factoria Blvd, 2016-2020)

Crash ID	Map Segment	Date	Time	Injury Severity	Location	Weather	Surface Condition	Lighting Condition	Vehicle Movement	Contributing Circumstance
1	1	9/21/2016	14:25	Suspected Serious Injury	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Going Straight Ahead	Pedestrian Did Not Grant RW to Vehicle
2	2	1/5/2017	08:34	Possible Injury	At Intersection and Related	Clear or Partly Cloudy	Dry	Daylight	Going Straight Ahead	Pedestrian Failure to Use Xwalk
3	3	1/9/2018	16:56	Possible Injury	At Driveway	Raining	Wet	Dark-Street Lights On	Going Straight Ahead	Motorist Inattention
4	3	9/26/2016	15:29	Possible Injury	At Driveway	Clear or Partly Cloudy	Dry	Daylight	Making Right Turn	Other Contributing Circ Not Listed
5	3	11/15/2019	20:21	Suspected Minor Injury	At Intersection and Related	Clear	Dry	Dark-Street Lights On	Making Right Turn	Did Not Grant R/W to Non Motorist
6	3	11/26/2018	16:05	Suspected Minor Injury	At Intersection and Related	Raining	Wet	Dusk	Making Right Turn	Did Not Grant R/W to Non Motorist
7	3	12/22/2019	19:05	Possible Injury	At Intersection and Related	Raining	Wet	Dark-Street Lights On	Making Left Turn	Did Not Grant R/W to Non Motorist
8	3	12/27/2016	07:06	Suspected Minor Injury	At Intersection and Related	Overcast	Wet	Dark-Street Lights On	Making Left Turn	Pedestrian Inattention
9	3	11/23/2020	12:11	Suspected Minor Injury	At Intersection and Related	Raining	Wet	Daylight	Making Left Turn	Did Not Grant R/W to Non Motorist
10	4	5/3/2019	14:41	Possible Injury	At Driveway	Clear or Partly Cloudy	Dry	Daylight	Merging (Entering Traffic)	Did Not Grant R/W to Non Motorist
11	4	11/29/2019	14:12	Possible Injury	At Driveway	Clear or Partly Cloudy	Dry	Daylight	Making Right Turn	Did Not Grant R/W to Non Motorist
12	4	4/25/2016	21:00	Possible Injury	At Driveway	Overcast	Dry	Dark-Street Lights On	Merging (Entering Traffic)	Did Not Grant R/W to Non Motorist
13	5	3/3/2019	16:35	Suspected Minor Injury	At Driveway	Clear or Partly Cloudy	Dry	Daylight	Making Left Turn	Did Not Grant R/W to Non Motorist
14	5	1/20/2018	18:55	Possible Injury	At Driveway	Overcast	Dry	Dark-Street Lights On	Making Right Turn	Motorist Inattention
15	5	1/29/2018	11:05	Suspected Serious Injury	At Intersection and Related	Raining	Wet	Daylight	Making Left Turn	Did Not Grant R/W to Non Motorist

Segment 1 – *SE Newport Way to SE 44 ST*



Injury Severity (2016-2020)
- Fatal
- Suspected Serious Injury
- Suspected Minor Injury
- Possible Injury
- No Apparent Injury

Crash Type (2016-2020)
- Pedestrian
- Bicycle
- City Parks
- School
- Factoria Transit Stops
- Map Segments

Field Notes

To ToC

Segment 2 – *SE 42nd ST to North of SE 41st PL*

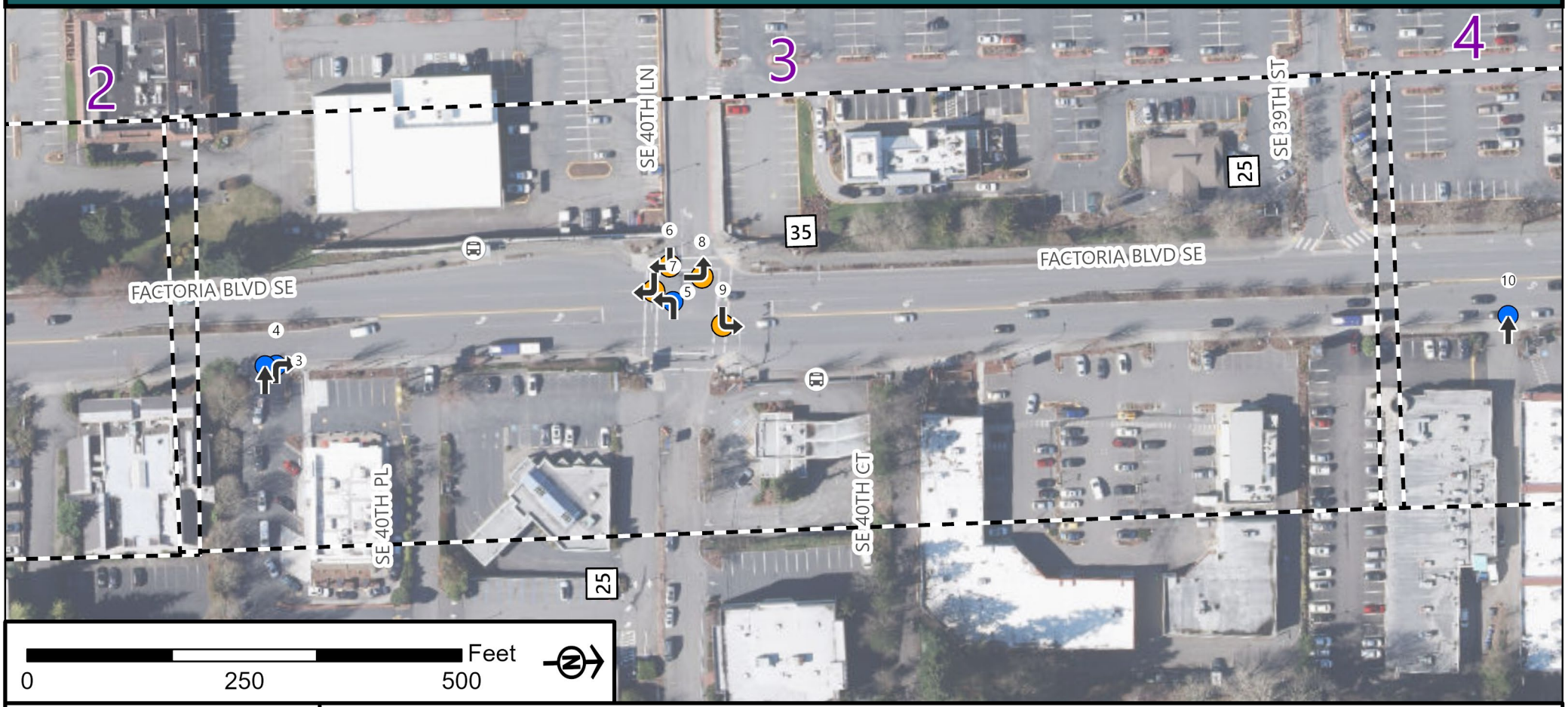
Injury Severity (2016-2020)
- Fatal
- Suspected Serious Injury
- Suspected Minor Injury
- Possible Injury
- No Apparent Injury

Crash Type (2016-2020)
- Pedestrian
- Bicycle
- City Parks
- School
- Factoria Transit Stops
- Map Segments

Field Notes

To ToC

Segment 3 – *North of SE 41st PL to SE 39th ST*



Injury Severity (2016-2020)

- Fatal
- Suspected Serious Injury
- Suspected Minor Injury
- Possible Injury
- No Apparent Injury

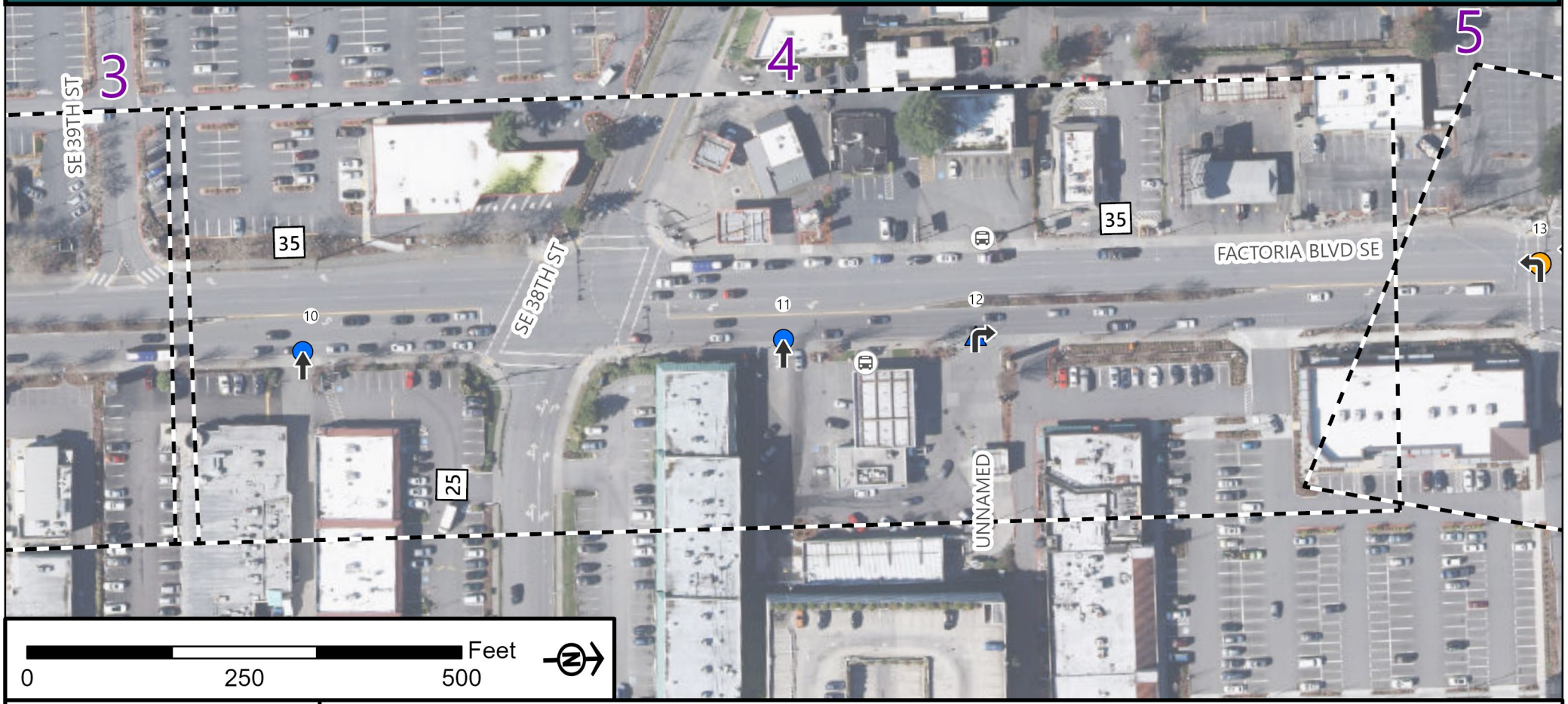
Crash Type (2016-2020)

- Pedestrian
- Bicycle
- City Parks
- School
- Factoria Transit Stops
- Map Segments

Field Notes

To ToC

Segment 4 – *SE 39th ST to South of SE 3600 Block*



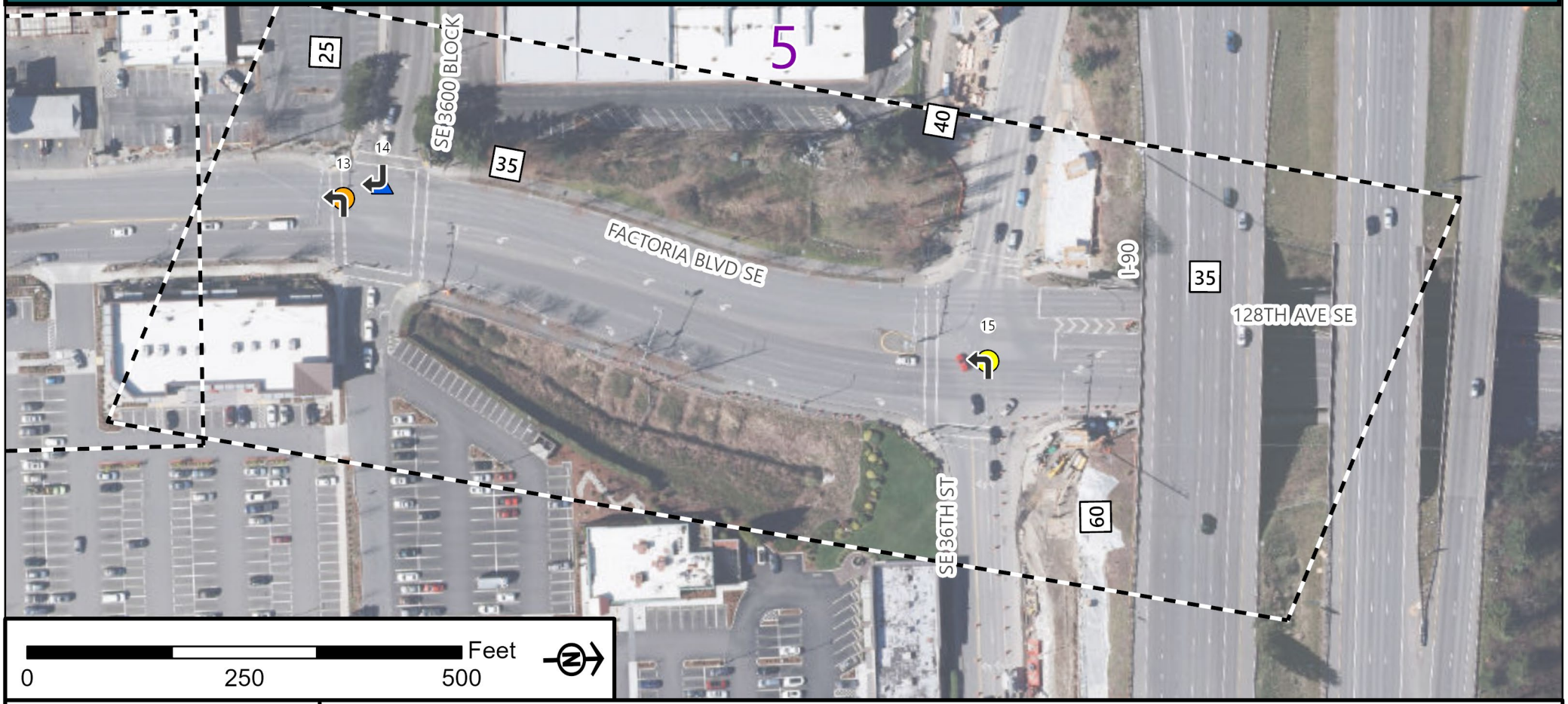
Injury Severity (2016-2020)
- Fatal
- Suspected Serious Injury
- Suspected Minor Injury
- Possible Injury
- No Apparent Injury

Crash Type (2016-2020)
- Pedestrian
- Bicycle
- City Parks
- School
- Factoria Transit Stops
- Map Segments

Field Notes

To ToC

Segment 5 – *SE 3600 Block to SE 36th ST*



Injury Severity (2016-2020)
- Fatal
- Suspected Serious Injury
- Suspected Minor Injury
- Possible Injury
- No Apparent Injury

Crash Type (2016-2020)
- Pedestrian
- Bicycle
- City Parks
- School
- Factoria Transit Stops
- Map Segments

Field Notes

To ToC

Field Visit Guidance – Prompt Lists

Location	Physical Environment / Infrastructure					
	Presence/Placement	Quality/Condition	Connectivity/ Consistency	Visibility	Lighting	Transit
Universal Considerations for Study Area	• Do facilities address ped and bike needs, including those with disabilities? • If future changes are proposed to the transportation system or surrounding land use, will those needs still be met?	• Are ped and bike facilities in good condition and accommodate users with disabilities?	• Are safe, continuous, and convenient ped and bike routes provided throughout the study area?	• Do obstructions block the view of roadway users? • What obstructions block the view of pedestrian and bicycle facilities (e.g., crosswalks, traffic control devices, signs)? • Does the sun create visibility issues at certain times of day?	• Are ped and bike facilities well-lit? • Can peds and bikes be seen by motorists during dark conditions?	• How does transit infrastructure interact with ped and bike facilities?
Along Street (including driveways)	• How are peds and bikes accommodated on both sides of the road? • Are facilities shared, separate, or buffered? • What is the comfort level for users? • Are ped and bike facilities appropriate for the adjacent land use? • Do parked vehicles obstruct ped paths? • Does parking adversely affect bike safety?	• Are the bike/ped facilities in good condition and well-maintained? • Are there obstacles (e.g. utility poles or signs) in the middle of the sidewalk? • Are the sidewalks wide enough for two people to walk together? • Does vegetation or debris infringe on pedestrian or bicyclists facilities? • Is the pavement free of obstacles (e.g., potholes, drainage grates, longitudinal joints)?	• How are peds accommodated at driveways/ access points? • Are ped walkways continuous? • Are bike routes continuous?	• Are there obstructions blocking the driver's view of peds and bikes? • Are driveways designed with peds and bikes in mind (e.g., less driveway density, access management, proper signage, pavement markings, etc.)?	• Are sidewalks and bicycle facilities adequately lit?	• Are there sufficient boarding areas (5 feet along curb, 8 feet perpendicular to curb line) and visibility at transit stops? • Do ped and bike facilities connect to transit stops?

To ToC

Location	Physical Environment / Infrastructure					
	Presence/Placement	Quality/Condition	Connectivity/ Consistency	Visibility	Lighting	Transit
Mid-Block Crossing (marked)	• Are there crossing enhancements? • What are the distances between the mid-block crossing and other marked crosswalks?	• Are signs and pavement markings in good condition and visible/legible?	• Does this crossing lead to/from a ped/bike generator?	• Are there obstructions blocking the view of signs or pavement markings? • Do horizontal or vertical curves impede adequate sight distance between drivers and peds/bikes?	• Are pedestrian crossings adequately lit?	• Is there a transit stop located mid-block? • Are transit users crossing mid-block to get to/from the transit stop?
Observed Mid-Block Crossings (unmarked)	• Are crossings isolated or a frequent route used by pedestrians or bicyclists?	N/A	• How far is it to the nearest controlled crossing? • Why are peds/ bikes crossing mid-block and not at the closest marked crossing? • Are there generators that lead to pedestrians and bicyclists crossing mid-block?	• Are there obstructions blocking the view of pedestrians and bicyclists?	• Does this section of roadway have lights?	• Are mid-block crossings occurring near transit stops?

To ToC

Location	Physical Environment / Infrastructure					
	Presence/Placement	Quality/Condition	Connectivity/ Consistency	Visibility	Lighting	Transit
Intersections	• How are peds and bikes accommodated (e.g., accessible ped signal, bike box, high-vis crosswalks, bike signal)? • What intersection characteristics increase/decrease ped and bike safety (e.g., channelized right turns, large cub radii, wide crossing distances, right-turn-on-red)?	• How many legs have a crosswalk and what is the condition? • Are ped push buttons accessible, with a locator tone, properly located and connected to the walkway, and functioning correctly? • Are curb ramps in good condition and ADA-compliant for each crosswalk or does a single curb ramp serve both crosswalks?	• Are intersection enhancements to signs, pavement markings, and signals consistent across intersections in the study area? • Do crosswalks line up with sidewalks?	• Can peds, bikes, and drivers see each other at all intersection legs? • Are there utility poles, signs or other objects blocking the view of traffic? • Do skewed intersections direct drivers' focus away from peds?	• Is the lighting adequate at all corners of the intersection ?	• Do ped and bike facilities connect to transit stops? • Are transit stops on the near or far side of the intersection?
Shared Use Paths and Grade-Separated Crossings	• Do bicyclists have adequate space to ride comfortably (e.g., horizontal and vertical clearance at tunnels and bridges, construction zones, guardrails, fences)? • Do pedestrians have sufficient width to walk comfortably and is access to the facility accessible to individuals with disabilities?	• Does the condition of the facility promote personal safety? • What material is the structure (freeze/thaw)? • Are the grades and cross slopes accessible to individuals with disabilities? • Is there adequate drainage? • Does wildlife affect comfort levels? • Are sideslopes adequate for bicycles to return to the roadway in the event of a lane departure? • Are facilities properly maintained (free of vegetation, snow)?	• Are bike facility transition areas designed appropriately with logical termini or do they end abruptly, potentially contributing to sudden and difficult merges, uncontrolled crossings, or behaviors such as wrong-way riding? • How is access provided to destinations if grade-separated? • Is the facility connected to other ped facilities in the area?	• Does poor visibility compromise personal safety? • Does the speed of users affect their ability to see and react to shared use path connections?	• Is adequate lighting provided?	• Are connections to transit provided?

To ToC

Location	Traffic Control Devices		
	Signs and pavement markings	Signals	Compliance?
Universal Considerations for Study Area	• Are signs and pavement markings for pedestrian and bicycle facilities present and effective?	• Are pedestrians and bicyclists accommodated at signals through adequate signal timing and phasing? • Are pedestrian push buttons accessible, with a locator tone, properly located and connected to the walkway, and functioning correctly?	• Do motorists, pedestrians, and bicyclists follow traffic laws?
Along Street (including driveways)	• Are bicycle pavement markings adequate?	N/A	N/A
Mid-Block Crossing (marked)	• Are crossing points for pedestrians properly signed and/or marked? Are curb ramps provided? • Are there signage enhancements for the crossing, such as RRFBs or flashing beacons?	• Are there any devices (i.e., PHB or signalization) to control the crossings? • If so, are pedestrian push buttons accessible, with a locator tone, properly located and connected to the walkway, and functioning correctly?	• Are drivers, pedestrians, and bicyclists compliant with traffic control devices? • Are drivers yielding to pedestrians? • Are bicyclists yielding to pedestrians?
Intersections	• Is paint on stop bars and crosswalks worn, or are signs worn, missing, or damaged? • Are there sign or pavement marking enhancements?	• How long is the pedestrian or bicycle signal? Is there enough time to cross? • Is there a pedestrian countdown and/or bicycle signal? • Do pedestrians and bicyclists use push buttons to actuate a crossing? • Is there a leading pedestrian interval (LPI)? Is it accessible to pedestrians with vision disabilities? Are bikes allowed to utilize the early start? • Are there restrictions on turning-movements, like no right-turn-on-red? • How long do pedestrians have to wait in between signals? • Do vehicles have protected or permitted left-turn control?	• Are drivers, pedestrians, and bicyclists compliant with traffic control devices? • Are drivers yielding to pedestrians (especially at right-turn)? • Are bicyclists yielding to pedestrians?
Shared Use Paths and Grade-Separated Crossings	• Do signs provide wayfinding or advance warning of at-grade intersections?	N/A	N/A

To ToC

Location	Operations / Interactions / Behaviors		
	Characteristics	Mode Behavior	Interactions of Modes
Universal Considerations for Study Area	• Are design, posted, and operating traffic speeds compatible with pedestrian and bicyclist safety? • Is the safety of children in school zones adequately considered?	• Do pedestrians or motorists regularly misuse or ignore pedestrian facilities? • Are drivers, pedestrians, and bicyclists behaving in a safe, compliant manner? • Are behaviors systemic across the network or at isolated locations?	• Do roadway users look/scan for other travel modes? • Are drivers and bicyclists yielding to pedestrians at crossings? • Do drivers allow extra space or reduce speeds when overtaking or driving near bicyclists? • How do pedestrians and bicyclists interact with transit facilities?
Along Street (including driveways)	• Do scooters, bicycles, skateboards, or non-motorized vehicles create hazards for pedestrians (e.g., operating or parking on sidewalk)? • Are vehicles traveling at appropriate speeds?	• If available, are bicyclists using their dedicated facilities?	• Are drivers yielding to pedestrians at driveways? • Are there conflicts between bicycles and pedestrians on sidewalks?
Mid-Block Crossing (marked)	• What are vehicle speeds? • What are traffic volumes?	• Are people using the mid-block crossing? • Are drivers yielding to pedestrians or bicyclists in the crosswalk?	• Are the physical environment and traffic control devices adequate for a safe crossing?
Observed Mid-Block Crossings (uncontrolled)	• What are vehicle speeds?	• Are pedestrians and bicyclists waiting for gaps?	• Are drivers expecting crossing pedestrians or bicyclists?
Intersections	• What are vehicle speeds? • What are vehicle, pedestrian, and bicycle volumes at the intersection?	• Are drivers stopping in the crosswalk? • Are pedestrians crossing with or against the pedestrian signal, if present? • Do pedestrians and bicyclists use push buttons to actuate a crossing?	• Is it clear between roadway users who has the right-of-way and is there compliance? • Do drivers yield to pedestrians and bicyclists when turning right or left?
Shared Use Paths and Grade-Separated Crossings	• Is there a mix of grade-separated and at-grade crossings?	• Do pedestrians walk in a way that blocks the path for other users? • Are bicyclist speeds too fast for conditions? • Does a mix of grade-separated and at-grade intersections influence behavior (e.g., higher speeds, less expectancy of crossing conflicts)?	• Are there pavement markings that separate users? How are such separations communicated to pedestrians with vision disabilities? • What are the levels of comfort for users?

To ToC

Crash Data Summary Table

The RSA Team compiled the reported pedestrian and bicyclist crash data from 2016 to 2020 using the FHWA Crash Data Summary Template. It is presented on the following pages.

Crash Data Summary Template - Factoria Blvd SE

2016 - 2020 Subject Data	Fatal and Serious Injury Crashes							All Crashes						
	Test County							Test County						
	Year 1 - Year 5	%	2015	2017	2018	2019	2020	Year 1 - Year 5	%	2016	2017	2018	2019	2020
Overall Numbers														
Total # of Collisions	2	N/A	1		1			15	N/A	4	1	4	5	1
# of Fatal Collisions	0	0.0%						0	0.0%					
# of Serious Injury Collisions	2	100.0%	1		1			2	13.3%	1		1		
Total # of Fatalities	0	N/A						0	N/A					
Total # of Serious Injuries	2	N/A	1		1			2	N/A	1		1		
Most Severe Injury Reported														
5 (K)	0	0.0%						0	0.0%					
4 (A)	2	100.0%	1		1			2	13.3%	1		1		
3 (B)	N/A	N/A						5	33.3%	1		1	2	1
2 (C)	N/A	N/A						8	53.3%	2	1	2	3	
1 (O)	N/A	N/A						0	0.0%					
By Weekday														
Sunday	0	0.0%						2	13.3%				2	
Monday	1	50.0%			1			5	33.3%	2		2		1
Tuesday	0	0.0%						2	13.3%	1		1		
Wednesday	1	50.0%	1					1	6.7%	1				
Thursday	0	0.0%						1	6.7%		1			
Friday	0	0.0%						3	20.0%				3	
Saturday	0	0.0%						1	6.7%			1		
Crash Hour														
12:00 AM - 12:59 AM	0	0.0%						0	0.0%					
1:00 AM - 1:59 AM	0	0.0%						0	0.0%					
2:00 AM - 2:59 AM	0	0.0%						0	0.0%					
3:00 AM - 3:59 AM	0	0.0%						0	0.0%					
4:00 AM - 4:59 AM	0	0.0%						0	0.0%					
5:00 AM - 5:59 AM	0	0.0%						0	0.0%					
6:00 AM - 6:59 AM	0	0.0%						0	0.0%					
7:00 AM - 7:59 AM	0	0.0%						1	6.7%	1				
8:00 AM - 8:59 AM	0	0.0%						1	6.7%		1			

9:00 AM - 9:59 AM	0	0.0%						0	0.0%					
10:00 AM - 10:59 AM	0	0.0%						0	0.0%					
11:00 AM - 11:59 AM	1	50.0%			1			1	6.7%			1		
12:00 PM - 12:59 PM	0	0.0%						1	6.7%					1
1:00 PM - 1:59 PM	0	0.0%						0	0.0%					
2:00 PM - 2:59 PM	1	50.0%	1					3	20.0%	1			2	
3:00 PM - 3:59 PM	0	0.0%						1	6.7%	1				
4:00 PM - 4:59 PM	0	0.0%						3	20.0%			2	1	
5:00 PM - 5:59 PM	0	0.0%						0	0.0%					
6:00 PM - 6:59 PM	0	0.0%						1	6.7%			1		
7:00 PM - 7:59 PM	0	0.0%						1	6.7%				1	
8:00 PM - 8:59 PM	0	0.0%						1	6.7%				1	
9:00 PM - 9:59 PM	0	0.0%						1	6.7%	1				
10:00 PM - 10:59 PM	0	0.0%						0	0.0%					
11:00 PM - 11:59 PM	0	0.0%						0	0.0%					
Unknown	0	0.0%						0	0.0%					
Crash Month														
January	1	50.0%			1			4	26.7%		1	3		
February	0	0.0%						0	0.0%					
March	0	0.0%						1	6.7%				1	
April	0	0.0%						1	6.7%	1				
May	0	0.0%						1	6.7%				1	
June	0	0.0%						0	0.0%					
July	0	0.0%						0	0.0%					
August	0	0.0%						0	0.0%					
September	1	50.0%	1					2	13.3%	2				
October	0	0.0%						0	0.0%					
November	0	0.0%						4	26.7%			1	2	1
December	0	0.0%						2	13.3%	1			1	
Crash Jurisdiction														
City of Bellevue	1	50.0%	1					14	93.3%	4	1	3	5	1
Washington State DOT	1	50.0%			1			1	6.7%			1		
First Harmful Event														
Collision with Pedalcycle	0	0.0%						2	13.3%	1		1		

Collision with Pedestrian	2	100.0%	1		1			13	86.7%	3	1	3	5	1
Weather														
Clear	1	50.0%	1					7	46.7%	2	1		4	
Cloudy	0	0.0%						3	20.0%	2		1		
Rain	1	50.0%			1			5	33.3%			3	1	1
Light Conditions														
Daylight	2	100.0%	1		1			8	53.3%	2	1	1	3	1
Dawn/Dusk	0	0.0%						1	6.7%			1		
Dark - Lighted	0	0.0%						6	40.0%	2		2	2	
Road Surface Condition														
Dry	1	50.0%	1					9	60.0%	3	1	1	4	
Wet	1	50.0%			1			6	40.0%	1		3	1	1
Within Interchange Area														
No	1	50.0%	1					14	93.3%	4	1	3	5	1
Yes	1	50.0%			1			1	6.7%			1		
Unknown	0	0.0%						0	0.0%					
Relation to Junction														
Driveway Access or Related	0	0.0%						7	46.7%	2		2	3	
Entrance/Exit Ramp or Related	0	0.0%						0	0.0%					
Intersection or Related	2	100.0%	1		1			8	53.3%	2	1	2	2	1
Intersection Geometry														
Angled or Skewed	1	50.0%	1					1	6.7%	1				
Roundabout or Traffic Circle	0	0.0%						0	0.0%					
Perpindicular	1	50.0%			1			9	60.0%	1	1	3	3	1
Not at Intersection	0	0.0%						5	33.3%	2		1	2	
Traffic Control Device														
Signalized	1	50.0%			1			8	53.3%	1		3	3	1
Stop - All Way	0	0.0%						0	0.0%					
Stop - Partial	0	0.0%						1	6.7%		1			
Yield	0	0.0%						0	0.0%					
No Controls	0	0.0%						0	0.0%					
Not an Intersection	1	50.0%	1					6	40.0%	3		1	2	
Number of Motor Vehicles Involved														
One	2	100.0%	1		1			15	100.0%	4	1	4	5	1
Two	0	0.0%						0	0.0%					

Three	0	0.0%						0	0.0%					
Four or More	0	0.0%						0	0.0%					
Roadway Owner														
State	1	50.0%			1			1	6.7%			1		
Municipality	1	50.0%	1					14	93.3%	4	1	3	5	1
Roadway Lighting														
Continuous Lighting on Both Sides	1	50.0%			1			14	93.3%	3	1	4	5	1
Continuous Lighting on One Side	1	50.0%	1					1	6.7%	1				
No Lighting	0	0.0%						0	0.0%					
Spot Illumination on Both Sides	0	0.0%						0	0.0%					
Spot Illumination on One Side	0	0.0%						0	0.0%					
Alcohol Involvement														
Yes	0	0.0%						0	0.0%					
No	2	100.0%	1		1			15	100.0%	4	1	4	5	1
Unknown	0	0.0%						0	0.0%					
Drug Involvement														
Yes	0	0.0%						0	0.0%					
No	2	100.0%	1		1			15	100.0%	4	1	4	5	1
Unknown	0	0.0%						0	0.0%					
Vehicle Data														
Motor Vehicle Body Type														
Passenger Car	0	0.0%						5	33.3%	1		1	3	
Pickup, Panel Truck, or Vanette under 10,000 lb	2	100.0%	1		1			10	66.7%	3	1	3	2	1
Median Type														
Not Divided	0	0.0%						0	0.0%					
Continuous Left-Turn Lane	1	50.0%	1					1	6.7%	1				
Divided with Flush Median	0	0.0%						0	0.0%					
Divided with Raised Median	1	50.0%			1			14	93.3%	3	1	4	5	1
Divided with Depressed Median	0	0.0%						0	0.0%					
Unknown	0	0.0%						0	0.0%					
Motor Vehicle Maneuver Prior to Crash														
Entering Traffic Lane	0	0.0%						2	13.3%	1			1	
Movements Essentially Straight Ahead	1	50.0%	1					3	20.0%	1	1	1		
Turning Left	1	50.0%			1			5	33.3%	1		1	2	1
Turning Right	0	0.0%						5	33.3%	1		2	2	

Person-Level Data														
Driver Actions at Time of Crash, Selection 1 & 2														
No Contributing Action	1	50.0%	1					3	17.6%	2	1			
Failed to Yield Right-of-Way	1	50.0%			1			9	52.9%	1		2	5	1
Wrong Side or Wrong Way	0	0.0%						2	11.8%			2		
Inattention	0	0.0%						2	11.8%				2	
Other Contributing Action	0	0.0%						1	5.9%	1				
Bicyclist Actions at Time of Crash, Selection 1														
No Contributing Action	0	#DIV/0!						2	100.0%	1		1		
Pedestrian Actions at Time of Crash, Selection 1, 2, & 3														
No Contributing Action	1	50.0%			1			8	50.0%			3	4	1
Disregarded Traffic Control	1	50.0%	1					1	6.3%	1				
Failed to Keep in Proper Lane	0	0.0%						1	6.3%		1			
Failed to Yield Right-of-Way	0	0.0%						1	6.3%	1				
Inattention	0	0.0%						3	18.8%	2			1	
Other Contributing Action	0	0.0%						1	6.3%	1				
Unknown	0	0.0%						1	6.3%			1		

Transoft Conflict Analytics

Transoft Solutions (ITS) is a subsidiary of Transoft Solutions Inc. [hereon Transoft], developers of innovative and highly specialized software for aviation, civil infrastructure, and transportation professionals, which operates in over 130 countries serving more than 50,000 customers. Through its operation in Ontario, Canada, Transoft pioneered the use of video analytics in transforming traffic movement data into traffic safety knowledge. Transoft provides automated video-based road safety solutions, BriskLUMINA and BriskVANTAGE, which have been assisting practitioners design and evaluate road structures. These products focus on understanding the causes of collisions before they happen, using surrogate (proactive) road safety techniques and video data. The outputs of the solutions provide the user with safety related event data (including near-misses, evasive actions, spatial violations, temporal violations, etc.), speeding violations, counts, and speeds.

The approach used by Transoft utilizes the use of surrogate safety for road safety evaluation, rather than simply relying on crash data due to its many shortcomings. Studying collision data is reactive; safety evaluation takes place after collisions occur, making it nearly impossible to achieve the goal of zero traffic deaths and serious injury collisions. Additionally, the infrequent nature of traffic collisions necessitates years of observation to achieve statistical significance and it is well-documented that traffic crashes and injuries are under-reported in many localities. These concerns have led to the use surrogate safety measures to proactively identify locations that have a high risk of crashes but where the risk has not yet resulted in actual crashes. A wide variety of surrogate safety measures exist, including speed, delay, violations, deceleration distribution, etc. In addition, Transoft relies on the industry standard metric known as post encroachment time (PET) which is the time difference between when the first road user leaves the conflict point and the second road user arrives at the conflict point. The lower the PET value, the higher the probability of a collision having occurred. Additionally, Transoft couples this value with other metrics describing severity (such conflict speeds, angles, road users, etc.) to quantify the true risk of an interaction.

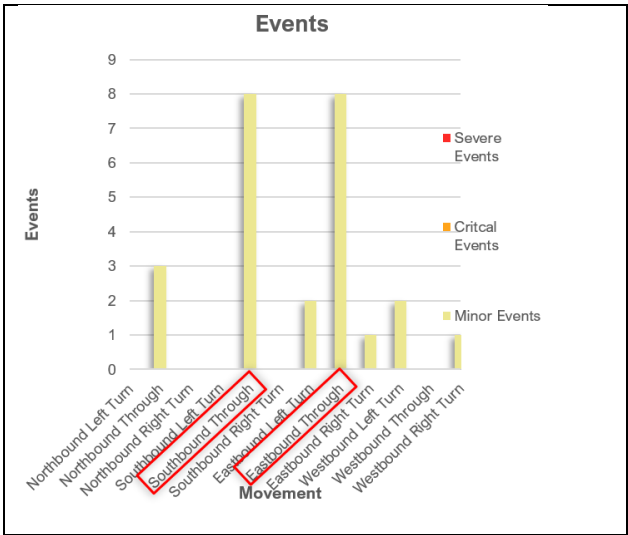
For this assessment, data was used from Bellevue's partnership with Transoft conducted in 2019. Data for a whole week of data from 2019, from September 13th to 19th, from 6 AM to 10 PM was used to perform the analysis. The results of the network screening performed were looked at to assess the volume, speed, and conflict data in relation to other locations. Then, the trajectory images were added to indicate all the movements present at these locations. All road users were detected using the video analytics and all interactions with a PET of 10s were noted. Using their conflict speeds and PET values, these events were then classified into severe events, critical events, minor events, potential events, and safe passage based off of the Swedish Traffic Conflict Technique. Transoft then looked at the data for the whole site, followed by a movement basis, and then a scenario (a combination of two movements that may result in a collision) basis. The pure counts as well as the rates were looked at in this analysis. Lastly, video clips for events with low PETs were looked at to observe a pattern.

Factoria Blvd SE & SE 36th St.

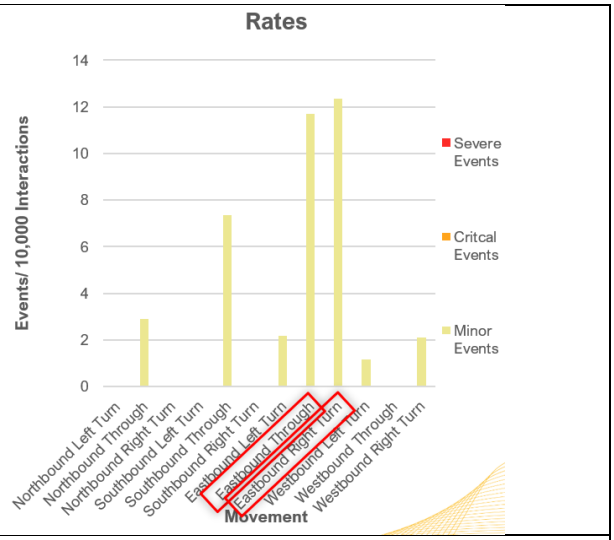
This location ranked 9th out of 40 for vehicular volume and had less than 1% vulnerable road user volumes in terms of volume. The 75th percentile speeds for right turning, left tuning, and through movements were 17.3 mph, 24.1 mph, and 26.6 mph, respectively. Given that the speed limit of the intersection is 35 mph, this indicates that not many drivers were speeding. As for conflicts, this location was the 5th highest in terms of the overall number of interactions but 9th lowest in critical events. Contrary, for the vulnerable road users, the conflict rate was observed to be low.

The number and rates of events per movement are presented in the charts below. A simple look at the data shows that no critical or severe events were observed during the analysis period. Though, in terms of minor

conflicts and rates, the Southbound Through, Eastbound Through, and Eastbound Right Turn appear to be involved in more events than the other movements.



Safety related events by movement



Safety related even rates by movement

A further look at the platform indicated the most critical conflict scenarios at this location to be:

1. Eastbound Through and East Crosswalk
2. Southbound Through and South Crosswalk
3. Southbound Through and Eastbound Through
4. Northbound Through and South Crosswalk
5. Eastbound Right Turn and South Crosswalk

However, given that this intersection does not have many critical or severe conflicts, a more in-depth look at the videos provided insights about safety-related events at this location. Two notable scenarios were observed to be the Eastbound Right Turn with Westbound Left Turn and Eastbound Left Turn with Westbound Right Turn. In both cases, the right-turning vehicles were turning and crossing over by one to two lanes. Simultaneously, the other vehicle would be approaching and changing lanes as well. These two scenarios indicated that the right-turning vehicles might not have enough time to change into the desired lane within the approach and thus would make a head start at the intersection. Below are examples of these scenarios with insightful video screenshots to support the information in this paragraph.

	
An Eastbound right-turning vehicle turning into a farther lane and crossing the conflict 1.22 seconds after the Westbound left turning vehicle	A Westbound right-turning vehicle turning 2 lanes away and crossing the conflict 1.31 seconds after the Westbound left-turning vehicle turning into a farther lane
	
A Westbound right-turning motorcyclist turned a lane farther away and crossed the conflict about 1.19 seconds after the Northbound through vehicle.	An Eastbound left-turning cyclist turned 2 lanes away and crossed the conflict about 1.48 seconds after the Westbound right-tuning vehicle.

usRAP Corridor Analysis

Doug Harwood provided the usRAP analysis results for the Factoria Blvd SE RSA corridor, developed as part of the larger effort to analyze the entire set of high-priority corridors in Bellevue. This allowed for the computation of calibration factors for all sites, including the RSA study area. The usRAP analysis results in a star rating for each roadway segment in question. The star ratings are assigned based on the presence of over 50 different roadway, traffic control, and other features. The star ratings follow a scale of one to five, where a five-star segment exhibits the full range of safety-related design and traffic control and a one-star segment shows limited safety-related design and traffic control features. The star ratings depend heavily on traffic speed, quantified with measured or estimated mean and 85th percentile speeds. Additionally, the analysis produces separate star ratings for different user types (pedestrians, bicyclists, motorcyclists, and vehicle occupants). Figure 14 shows a map of the pedestrian star ratings for Bellevue's high-priority corridors and the star rating for Factoria Blvd SE.

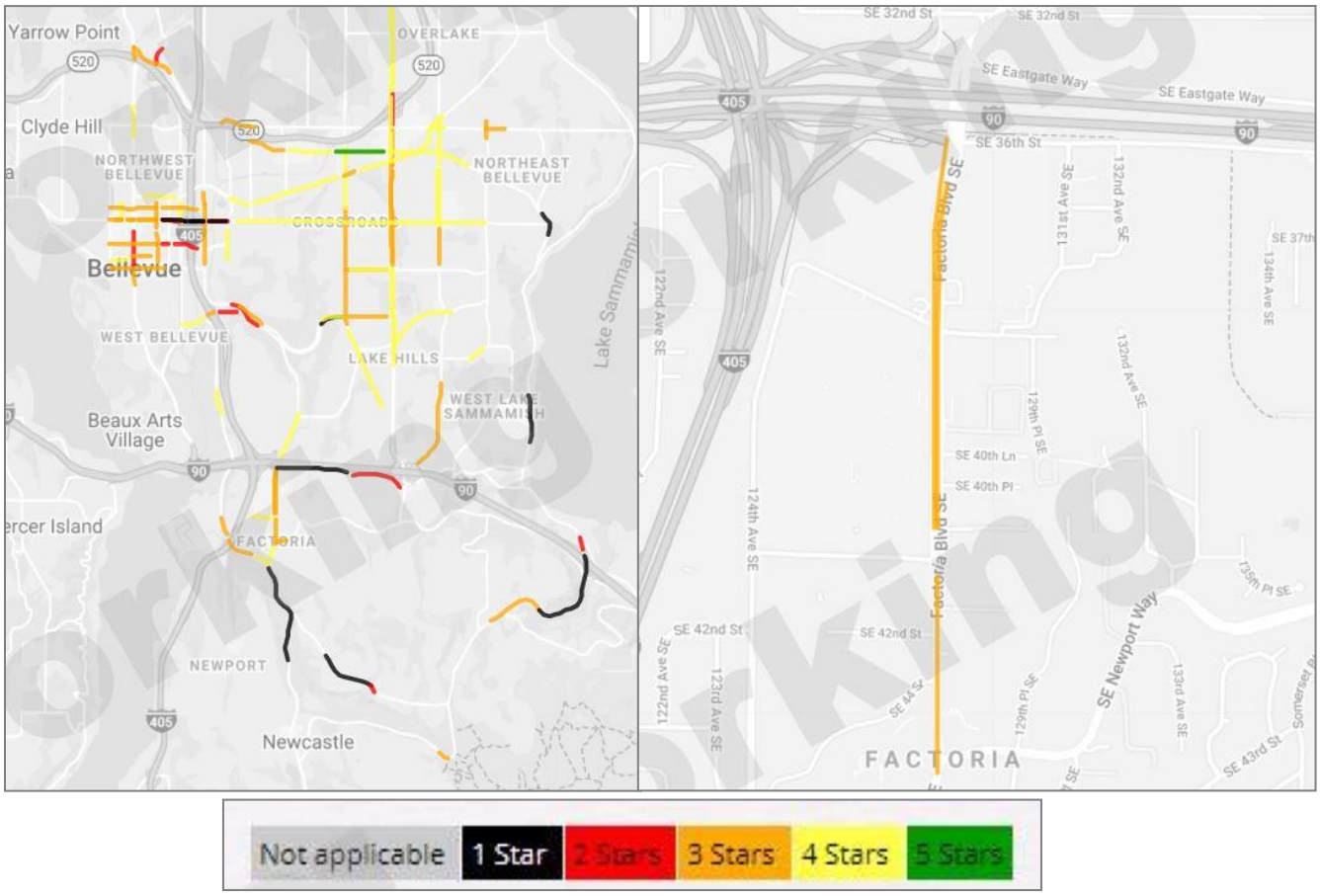


Figure 14 – Pedestrian star ratings for Bellevue high-priority corridors (left) and Factoria Blvd SE (right).

As Figure 14 shows, the study area rated 3 stars for pedestrians in the usRAP analysis. It rated two stars for vehicle occupants, motorcyclists, and bicyclists. The pedestrian performance is due mainly to the presence of sidewalks along both sides of the corridor, moderate vehicle speeds, and the presence of crossing facilities at several locations. Table 7 shows the breakdown of star ratings for each tenth-of-a-miles segment of the study area for all four user types. It should be noted that the usRAP analysis does not account for the new grade separated shared-use facility at SE 36th St.

Table 7 – usRAP Star Rating Summary for Factoria Blvd SE RSA Study Area.

Distance (mi)	Intersection	Pedestrians	Bicyclists	Motorcyclists	Vehicle Occupants
SE Newport Way to SE 41st Pl (Undivided) – Segments 1 and 2					
0.40	SE Newport Way	1	2	1	1
0.50	SE 44th St	2	2	2	2
0.60		3	3	3	3
0.70	SE 42nd St	3	2	2	3
0.80	SE 41st Pl	2	2	2	2
SE 41st Pl to SE 36th St (Divided, Northbound) – Segments 3, 4, and 5					
0.90		3	4	3	3
1.00	SE 40th Ln	2	3	2	2
1.10		3	2	3	3
1.20		3	4	3	3
1.30	SE 38th St	2	3	2	2
1.40		3	4	3	3
1.50		2	3	2	3
1.60	SE 36th St	2	2	1	1
SE 41st Pl to SE 36th St (Divided, Southbound) – Segments 3, 4, and 5					
1.70	SE 36th St	3	2	1	1
1.60	SE 36th St	1	3	3	3
1.50		4	3	3	4
1.40		4	3	3	3
1.30	SE 38th St	3	2	2	2
1.20		4	3	3	4
1.10	SE 40th Ln	3	2	2	3
1.00		4	3	3	4
0.90		3	2	1	1

King County Metro Bus Stop Inventory

Robbie Frankel (King County Metro) provided an inventory of the bus stops in the RSA study area operated and maintained by King County Metro. Table 8 summarizes this inventory, and it contains information on the ridership levels, amenities, and any outstanding issues for each stop.

Table 8. King County Metro bus stops in the RSA study area.

		Fall '19 Ridership		Spring '21 Ridership		Facilities Notes			Customer Comments						
Stop ID	**Location**	**On**	**Off**	**On**	**Off**	**Amenities**	**Illuminance (foot-candles)**	**Accessible?**	**Driver Missed Stop**	**Lighting**	**Facilities**	**Shopping Carts**	**Road Safety**	**Operator Reports**	**Incident Reports**
67034	SE 36th St @ Factoria Blvd SE (WB/NS)	N/A	N/A	N/A	N/A	Stop has not reopened yet. Rebuilt stop has a shelter footing for a solar-lit shelter.	N/A	Yes	0	0	0	0	0	No relevant reports	No significant or repeat incidents
79868	Factoria Blvd SE @ SE 38th St (SB/NS)	70	204	50	133	1 small standard shelter (F-21, no lighting), 1 trash. Stop is squeezed between driveways.	<0.5	Yes	7	0	0	0	0	No relevant reports	No significant or repeat incidents
80412	Factoria Blvd SE @ SE 38th St (NB/FS)	161	54	141	40	1 small standard shelter (F-21, no lighting), 1 trash, 1 destination sign. Stop is near driveways.	0.1	Yes	2	0	0	0	0	No relevant reports	No significant or repeat incidents
79880	Factoria Blvd SE @ SE 40th Ln (SB/FS)	118	198	99	143	1 custom shelter (no lighting) and 1 trash.	1.4	Yes	2	0	0	0	0	No relevant reports	No significant or repeat incidents
80400	Factoria Blvd SE @ SE 40th Pl (NB/FS)	149	76	95	64	No amenities, <8' sidewalk.	0.4	No	7	0	4	0	0	Request for trash can	No significant or repeat incidents
80390	Factoria Blvd SE @ SE 42nd St (NB/NS)	26	14	17	10	1 small standard shelter (F-21, no lighting), 1 small trash (larger trash removed for driveway visibility).	0.3	Yes	0	0	0	0	0	No relevant reports	No significant or repeat incidents
79890	Factoria Blvd SE @ SE 42nd St (SB/FS)	81	50	17	34	1 small standard shelter (F-21, no lighting), 1 trash.	0.5	Yes	3	0	0	0	0	No relevant reports	No significant or repeat incidents
80380	Factoria Blvd SE @ SE Newport Way (NB/FS)	14	13	7	9	1 small standard shelter (F-51, no lighting), 1 trash can Sidewalk less than 8' sidewalk.	1.8	No	2	0	0	0	0	No relevant reports	No significant or repeat incidents
79900	Factoria Blvd SE @ SE Newport Way (SB/FM)	7	9	4	6	1 small standard shelter (F-21, no lighting), 1 trash can.	<0.5	Yes	2	0	0	0	0	No relevant reports	No significant or repeat incidents

Complete Streets Bellevue Walking Audit Slides

Complete Streets Bellevue presented the following slides detailing the findings of the community walking audits conducted on the Factoria Blvd SE corridor.

Complete Streets Bellevue

Factoria Blvd Walking Audits
Thursday, July 8th – Saturday, July 10th

Outreach Summary

Door-to-door outreach to affordable housing providers, doctors, dentists, schools, and other establishments along corridor

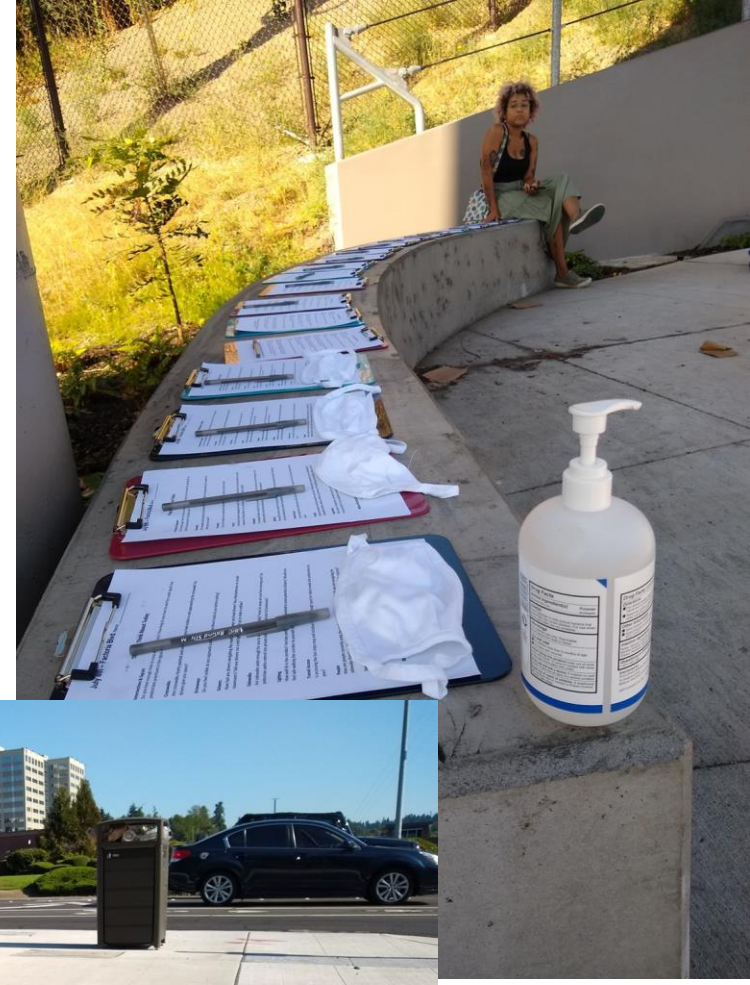
Email and telephone outreach to community partners

Mountains to Sound Greenway Trust

Eastrail Partners

Social media & newsletter plugs

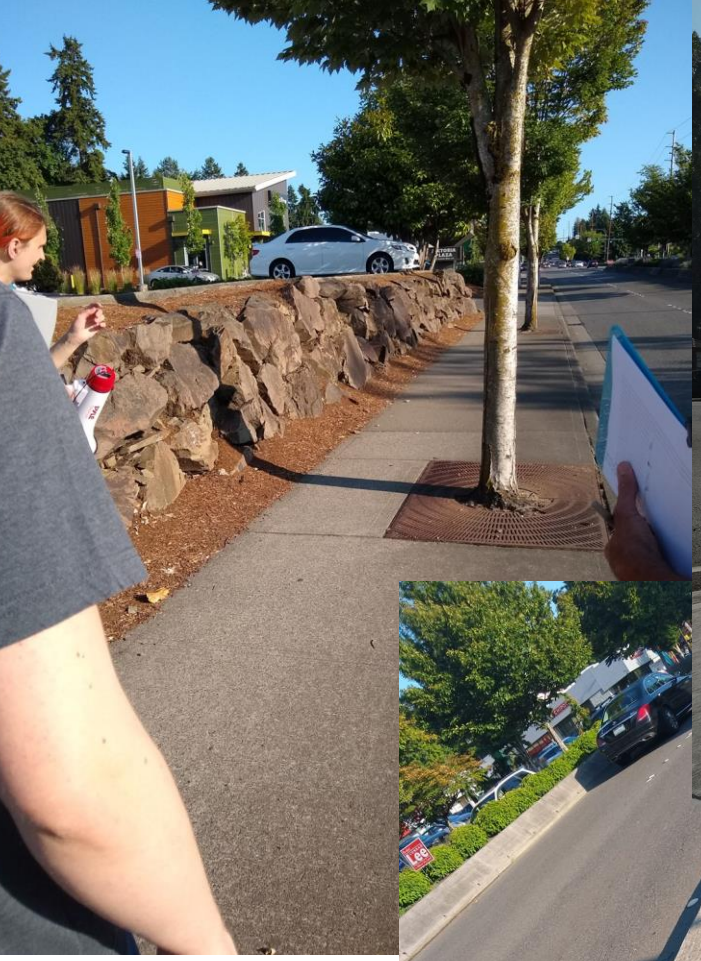
~15 RSVPs



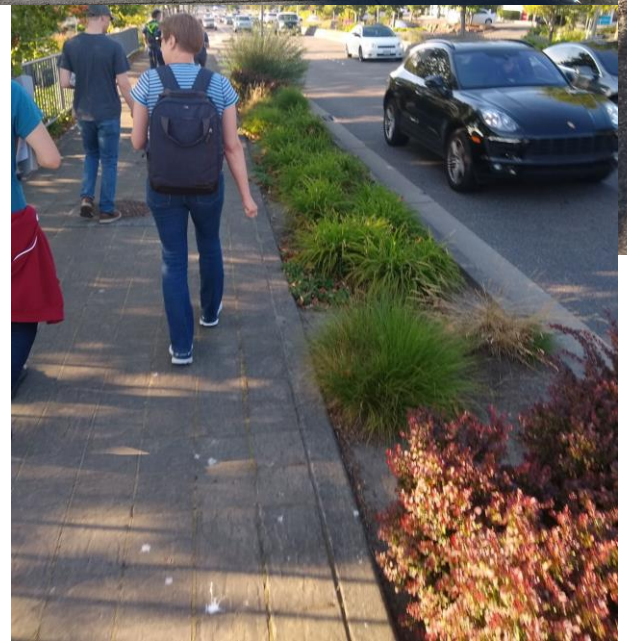
Day 1 - SE 36th St to SE 40th Ln

General feedback
No good options for bikes.
Most crosswalks are clearly marked, but cars frequently encroached on the space.
Not enough wayfinding.
Road was too fast, 35 mph speed limit made conditions very loud and unsafe.

A: SE 36th St & Factoria Blvd - long signal times, short crossing times, right turn from I-90 means cars frequently encroach crosswalk.
B: Sidewalks very wide here, could path be extended southwards?
C: Sidewalk does not continue into development.
D: Patchwork sidewalk design w/ redevelopment.
E: Driveways are trouble points when drivers are not looking your direction. Street trees also decrease the useable width of the sidewalk.
F: Scuffed up road markings imply dangerous area for pedestrians.
G: Crossing N/S is easy, but E/W requires a long wait. Hostile architecture.




STRAWBERRIES...
THE FARMLAND
THAT WE FARMED
...IS ALL UNDER
CONCRETE AND
BLACKTOP NOW.
—Seichi Hayashida, 1997



Day 2 - SE 40th Ln to Newport Way

General feedback:
Long signal times that encourage jaywalking.
Several cars ran red lights.
Heat island effect because of lacking vegetation in some parts.
Walk signals often didn't come for a full cycle, even N/S.
Still no bike infrastructure, few people dare bike here.

A: Some pedestrians jaywalking in between cars rather than wait for signal that might not come.
B: Vegetative buffer can create tripping hazard, and irrigation tubes are visible, which is unsightly.
C: Cars blocked the crosswalk here as they waited to turn right.
D: Overhanging vegetation.
E: Crosswalk could be painted.
F: Another example of patchwork sidewalk design that comes with redevelopment.
G: Newport Way crosswalk particularly terrible.