School Zone Ped-Bike
Road Safety Assessment

CONTENTS

Cover Photo: Students from Sammamish High School attending the community walking audit for RSA 3.

HOW TO USE THIS REPORT

PUBLIC

Can use this report to understand the conditions in their neighborhood and to become familiar with the ways that the City of Bellevue is working to make walking and biking safer and easier.

CITY STAFF

Can use this report to identify issues and opportunities related to walking and biking and to prioritize potential short-term and intermediate opportunities while considering the funding and political opportunities that may help to facilitate implementation of the long-term improvements.

THANK YOU

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- Anecia Grisby, assistant principal of Sammamish High School
- Anissa Bashey, principal of Stevenson Elementary School
- Aaron Miller, principal of Odle Middle School
- Mike Schiehser, assistant principal of Interlake High School
- Danelle Akers, principal of Sherwood Forest Elementary School
- Erin King, principal of Lake Hills Elementary
- Davonia Bryant, principal of Tillicum Middle School
- Christopher Jones, assistant principal of Tillicum Middle School
- Bethany Spinler, principal of Big Picture School
- Rachel Pearson, assistant principal of Phantom Lake Elementary
- Russell White, principal of International School
- Devin Barrett, assistant principal of Newport High School
- Harland Warrior, assistant principal of Newport High School

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RSA 1–3:

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- Junjie Gu
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- Jeremy Chin

RSA 4:

- Brittany Quan
- Jun An
- Jay Backman
- Rebecca Lilliquist
- Natalie Daniels
- Rohit Ammanamanchi
- Ian Nisbet
- Bianca Popescu

RSA 5:

- Min Jie Kim
- Ellen Webster
- Isack Habte
- Darcy Akers
- Glen Kho
- Justin Panganiban
- Rohit Ammanamanchi
- Eric Miller
- Ryan Miller
- Bianca Popescu
- Mackenzie Allan

RSA 6:

- Brittany Quan
- Marina Arakelyan
- Jay Backman
- Tyler Lam
- Rohit Ammanamanchi
- John Murphy
- William Bou
- Mackenzie Allan
- Randa Kiriakos
- Jonathan Winslow

DKS

- Brian Chandler
- Veronica Sullivan
- Caleb Trapp

TOOLE DESIGN

- Alex DuVall
- Diane Xiao
- Sarah Abel

EXECUTIVE SUMMARY

The City of Bellevue's Vision Zero initiative aims to eliminate traffic deaths and serious-injury crashes on city streets by 2030. In Bellevue, 83 percent of all fatal and serious injury crashes occur on eight percent of the city's total street network (as measured by length). These street segments make up Bellevue's High Injury Network (HIN). Comprised of a team of city staff and consultants, the City of Bellevue conducted a series of Road Safety Assessments (RSAs) to identify safety improvements for people walking and biking. Examples of recently completed Road Safety Assessments include Northeast Eighth Street near Stevenson Elementary School and Odle Middle School and Factoria Boulevard Southeast near Newport High School.[1, 2]

Six RSAs were conducted as part of this assessment:

RSA 1 spans 164th Avenue Northeast from Northeast 26th Street to Northeast 19th Street and Northeast 24th Street from 161st Avenue Northeast to 167th Avenue Northeast. Sherwood Forest Elementary School and Interlake High School are located within RSA 1.

Figure 1: Students on RSA 3 Community Walking Audit at Bel-Red Road and 140th Avenue Northeast.

RSA 2 spans Northeast 20th Street from 140th Avenue Northeast to 162nd Avenue Northeast, Bel-Red Road from 140th Avenue Northeast to Northeast 20th Street and 148th Avenue Northeast from Northeast 20th Street to Northeast Eighth Street. Highland Middle School is located within RSA 2.

RSA 3 spans 140th Avenue Northeast from Bel-Red Road to Southeast Eighth Street, Main Street from 140th Avenue Northeast to 148th Avenue Northeast and 148th Avenue Northeast from Northeast Eighth Street to Southeast Eighth Street. Sammamish High School, Stevenson Elementary School and Odle Middle School are located within RSA 3.

RSA 4 spans Southeast Phantom Way from 160th Avenue Southeast to 164th Avenue Southeast, 145th Place Southeast between Southeast Eighth Street and Southeast 24th Street, Southeast Eighth Street between 140th Avenue Southeast and 148th Avenue Southeast and 148th Avenue Southeast between Southeast Eighth Street and Southeast 16th Street. Lake Hills Elementary School, Bellevue Big Picture School, Phantom Lake Elementary School and Tillicum Middle School are located within RSA 4.

RSA 5 spans Southeast Eighth Street between 112th Avenue Southeast to Southeast Seventh Place, and Lake Hills Connector between 800 feet north of Southeast Eighth Street and 1,000 feet south of Southeast Eighth Street. International High School is located within RSA 5.

RSA 6 spans Coal Creek Parkway Southeast between Highway I-405 and 850 feet southeast of Factoria Boulevard Southeast, Factoria Boulevard Southeast between Coal Creek Parkway Southeast and Southeast Newport Way and Southeast Newport Way between Factoria Boulevard Southeast and 130th Place Southeast. Newport High School is located within RSA 6.

PROCESS AND GOALS

Each RSA process began with outreach to Bellevue School District parents, students and staff, as well as neighborhood residents and other community partners. One to two walking audits were conducted near each school with community members. The project team, comprised of City staff and consultants, then performed a field review to evaluate the corridor for safety with a particular focus on walking and biking facilities. After each field review, the team participated in a virtual workshop using MURAL digital visual collaboration tool to facilitate conversation and brainstorm possible safety improvements.

1 https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-road-safety-assessment-NE8th-street-032521.pdf

2 https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-road-safety-assessment-Factoria-Boulevard-100421.pdf

In addition to soliciting community feedback, the team took a data-driven approach and reviewed video analytics, crash data, signal timing, vehicular speed data and traffic volumes.

OVERALL OBSERVATIONS

Based on the Washington State Department of Transportation (WSDOT) Public Disclosure Request Center data from 2015-2020 (RSAs 1-3) and 2016-2021 (RSAs 4-6), 25 fatal and serious injury crashes occurred within the six total RSA areas and 11 of those crashes involved people walking and biking. People walking and biking are more vulnerable compared to other modes, especially based on the following conditions observed during this study:

- Wide travel lanes that encourage speeding
- Short pedestrian crossing times
- Wide intersections with permitted turn lanes resulting in more potential conflicts between modes
- Insufficient facilities for people walking and biking

RECOMMENDATIONS

The team identified numerous safety improvements through the RSA process. Recommendations are broken into three categories:

- Systemic improvements that apply to all six RSAs
- Corridor improvements that apply to individual RSAs
- Policy recommendations to existing City of Bellevue policies

Figure 2: Students on RSA 1 Community Walking Audit on 164th Avenue Northeast.

INTRODUCTION

PROJECT CONTEXT

Figure 3: Annual Vision Zero Action Plans build on the Safe System Approach and a yearly recommitment to address systemic road safety challenges wholistically through Bellevue's interdepartmental "One City" collaboration.
(Source: Vision Zero Strategic Plan[6])

THE SAFE SYSTEM APPROACH

The four pillars of Bellevue's Safe System Approach include: Safe People, Safe Streets, Safe Speeds and Safe Vehicles. These pillars, as well as the supporting elements of leadership, culture, partnerships and data, all help contribute to reducing the frequency and severity of crashes. Applying the Safe System Approach involves anticipating mistakes by designing and managing road infrastructure to eliminate the risk of death and serious injury. And if a crash does occur, ensuring that the kinetic energy forces and the impact a human body can withstand is considered in the design of Bellevue's transportation system. Road design and management that encourage safe road behaviors can reduce injury severity by reducing kinetic energy forces.

VISION ZERO AND LOCAL ROAD SAFETY PLAN

City of Bellevue approved the Vision Zero Strategic Plan (Vision Zero Plan) in December 2020.[1] The Vision Zero Plan lays out how the city will apply the Safe System Approach to eliminate traffic fatalities and serious injuries by 2030 and provides a coordinated approach across city departments, ensuring that transportation engineers, first responders and other key staff work together.

ANNUAL ACTION PLANS

Annual Vision Zero Action Plans reflect Bellevue's commitment to address systemic road safety challenges holistically. The Action Plans are updated annually as new data becomes available and as new Vision Zero actions prove to be successful in making Bellevue's streets safer. Action Plans for for 2021, 2022 and 2023 are available on the City of Bellevue's website.[2, 3, 4] Action two of the 2022 Action Plan includes conducting RSAs along the High Injury Network (HIN) streets near Bellevue schools as a priority action item.

RSA PURPOSE

ROAD SAFETY ASSESSMENTS

An RSA is the formal safety examination of a road or intersection by a multidisciplinary team that reports on potential road safety issues and identifies opportunities for improvements in safety for all road users.[5] The multidisciplinary team included City of Bellevue staff and consultants. RSAs can be focused on specific streets or around a certain land use. In this case, the RSAs focused on the safety of people walking and biking along HIN streets near schools.

SCHOOL ZONE PED-BIKE ROAD SAFETY ASSESSMENT

As Bellevue envisions a transportation system that can be safely navigated by all road users, it is essential to center the experiences of those most vulnerable to risk of fatal and serious injury. Most importantly people walking and biking who are not protected by a metal box around them. People walking and biking in Bellevue are especially vulnerable along the HIN of roads with the highest crash risk, shown in Figure 4. Road segments on the HIN near schools were prioritized for assessment.

The purpose of the assessments were to provide an in-depth understanding of existing conditions that increase safety risk and crash causation to inform safety countermeasure selection for six areas prior to design or construction of safety improvements. The assessments were done through the lens of the Safe System Approach and with particular focus on increasing the safety of people walking and biking.

PROJECT BACKGROUND

The City wanted to know how road safety impacted access to schools. To learn, Bellevue conducted six RSAs near 12 schools with grant funding from the Washington Traffic Safety Commission (WTSC). The goal was to gather local knowledge and community insights that may not be captured in a more traditional, technically oriented review process. Outreach to Bellevue School District parents, students and staff, neighborhood residents and other community stakeholders, was an important part of the RSA process.

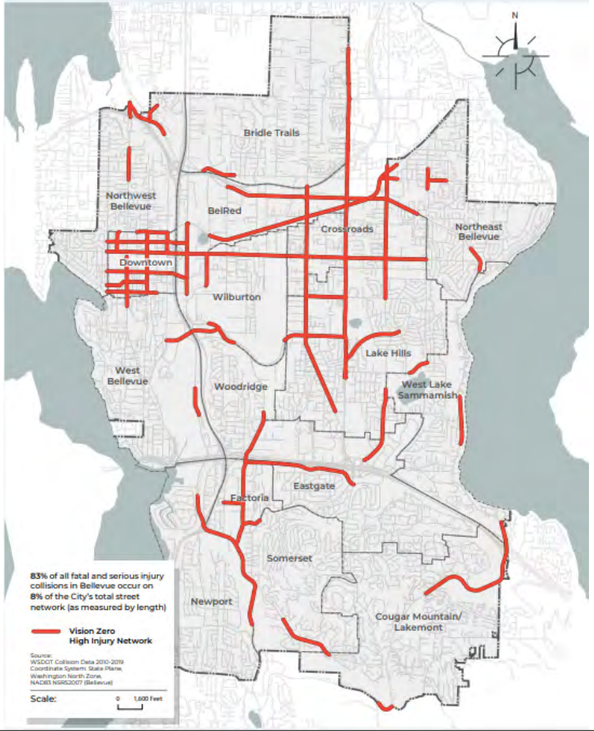


Figure 4: Bellevue's High Injury Network from the VZ Plan.
(Source: Vision Zero Strategic Plan[6])

1 https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-strategic-plan-120120.pdf
2 https://bellevuewa.gov/sites/default/files/media/pdf_document/2022/2021_VZAP_Final_Signed.pdf
3 https://bellevuewa.gov/sites/default/files/media/pdf_document/2022/2022_VZAP_Final_Signed.pdf
4 https://bellevuewa.gov/sites/default/files/media/pdf_document/2023/2023%20VZAP.pdf
5 https://safety.fhwa.dot.gov/rsa/
6 https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-strategic-plan-120120.pdf

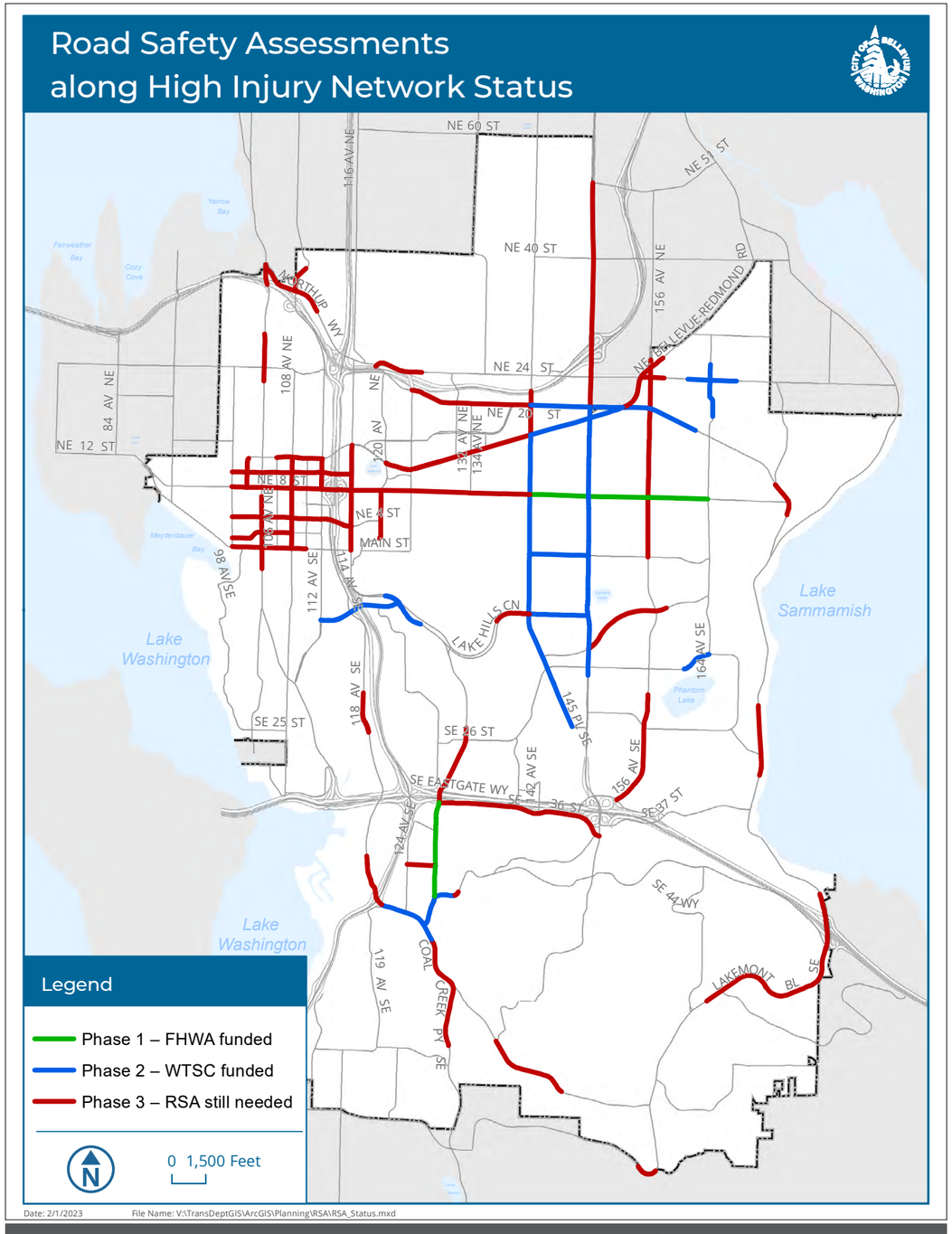


Figure 5: The first phase of RSAs were funded by the Federal Highway Administration (FHWA), the second phase was funded by the Washington Traffic Safety Commission (WTSC), and the remaining areas along the High Injury Network that need RSAs are not yet funded as of July 2023..

Funding for the six RSAs came through a $150,000 grant from the WTSC and a $42,758 match from the City of Bellevue. The RSAs resulted in a series of recommendations for transportation infrastructure and policy improvements to increase safety for all modes. Each RSA has its own section documenting key features along the corridor and specific recommendations that are further broken down by approximate timeframe, estimated cost, crash modification factor (CMF) and responsible groups. Figure 5 on the next page and Table 1 on page five summarize the limits of the six RSAs.

COMMUNITY PARTICIPATION

OUTREACH

The community participation for each RSA played a key role in providing context to the team. Below is a list of community involvement that helped inform the recommendations in this report:

- **Community Walking Audits** — The team conducted one to two community walking audits per RSA area. An extensive public outreach plan was developed by the team and implemented to promote the walking audits to local residents and nearby schools. During the community walking audits, the team was able to collect valuable insights, stories, concerns and ideas from local community members regarding each RSA area.
- **Engaging Bellevue** — The City of Bellevue launched a website to provide the public with information about the project. The website also included a form to sign up for community walking audits, an online questionnaire and interactive map to collect feedback hosted on EngagingBellevue.com.[1]

1 https://bellevuewa.gov/city-government/departments/transportation/safety-and-maintenance/traffic-safety/vision-zero/road-safety-assessments-near-schools

Students' Visions for Safety

Students attending school in the RSA study areas shared their vision for safety.

Ethan Lee, a Highland Middle School student, said "I would like to have all bikers and pedestrians feel safer when using the sidewalks and streets in Bellevue."

William Bancroft, a Sammamish High School student, said "Vision Zero means changing our city, roads, and overall environment to eliminate vehicle-related accidents. Road safety means building and modifying our roads such that all people are safe. A few things that I think can improve safety for people walking or using bikes is to improve visibility, to expand bicycle infrastructure so they don't have to be as close to motor vehicles. Another thing is to slow down vehicles in areas where people are frequently crossing."

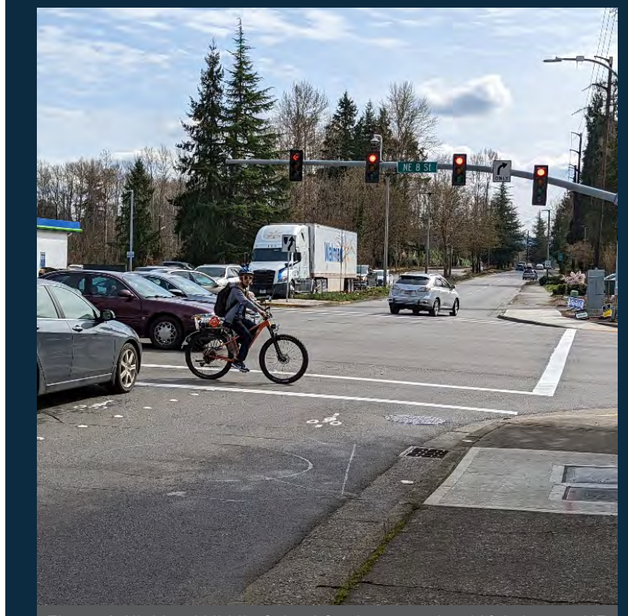


Figure 6: Highland Middle School Student crossing 148th Avenue NE by bike.

ENGAGEMENT STRATEGIES

The public outreach and engagement evolved over the course of conducting the six RSAs. To involve the community and receive feedback, the team employed a variety of strategies that included:

- Coordination with all public school principals to distribute information to parents and students.
- Coordination with the high school principals to provide community service credits to students attending the community walking audits.
- Coordination with public school principals who identified students who shared their experience walking and/or biking to school.
- Flyer distribution to parents and students during pick-up and drop-off at public schools within the RSA areas.
- Posting signs that promoted community walking audits and online questionnaire at key intersections within the RSA boundaries.
- Social media outreach via Twitter, Nextdoor and Facebook. Information was also shared with the public via citywide publications like Neighborhood News and It's Your City.
- Direct outreach to private schools, affordable housing complexes, multi-family complexes, churches, retirement centers and other community amenities requesting the staff to distribute flyers about the community walking audits to their communities.

MOVING TOWARD RECOMMENDATIONS

The project team field visits focused on the technical design of the streets within each RSA study area, such as the design of pedestrian and bicycling facilities, adherence to Americans with Disabilities Act (ADA) and signal timing. After collecting and reviewing data and conducting field visits, the consultant team hosted a one-day virtual workshop for each RSA. The workshop was done using MURAL digital visual collaboration tool, which provides the opportunity for collaboration and concurrent input from all participants. The facilitator led a verbal discussion to supplement the written inputs. This collaboration of the project team through field visits and virtual workshops was fundamental to develop recommendations to improve safety for people walking and biking in each RSA study area.

Outreach at Phantom Lake Elementary School

Bianca Popescu and Rohit Ammanamanchi presented to fifth grade safety patrol students in November 2022 as part of the RSA project. The presentation began with a discussion of Bianca and Rohit's roles at the City of Bellevue. Next, City staff led an icebreaker activity for the students that included questions like:

- Raise your hand if you walk or bike to school
- Raise your hand if you are not allowed to walk or bike to school or in your neighborhood
- What is your favorite part about being in safety patrol?
- What are some issues you have seen while doing safety patrol?
- What are the reasons you don't feel safe walking or biking to school? What would help?

Bianca also spoke about Bellevue's commitment to Vision Zero and what the Vision Zero program entails. The four pillars of the Safe System Approach, described on page two, were shared with the students.

The students then began their first activity: a dot exercise and survey. Students were asked to write their biggest concerns about road safety on the white board and to add a dot next to concerns they also agree with. Students then wrote what they think could be done to make streets feel safer on a different white board, and to add a dot next to the ideas they also agree with.

For the second activity, students were asked to write what road safety meant to them by answering the question "What is your vision of safety in the City of Bellevue?"

Bianca and Rohit ended the session by guiding students on how they and their families could get involved in community walk audits for RSA 4, 5 and 6.

Figure 7: City staff talking to community members.

Figure 8: City staff presenting to 5th grade safety patrol students at Phantom Lake.

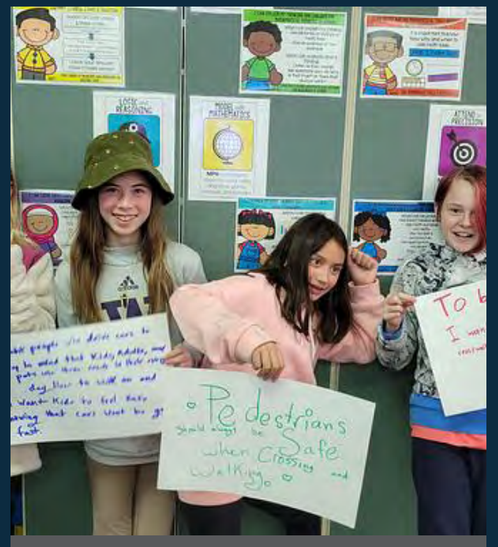


Figure 9: Students answering the question "What is your vision of safety in the City of Bellevue?"

Table 1: RSA Study Area Segments

RSA Area	Segment Limits	WSDOT Functional Classification[1]	Bellevue Arterial Classification[2]	Length	Speed Limit	Annual Average Weekday Traffic (AAWT)[3]
RSA 1	**164th Avenue Northeast,** from Northeast 26th Street to Northeast 19th Street.	Major Collector	Collector Arterial	0.45 miles	25 mph[4]	6,600 (2017)
	Northeast 24th Street, from 161st Avenue Northeast to 167th Avenue Northeast.	Minor Arterial	Minor Arterial	0.35 miles	30 mph[4]	8,000 (2017)
RSA 2	**Northeast 20th Street,** from 140th Avenue Northeast to 162nd Avenue Northeast	Minor Arterial	Minor Arterial	1.42 miles	35 mph[4]	17,100 (2017)
	Bel-Red Road, from 140th Avenue Northeast to Northeast 20th Street	Other Principal Arterial	Major Arterial	0.81 miles	35 mph[4]	19,200 (2017)
	148th Avenue Northeast, from Northeast 20th Street to Northeast Eighth Street	Other Principal Arterial	Major Arterial	0.80 miles	35 mph	36,300 (2017)
RSA 3	**140th Avenue Northeast,** from Bel-Red Road to Southeast Eighth Street	Minor Arterial (north of Northeast Eighth Street) Major Collector (south of Northeast Eighth Street)	Minor Arterial (north of Northeast Eighth Street) Collector Arterial (south of Northeast Eighth Street)	1.50 miles	30 mph	17,500 (2015)
	Main Street, from 140th Avenue Northeast to 148th Avenue Northeast	Major Collector	Collector Arterial	0.85 miles	25 mph	7,489 (2018)
	148th Avenue Northeast, from Northeast Eighth Street to Southeast Eighth Street	Other Principal Arterial	Major Arterial	1.0 miles	35 mph	33,800 (2018)
RSA 4	**Southeast Phantom Way,** from 159th Avenue Southeast to 164th Avenue Southeast	Urban Major Collector	Collector Arterial	0.34 miles	25 mph	(not available)
	148th Avenue Southeast, from Southeast Eighth Street to Southeast 16th Street	Urban Other Principal Arterial	Major Arterial	0.43 miles	35 mph[4]	38,300 (2019)
	Southeast Eighth Street, from 140th Avenue Southeast to 148th Avenue Southeast	Urban Major Collector	Major Arterial	0.50 miles	25 mph [4]	11,100 (2017)
	145th Place Southeast, from Southeast 22nd Street to Southeast Eighth Street	Urban Major Collector	Collector Arterial	0.90 miles	30 mph	13,500 (2019)
RSA 5	**Southeast Eighth Street,** between 112th Avenue Southeast and Lake Hills Connector	Urban Other Principal Arterial	Major Arterial	0.67 miles	35 mph	15,600 (2019)
	Lake Hills Connector, east of Southeast Seventh Place	Urban Other Principal Arterial	Major Arterial	0.50 miles	35 mph west of Southeast Eighth Street	27,300 (2017)
RSA 6	**Coal Creek Parkway** Southeast from 119th Avenue Southeast to Factoria Boulevard Southeast	Urban Principal Arterial	Major Arterial	0.38 miles	35 mph	(not available)
	Factoria Boulevard Southeast, from Coal Creek Parkway Southeast to Southeast Newport Way	Urban Minor Arterial	Minor Arterial	0.24 miles	35 mph	38,300 (2019)
	Southeast Newport Way, from Factoria Boulevard Southeast to 130th Place Southeast	Urban Minor Arterial	Minor Arterial	0.16 miles	30 mph	11,100 (2017)

1 WSDOT Functional Classification Map: https://www.wsdot.wa.gov/data/tools/geoportal/?config=FunctionalClass
2 Bellevue Arterial Classifications Map: http://apps.bellevuewa.gov/gisdownload/PDF/Transportation/arterials_11x17.pdf
3 Traffic counts collected by IDAX. 164th Avenue Northeast counts were collected between 2/12/2017 - 2/18/2017. Northeast 24th Street counts were collected between 11/1/2016 to 11/7/2016.
4 20mph school zone speed limit at Sherwood Elementary, Interlake High School, Highland Middle School, Tillicum Middle School, Phantom Lake Elementary School and Lake Hills Elementary School.

DATA AND METHODOLOGY

DATA DRIVEN APPROACH

The team utilized a data driven approach to inform recommendations for the RSA study areas. The following data was used to understand the existing conditions and identify safety improvements.

- **Signal Timing** — Signal timing for all intersections in the RSAs were reviewed prior to and during the project team's field visits.
- **Transoft Data Analytics** — Transoft Solutions conducted a citywide analysis of traffic camera video in Bellevue in 2019-2020 with the goal of improving road safety for all modes by analyzing conflicts (near-miss crashes) between road users. Transoft used data from Bellevue's network of existing traffic cameras then processed, analyzed, and diagnosed problematic intersections. Four intersections had Transoft data: Main Street and 148th Avenue Northeast, 148th Avenue Northeast and Bel-Red Road, 156th Avenue Northeast and Northup Way and 164th Avenue Northeast and Northeast 24th Street.
- **Crash Data** — Crash data was evaluated for incidents occurring within the RSAs during the most recent six years of available data. The team acquired crash data from the WSDOT Public Disclosure Request Center database from 2015 to 2020 for RSAs 1-3, and 2016-2021 for RSAs 4-6.
- **Vehicular Speed Data** — Posted speed limits, 50th percentile, 85th percentile, 95th percentile and average vehicular speeds were reviewed for all roads within the RSAs.
- **Mobileye Data** — Historical traffic volumes for all roads within the RSAs were identified using Mobileye data.

PRE- AND POST-COVID SPEED DATA

As seen in many cities, excessive speeding has increased in Bellevue from pre-COVID-19 pandemic levels. Figure 10 displays the 85th percentile speeds along select arterial roadways in the city using vehicle probe data from Iteris ClearGuide and HERE Technologies. These maps show Quarter 1 (January-March) data for 2020 and 2023, respectively. In 2020, there were no recorded corridors with 85th percentile speeds at or above 45 mph, while in the 2023 map we see that many arterial roadways – Bellevue Way Southeast, Coal Creek Parkway Southeast, Lake Hills Connector Road, Southeast Newport Way and Lakemont Boulevard Southeast - all exceed 45 mph. Speeds in excess of 40 mph (light red) and 45 mph (dark red) have increased citywide, and in particular near Stevenson Elementary, Highland Middle School, Lake Hill Elementary, International School, Bellevue Big Picture School and Newport High School. This trend further emphasizes the need to manage speed on Bellevue roads and implement road safety measures as identified by the RSAs.

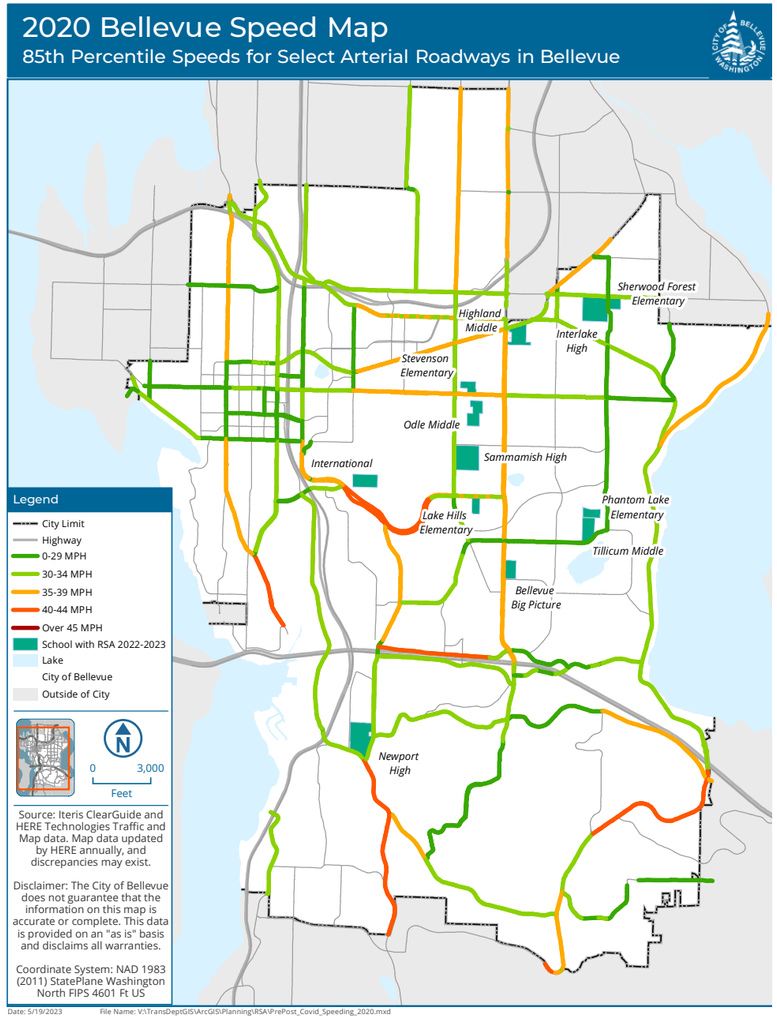


Figure 10: 2020 Bellevue Speed Map (left) and 2023 Bellevue Speed Map (right) used to evaluate pre-and post-COVID speed data on select arterial corridors.

CRASH INFORMATION

While people walking and biking only account for five percent of all crashes in Bellevue, they are 49 percent of fatal and serious injury crashes.[1] The over-representation of vulnerable road user fatal and serious injury crashes calls for prioritizing safe street design for those walking and biking.

There were 1,213 total reported crashes within RSAs 1-3 between 2015 to 2020. There were a total of 19 bicyclist involved crashes and 39 pedestrian involved crashes in the three RSA areas in that same time period.[2]

There were 590 total reported crashes within RSAs 4-6 between 2016-2021. There were a total of 10 bicyclist involved crashes and 12 pedestrian involved crashes in the three RSA areas in that same time period. Similar to citywide trends, people walking and biking are involved in a small proportion of all crashes in the RSA areas (4.4 percent), but they represent 11 of 25 (44 percent) of the fatal and serious injury crashes.

In the six RSA areas, there were three pedestrians killed, four pedestrians seriously injured, one bicyclist killed, and three bicyclists seriously injured. There were also four motorist fatalities and 10 motorist serious injuries in the six RSA areas. The City of Bellevue strives to eliminate fatal and serious injury crashes by 2030 through safety improvements.[3]

To the right is additional crash information on the six RSA areas. These factors should be considered when making safety improvements.

Table 2: Fatal and Suspected Serious Injury Crashes by Mode Within RSAs 1-6[4]

Crash Severity	Ped Involved	Bike Involved	Motor Vehicle	Total
Fatal	3	1	4	8
Suspected Serious Injury	4	3	10	17
Total	**7**	**4**	**14**	**25**

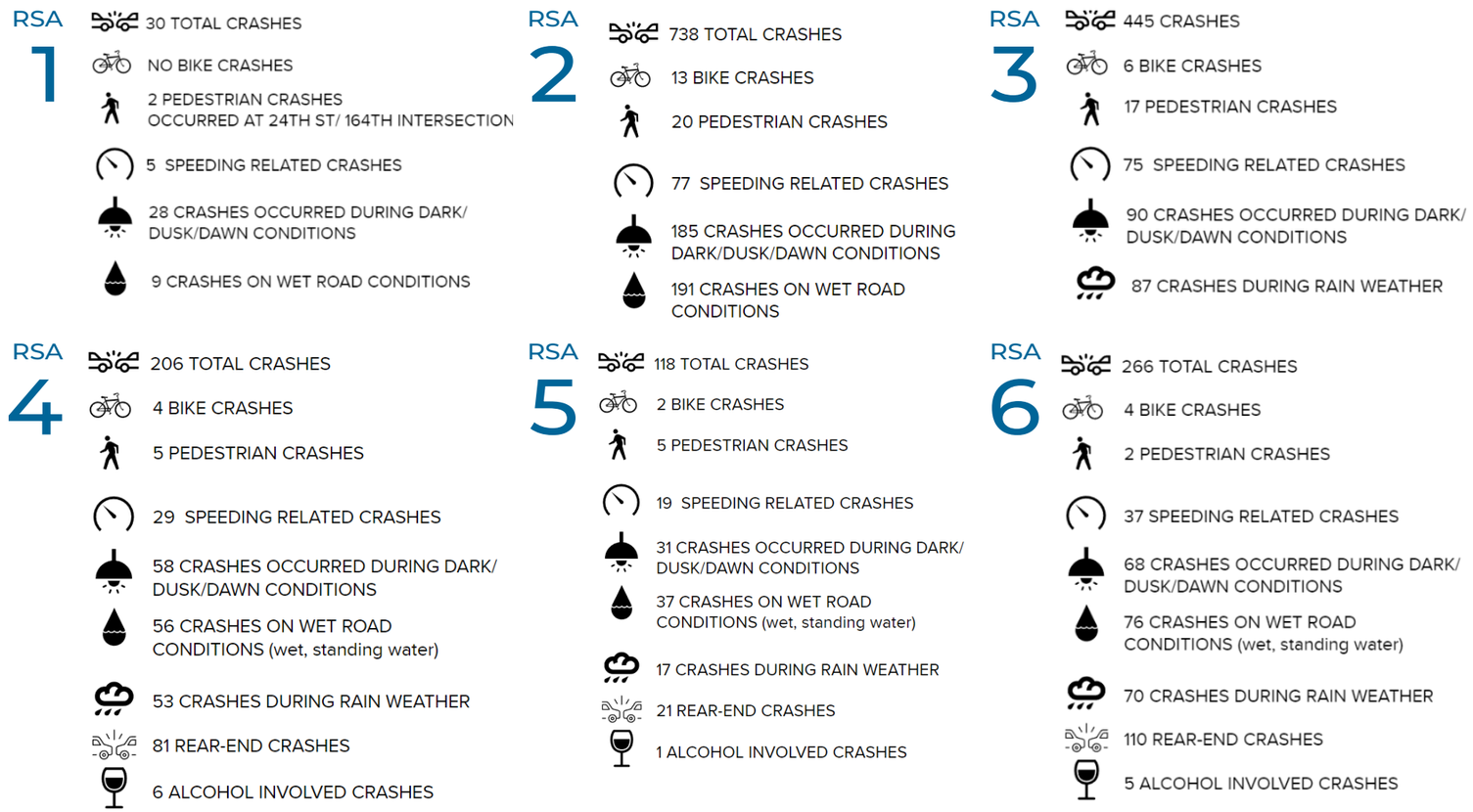


Figure 11: Crash Summaries for RSA 1–6

1 City of Bellevue Vision Zero Strategic Plan, 2020, Figure 12 (https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-strategic-plan-120120.pdf)
2 WSDOT Public Disclosure Request Center database
3 https://bellevuewa.gov/sites/default/files/media/pdf_document/2021/vision-zero-strategic-plan-120120.pdf
4 RSAs 1-3 use crash data from 2015-2020 and RSAs 4-6 use crash data from 2016-2021.

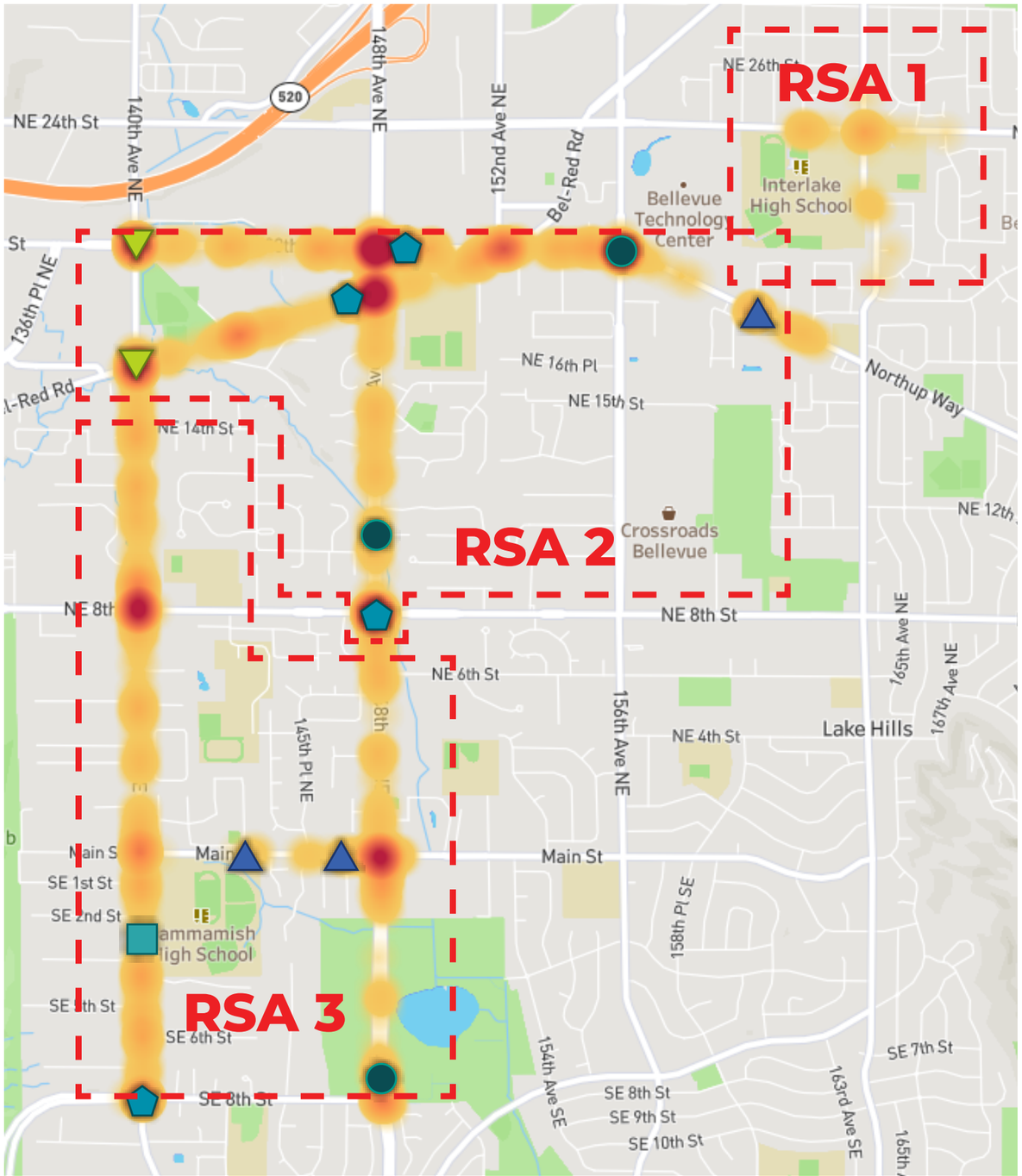


Figure 12: RSA Project Areas with Crash Severity Heat Map showing Fatal and Suspected Serious Injury Callouts.

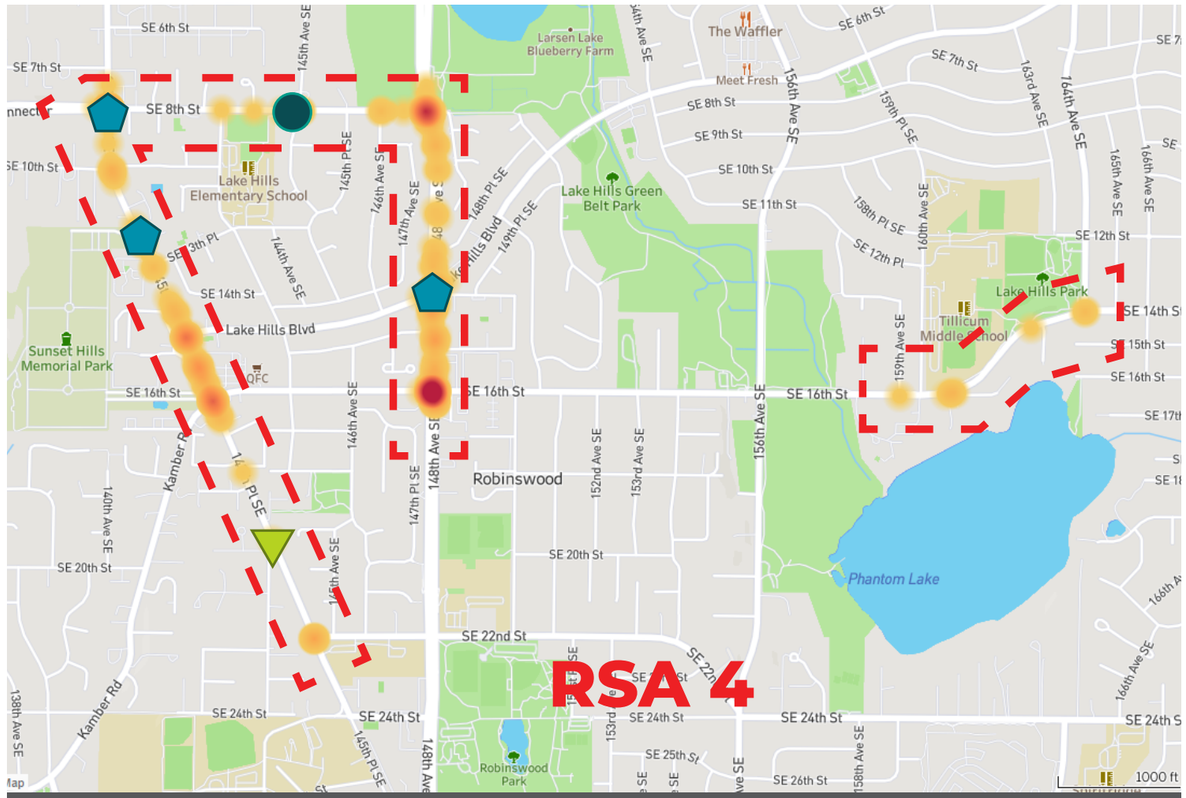


Figure 13: RSA Project Areas with Crash Severity Heat Map showing Fatal and Suspected Serious Injury Callouts.

- Fatal Injury
- Suspected Serious Injury
- Bicycle Suspected Serious Injury
- Pedestrian Fatal Injury
- Pedestrian Suspected Serious Injury

Frequency of Crashes

High

Low

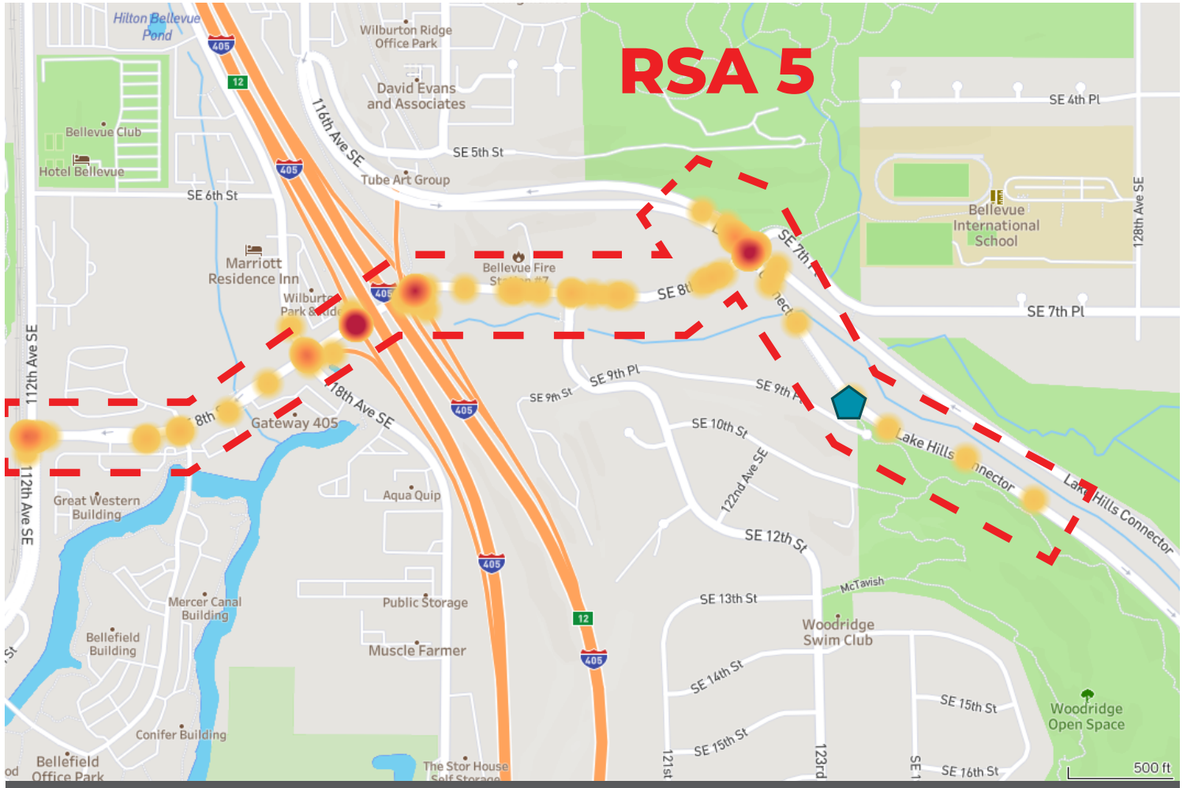


Figure 14: Figure 8: RSA Project Areas with Crash Severity Heat Map showing Fatal and Suspected Serious Injury Callouts.

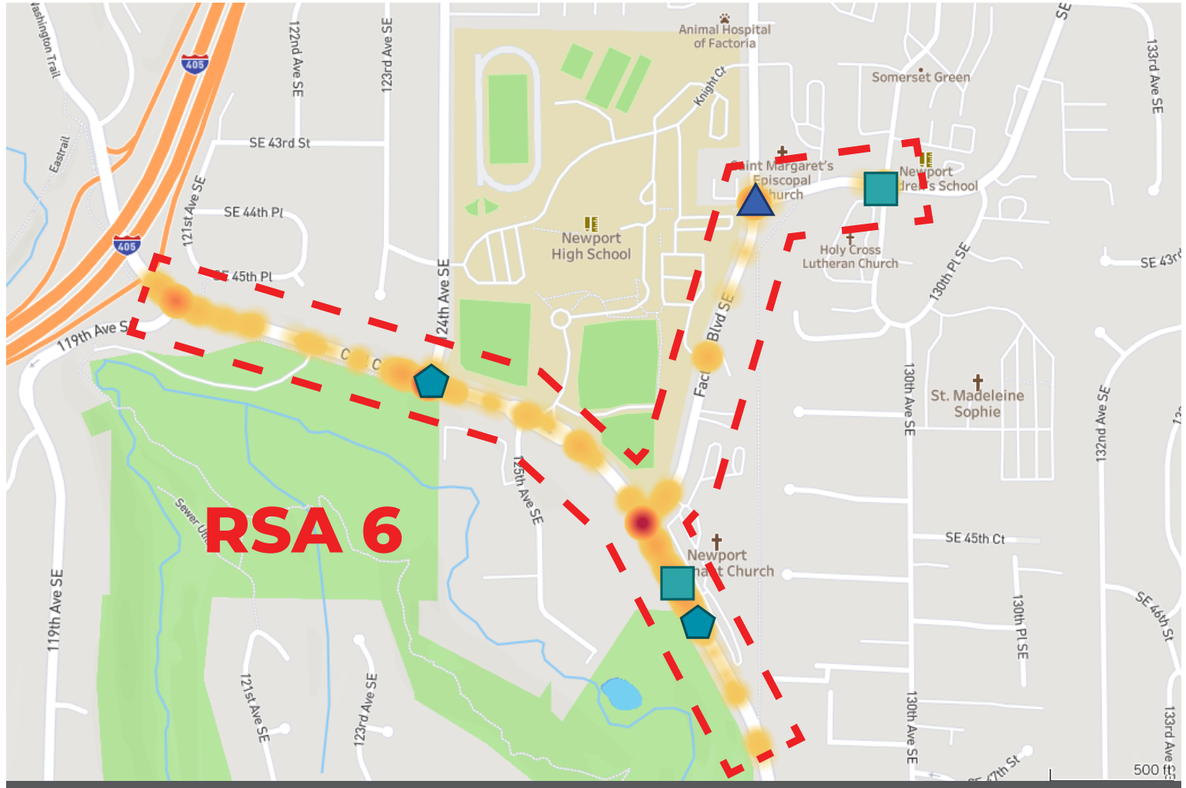
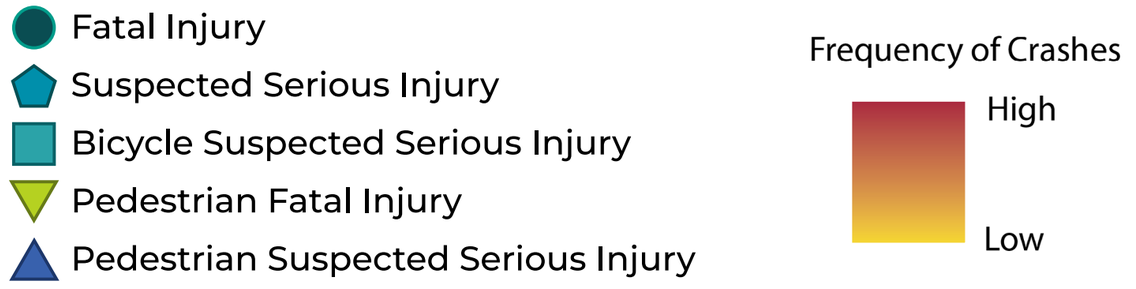


Figure 15: Figure 8: RSA Project Areas with Crash Severity Heat Map showing Fatal and Suspected Serious Injury Callouts.

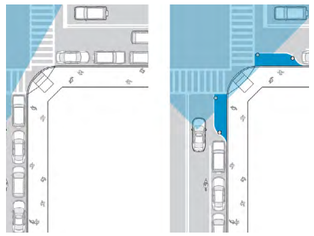


SYSTEMIC RECOMMENDATIONS

The following recommendations were identified across all RSAs and are therefore recommended as systemic safety improvements in all school zones on roadways with similar contexts across Bellevue. These recommendations are in alignment with Bellevue Transportation Policies as outlined in the Complete Streets Design Manual and the Mobility Implementation Plan. Recommendations generally fall into four improvement categories:

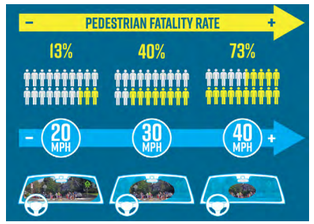
- Sight distance
- Pedestrian facility
- Engagement
- Bicycle facility
- Signalized intersection

SIGHT DISTANCE



Sight Distance

Trim vegetation for sight distance triangles at intersections, median islands, and signs. This provides additional visibility for motorists, and helps pedestrians be more visible near intersections and crossings.



Speed Management Activities

Use the Speed Management Plan sorting tool, resident feedback, and existing city and department knowledge and priorities to identify corridors to evaluate appropriateness of speed limits. Assess speed limits on corridors using the new City of Bellevue Speed Limit Standard Operating Procedure (SOP). Utilize the Speed Management Plan Countermeasures Toolbox and evolving best practices to identify potential treatments for reducing speeds on corridors. Evaluate best practices for speed safety cameras and determine a path forward. Conduct speed studies to identify context-sensitive safety recommendations for speed management.

Conduct citywide speed studies using the speed limit setting tool and develop recommendations to reduce kinetic energy forces between motorists and other travel modes.

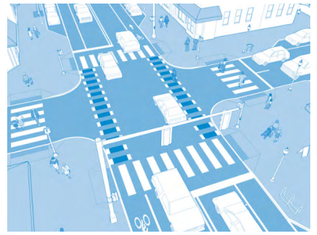
Develop a speed safety camera program and procedures based on new State legislation and industry best practices.[1]

School Zone Signage

Consider evaluating school zone signage across the city to ensure consistency and review the school zone speed limit signing SOP to determine if updates in practices are needed.

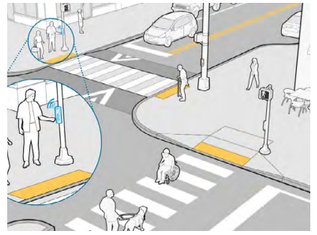
PEDESTRIAN FACILITY

Pedestrian Crossings



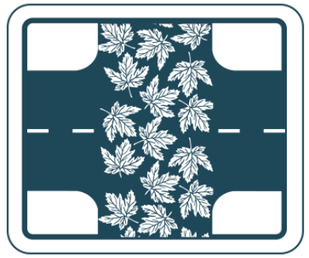
Evaluate the areas where corridors do not meet the intersection and midblock crossing maximum spacing required in the Mobility Implementation Plan (MIP). Consider best practices to implementing facilities to meet the performance targets and determine a path forward. Create a SOP for when the city would use retroreflective post sleeves for warning signs. Assess best practices for advance warning signs at crosswalks, bulb-outs, and curb extensions and determine a path forward for providing greater visibility of pedestrians at crossings.

Accessible Design



Utilize the existing 2019 ADA Self-Evaluation and Transition Plan and upcoming updated self-evaluation (to be published at the beginning of 2025) to evaluate and identify facilities that need to be upgraded to meet ADA guidelines.[2] Upgrade nonexistent or noncompliant pedestrian facilities to comply with ADA. For example: install or update curb ramps, accessible pedestrian push buttons and audible pedestrian signals (APS). The City is nearly complete with the transition to 100 percent use of APS pushbuttons.

Asphalt Art Demonstration



Evaluate best practices for the piloting and use of asphalt art at mid-block crosswalks and intersection crosswalks with the aim of reducing conflicts between motor vehicles and other travel modes

Buffered & Separated Sidewalks

Evaluate the sidewalks that do not meet the city Land Use code and the width of the sidewalk plus the landscape strip required in the Mobility Implementation Plan (MIP).[3] Consider best practices to implementing facilities to meet the performance targets and determine a path forward.

1 Tefft, B.C. (2011). Impact Speed and a Pedestrian's Risk of Severe Injury or Death (Technical Report). Washington, D.C.: AAA Foundation for Traffic Safety.
2 https://bellevuewa.gov/sites/default/files/media/pdf_document/2019/ADA%20Self-Evaluation%20and%20Transition%20Plan.pdf
3 https://bellevuewa.gov/sites/default/files/media/pdf_document/2022/Bellevue_MIP_Vol1%262_8.1.22.pdf

BICYCLE FACILITY

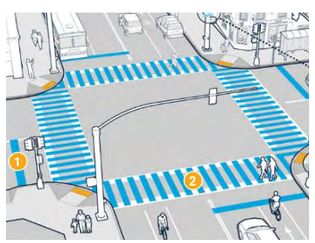
Bicycle Facilities

Evaluate the corridors and intersections with no facilities or facilities that do not meet the Level of Traffic Stress (LTS) in the MIP. Consider best practices for implementing facilities to meet the LTS performance targets and determine a path forward for implementation.

SIGNALIZED INTERSECTION

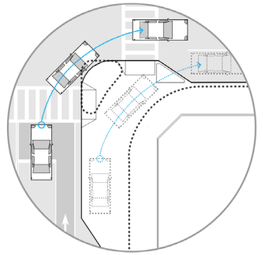
Stop Bars

Evaluate best practices for the use of stop bars at stop signs and traffic signals, and determine a path forward. Utilize the upcoming update to design standard for signalized crosswalks and stop bars. The city may opt to retrofit crosswalks with a ladder style, which may be used in place of a stop bar.



Curb Radius

Evaluate best practices for reducing curb radii at intersections and determine a path forward. The City may consider piloting the use of reduced curb radii with truck aprons or other measures as suggested in the review of best practices. Consider evaluating smaller radii based on street context for effective radii analysis.

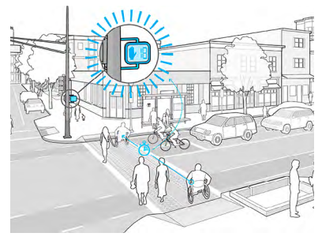


Retroreflective Back Plates

Evaluate best practices for retroreflective back plates on signal heads and determine a path forward.

Pedestrian Signal Operations

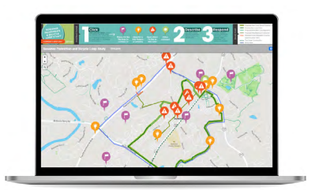
Evaluate pedestrian signal timing at crossings utilizing the internal pedestrian signal timing guidelines developed by the Smart Mobility group in Transportation to ensure the crossing time meet latest guidelines and accommodate all ages and abilities. Provide additional crossing time, leading pedestrian intervals, and other pedestrian signal improvements per the City's Pedestrian Signal Operations Guidelines. Evaluate best practices for pedestrian detection and adaptive signal operations technologies and determine a path forward.



ENGAGEMENT

Community Engagement

Consider engaging all schools with a common citywide event, such as a Walk Bike to School Day and World of Remembrance events to increase awareness of road safety near schools and foster a culture of safety in the community.



RSA 1

1. STUDY LOCATION

The study area for this RSA includes two segments along 164th Avenue Northeast and Northeast 24th Street, as shown in Figure 20 on the next page. The study area is primarily residential, with both schools surrounded by single and multi-family housing. Based on the zoning designations in the Bellevue Comprehensive Plan, the area west of 164th Avenue Northeast is designated as single-family medium-density residential and the area east of 164th Avenue Northeast is designated as single-family high-density residential. The two schools located within the RSA 1 area are described below:

	Interlake High School	Sherwood Forest Elementary
Address:	16245 Northeast 24th Street, Bellevue, WA 98008	16411 Northeast 24th Street, Bellevue, WA 98008
Grades:	9-12	1-6
Number of Students:	1720	423
Arrival:	7 a.m.	9 a.m.
Dismissal:	3 p.m.	3 p.m.

2. PROCESS

On Saturday, January 22 and Tuesday, January 25, 2022, the team conducted community walking audits to gather feedback from the public. An extensive public outreach plan was developed and implemented to promote the walking events to the school communities and local residents. During the community walking audits, the team was able to collect valuable insights, stories, concerns and ideas from twelve community members.

On Monday, January 31, 2022, the team conducted a city field visit, which focused on technical insights. On Monday, February 14, 2022 workshop, the team used the MURAL digital visual collaboration tool to collaborate on synthesizing notes from the community walking audit and city field visit. The facilitator led a verbal discussion in addition to the team's written input.

3. IMPROVEMENTS FOR CONSIDERATION

The improvements for consideration table on the next page provides recommended safety improvements specific to RSA 1, including infrastructure design and policy improvements. These recommendations are based on observations made during the community walking audits, city field visit and team workshop, as well as the comments submitted on the Engaging Bellevue website. The table is separated by location, and includes the recommended treatment, timeframe, estimated cost range, CMF and improvement lead.[1] A CMF is used to compute the expected number of crashes after implementing a countermeasure on a road or intersection. Recommendations require further engineering analysis of feasibility and design prior to implementation.

Figure 16: Bus stop #68372 eastbound bus stop across 166th Avenue NE with a 10 percent grade ramp.

Figure 17: Students walk across an unmarked crossing after school dismissal at 164th Avenue NE and NE 21st Place.

Figure 18: Eastbound queue entering Sherwood Forest Elementary School is blocking the bike lane and transit stop on the south side of NE 24th Street.

Figure 19: Westside sidewalk facing northbound showing mailboxes in the pedestrian pathway adjacent to the narrow striped shoulder.

1 CMFs are sourced from the CMF Clearinghouse. The FHWA CMFs are approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of CMFs for specific locations in Bellevue, explore the CMF Clearinghouse and apply all relevant factors. All CMFs reported in this report have a 3 star rating or higher and are from US & Canada studies.

Table 3: Recommended Improvements for RSA 1

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
N1	Consider adding crosswalks across Northeast 26th Street at 164th Avenue Northeast, as this is a location used for student drop-off	✓			$	0.6	CoB
	Update non-standard curb ramp to ADA standard at Northeast 26th Street		✓		$$		CoB
N2	Upgrade existing speed hump to the current City standard for speed cushion 125 feet north of Northeast 25th Street along 164th Avenue Northeast	✓			$$	0.6	CoB
N3	Consider installing crosswalks at Northeast 25th Street and 164th Avenue Northeast		✓		$$		CoB
	Update non-standard curb ramp to ADA standard at Northeast 25th Street and 164th Avenue Northeast	✓			$	0.5	CoB
N4	Trim vegetation infringing on west-side sidewalk ~100 feet north of Northeast 24th Street along 164th Avenue Northeast	✓			$		CoB
	Review and improve existing striped shoulder along 164th Avenue Northeast to better accommodate bicycles.			✓	$$$	0.65	CoB
	Consider adding a sidewalk on the east side of 164th Avenue Northeast			✓	$$	0.41	CoB
E All	Modify pavement marking to either add or move bicycle lane to eastbound and westbound or westbound (uphill) only along Northeast 24th Street from 164th Avenue Northeast to 167th Avenue Northeast			✓	$$$		CoB
	Alternatively, widen westbound shared-use path to provide space for both pedestrians and bicyclists along Northeast 24th Street		✓		$$		CoB
	Consider installing speed feedback signs along Northeast 24th Street		✓		$-$$		CoB
	Consider installing automated photo enforcement of the school zone speed limit along Northeast 24th Street			✓	$$	0.76	CoB
E1	To address student school pickup and drop-off, consider shortening the westbound left turn lane at the signal and making eastbound two lanes, dropping to an eastbound left-turn lane at 166th Avenue Northeast (This may necessitate turning movement restrictions at the school entrance, e.g., northbound left, westbound left)	✓			$		CoB

Key	
1 Blue	Northern Area, N#
1 Green	Western Area, W#
1 Yellow	Southern Area, S#
1 Purple	Eastern Area, E#

#: Location code for recommended improvement

Time Frame Key	
Near-term (Near)	≤ 2 years
Intermediate (Int.)	2 - 5 years
Long-term (Long)	≥ 5 years

The estimated time frame provided is for improvement consideration, not for constructing or implementing the recommended improvement. The City is limited in the number of improvements that can be implemented per year due to staff capacity, funding, recommendation feasibility, and other factors.

Improvement Lead	
KCM	King County Metro
CoB	City of Bellevue
BSD	Bellevue School District
CoR	City of Redmond
PPO	Private Property Owner

Estimated Implementation Cost Key	
$	≤ $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	≥ $300,000

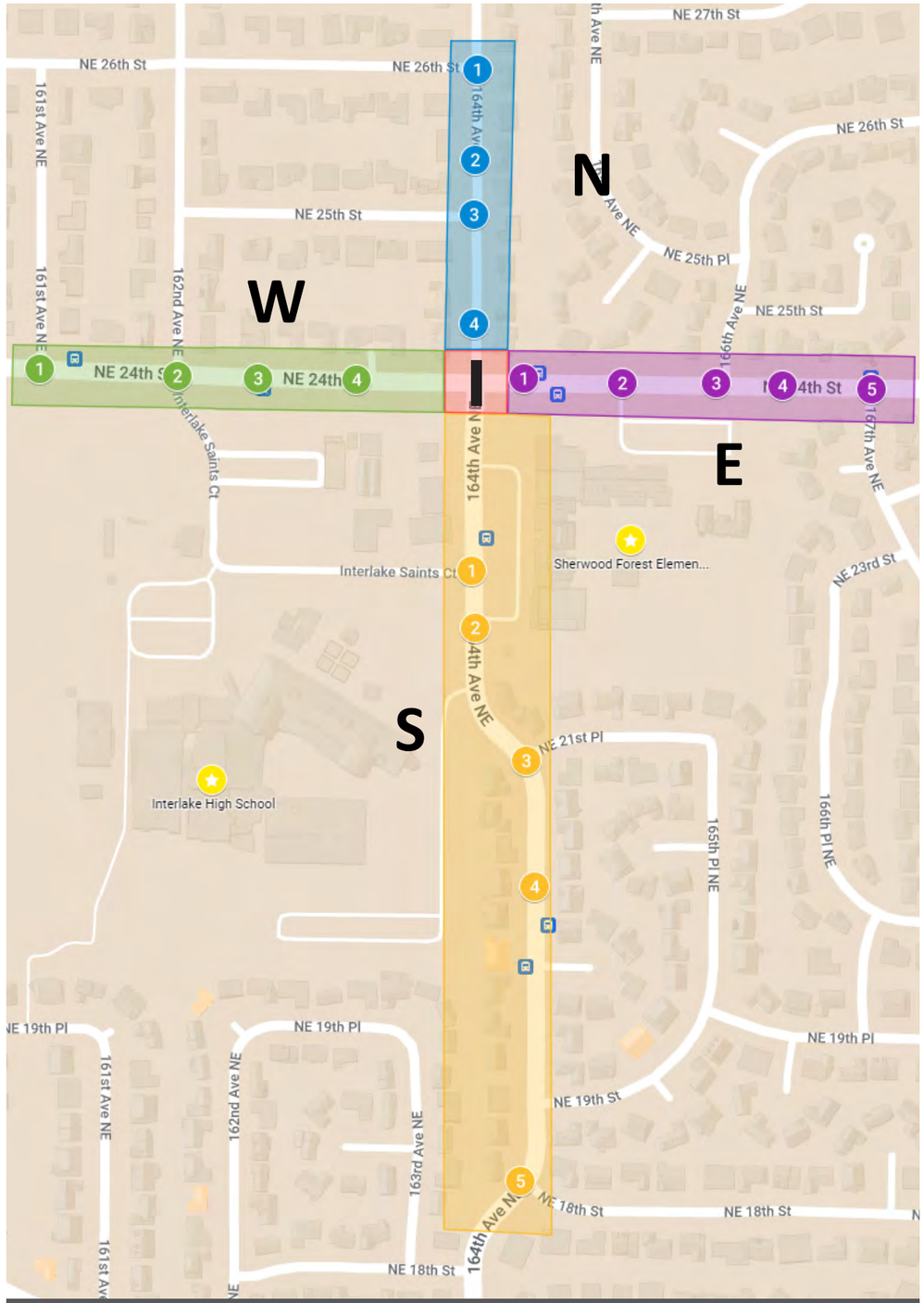


Figure 20: RSA 1 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
E2	Conduct a queue observation at the school driveway to support potential turning movement restrictions or other mitigation strategies at Sherwood Forest Elementary School Driveway	✓			$		CoB
	Consider restricting northbound left turns out of the school parking lot through pavement marking, signing, and curbing	✓			$		BSD/CoB
	Support school-sponsored on-premise changes to pick-up and drop-off at Sherwood Elementary School	✓			$		BSD/CoB
	Improve efficiency by increasing the amount of pickup/drop-off space with paved sidewalk along the east side of the parking lot		✓		$$$-$$$$	0.41	BSD/CoB
E3	Extend the westbound bicycle lane from 166th Avenue Northeast to 164th Avenue Northeast	✓			$$-$$$		CoB
	Consider converting to a 4-leg intersection (All-way Stop or Signalized) by adding a driveway into school parking lot on south side of intersection to allow for better traffic flow, such as Enter Only and Exit Only driveways for school traffic at 166th Avenue Northeast			✓	$$$		BSD/CoB
E4	Improve the eastbound bus stop #71390 platform for ADA accessibility		✓		$		BSD/KCM
	Consider installing traffic calming devices to encourage slower speeds along Northeast 24th Street		✓		$$-$$$		CoB
	On the northside, there is a desirable gravel pathway with good vegetation along Northeast 24th Street			✓	$$-$$$	0.41	CoB
E5	Consider installing traffic calming devices to encourage slower speeds along Northeast 24th Street at 167th Avenue Northeast		✓		$$-$$$		CoB
	Extend the school zone speed limit (20 mph) further to the east on Northeast 24th Street	✓			$		CoB
	Provide a standard-width sidewalk along the west side of 167th Avenue Northeast, at Northeast 24th Street, to support pedestrian travel to and from school			✓	$$$	0.41	CoB
S1	Trim vegetation along sidewalk and near the overhead street lights along 164th Avenue Northeast at Interlake Saints Court	✓			$		CoB
	Coordinate with King County Metro to study transit needs at this stop #67320 and evaluate whether some of the current curbside can be converted to a parking or loading zone for school drop-off and pickup			✓	$		KCM/CoB
	At the pedestrian refuge island crossing, remove non-traffic signs to reduce driver distraction, across 164th Avenue Northeast between the school driveways	✓			$		CoB
	Consider installing raised crosswalk across 164th Avenue Northeast between the school driveways, to increase visibility of pedestrians and reduce vehicle speeds		✓		$-$$	0.69	CoB
	Add pedestrian-level illumination at the pedestrian refuge island crossing across 164th Avenue Northeast between the school driveways	✓			$$		CoB
S2	Provide an on-premise sidewalk at Sherwood Forest Elementary School entrance along 164th Avenue Northeast for current and future Sherwood Elementary School staff and faculty who may arrive by foot	✓			$$		BSD
	Update the reverse curve sign to reverse turn per the MUTCD, on 164th Avenue Northeast north of Northeast 21st Place	✓			$		CoB
S3	Trim vegetation that is blocking street lights at Northeast 21st Place and 164th Avenue Northeast	✓			$		CoB
	Trim vegetation for eastbound drivers leaving the student parking lot - in particular, vegetation south of the driveway along the reverse turn	✓			$		CoB
	Add new marked pedestrian crossing across 164th Avenue Northeast at Northeast 21st Place, include treatments listed in the systemic recommendations, and consider a raised crosswalk to reduce approach vehicle speeds		✓		$-$$	0.69	CoB
S4	Trim vegetation (eastside hedge) to allow use of full sidewalk width ~180 feet north of Northeast 20th Street along 164th Avenue Northeast	✓			$		CoB
	Revisit City policy regarding trash and recycle bin proper placement to disallow trash, compost, and recycle bin from blocking sidewalk or bike lane	✓			$		CoB
	Rechannelize to provide minimum 5' bike lane along 164th Avenue Northeast			✓	$$$$	0.65	CoB
S5	Evaluate extending school speed zone (20 mph) to south of Northeast 18th Street along 164th Avenue Northeast	✓			$		CoB

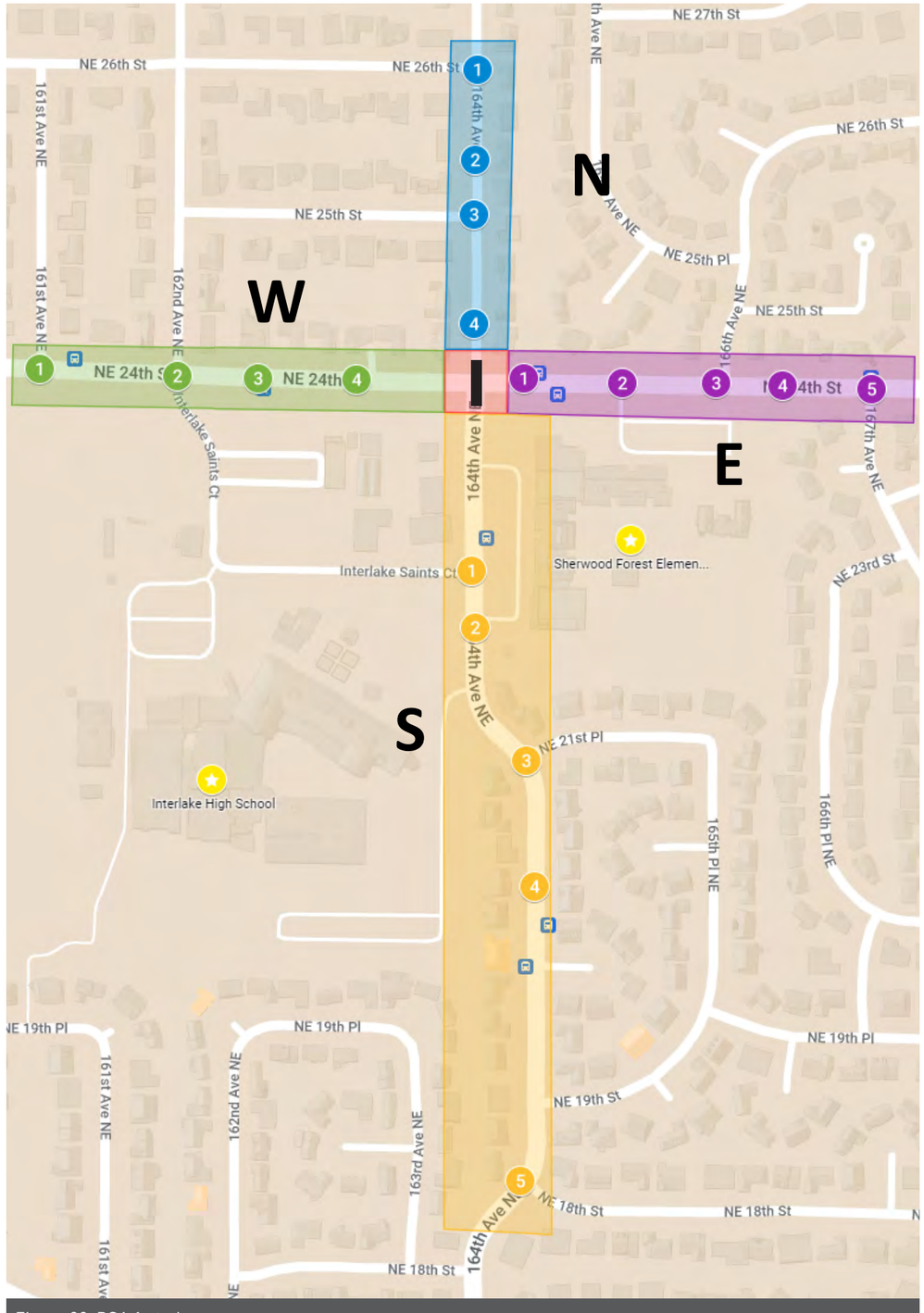


Figure 20: RSA 1 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W ALL	Remove or move chain link fence to provide a wider sidewalk or multiuse path along the high school frontage along Northeast 24th to ~161st Avenue Northeast		✓		$		CoB
	Consider multi-use path on the north side of Northeast 24th Street			✓	$$-$$$$		CoB
W1	Trim vegetation on the northeast corner to clear sight distance at 161st Avenue Northeast and Northeast 24th Street	✓			$		CoB
	Trim vegetation eastbound (west of the Northeast 24th Street and 161st Avenue Northeast intersection) the school crossing advance warning signs are partially covered	✓			$		CoB
	Trim down the vegetation in pedestrian crossing median near the Northeast 24th Street and 161st Avenue Northeast intersection to improve visibility of pedestrians	✓			$		CoB
	Consider adding sidewalks on 161st Avenue Northeast at Northeast 24th Street to provide separation between pedestrians and vehicles			✓	$$$	0.41	CoB
	Consider bulb-outs to reduce east-west crossing distance across 161st Avenue Northeast at Northeast 24th Street		✓		$$		CoB
	Consider installing object markers on the utility poles close to the travel way at the Northeast 24th Street and 161st Avenue Northeast intersection	✓			$		CoB
W2	Consider providing a high visibility, marked crosswalk at Northeast 24th Street and 162nd Avenue Northeast/Interlake Saints Court per the systemic recommendations	✓			$	0.6	CoB
	Analyze pedestrian desire paths to determine if the existing RRFB location is the most appropriate, or if it should be moved to 162nd Avenue Northeast at Northeast 24th Street		✓		$$		CoB
	Consider bike lanes through and west of the 162nd Avenue Northeast and Northeast 24th Street intersection		✓		$$	0.65	CoB
	Consider radius reductions or curb bulb-outs across Interlake Saints Court to reduce the east-west pedestrian crossing distance at the high school driveway		✓		$$	0.56	CoB
W3	Consider reconfiguring use of the south side so the planter strip is nearest the general purpose travel lane, then a bicycle lane, and then the sidewalk (or a multi-use path as introduced above) along Northeast 24th Street			✓	$$$-$$$$		CoB
W4	Consider reconfiguring use of the south side so the planter strip is nearest the general purpose travel lane, then a bicycle lane, and then the sidewalk (or a shared-use path as introduced above) along Northeast 24th Street			✓	$$$-$$$$		CoB
	Install speed feedback signs along Northeast 24th Street		✓		$-$$		CoB
	Consider installing automated photo enforcement of the school zone speed limit along Northeast 24th Street			✓	$$	0.76	CoB
I	Upgrade crosswalks to high visibility markings with a stop bar. Consider impacts to signal timing (e.g., all-red interval to accommodate vehicles clearing the intersection) and modify timing accordingly at intersection of 164th Avenue NE and NE 24th Street	✓			$	0.6	CoB
	Evaluate wind load restrictions, and if feasible, add reflectorized backplates to all signal heads at the intersection of 164th Avenue NE and NE 24th Street						CoB
	Add pedestrian recall (i.e., the WALK phase comes up every cycle, even without the button being pushed) during before-school and after-school time periods at the intersection of 164th Avenue NE and NE 24th Street. These could be coordinated with the school zone speed limit times	✓			$		CoB
	Extend the FLASHING DON'T WALK phase during before-school and after-school to accommodate elementary school students and their families at the intersection of 164th Avenue NE and NE 24th Street	✓			$		CoB
	Consider changing to protected-only phasing (no permissive phase) at the intersection of 164th Avenue NE and NE 24th Street	✓			$		CoB
	Disallow walk indication with adjacent permissive left turns phase if permissive phase is kept at the intersection of 164th Avenue NE and NE 24th Street	✓			$		CoB
	Upon completion of these changes, evaluate drivers' use of Right Turn on Red (RTOR) and their potential encroachment into the crosswalk during this movement at the intersection of 164th Avenue NE and NE 24th Street. Use engineering judgment to determine if RTOR should be disallowed.			✓	$		CoB

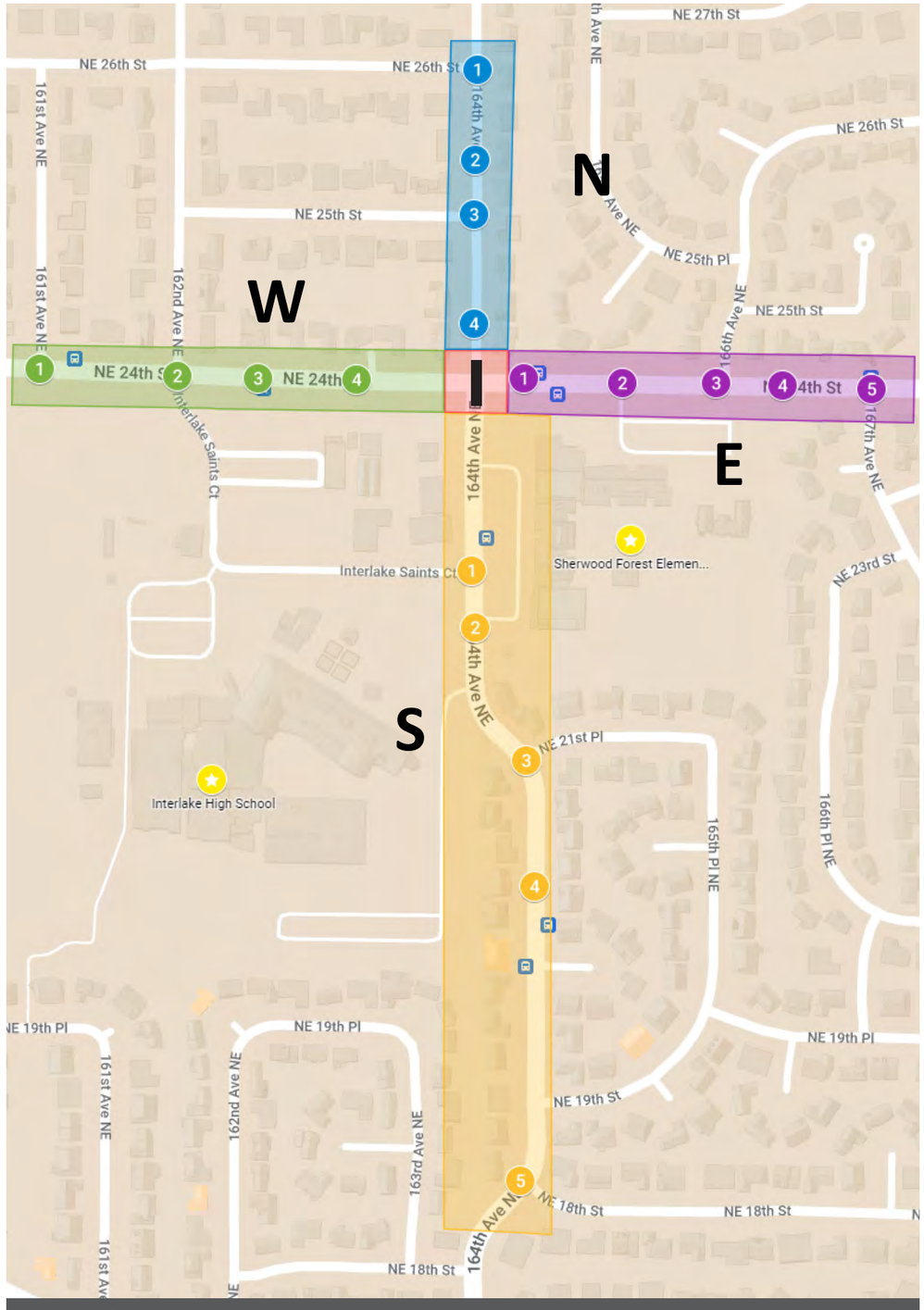


Figure 20: RSA 1 study area.

RSA 2

1. STUDY LOCATION

The study area for this RSA includes five segments along Northeast 20th Street, Northup Way, Bel-Red Road, and 148th Avenue Northeast as shown in Figure 26, on page 18. A portion of Northeast 20th Street near the intersection with Bel-Red Road is a shared jurisdiction between the City of Bellevue and the City of Redmond. The zoning designations within the study area is a mix of residential and commercial with an increase in new development due to the Overlake Village light rail station that will open nearby in 2024-2025. There is one school located within the RSA 2 area, as described below:

	Highland Middle School
Address:	15027 Bel-Red Road, Bellevue, WA 98007
Grades:	6-8
Number of Students:	576
Arrival:	7:45 a.m.
Dismissal:	2:35 p.m.

2. PROCESS

On Sunday, April 24 and Saturday, April 30, 2022, the team conducted community walking audits to gather feedback from the public. An extensive public outreach plan was developed and implemented to promote the walking events to the school community and local residents. During the community walking audits, the team was able to collect valuable insights, stories, concerns and ideas. 12 senior residents of Silver Glen provided valuable insight into accessible design.

On Wednesday, April 27, 2022, the team conducted a city field visit, which focused on technical insights. On Monday, June 6, 2022, the team used the MURAL digital visual collaboration tool to collaborate on synthesizing notes from the community walking audit and city field visit. The facilitator led a verbal discussion in addition to the team's written input.

Figure 21: Community Walking Audits with Silver Glen community members.

Figure 22: Example of signs and parked vehicles encroaching onto the sidewalk along Northeast 20th Street.


Figure 23: The northeast corner facing westbound at the intersection of Northeast 20th Street and 148th Avenue Northeast has a fire hydrant in the middle of the sidewalk.

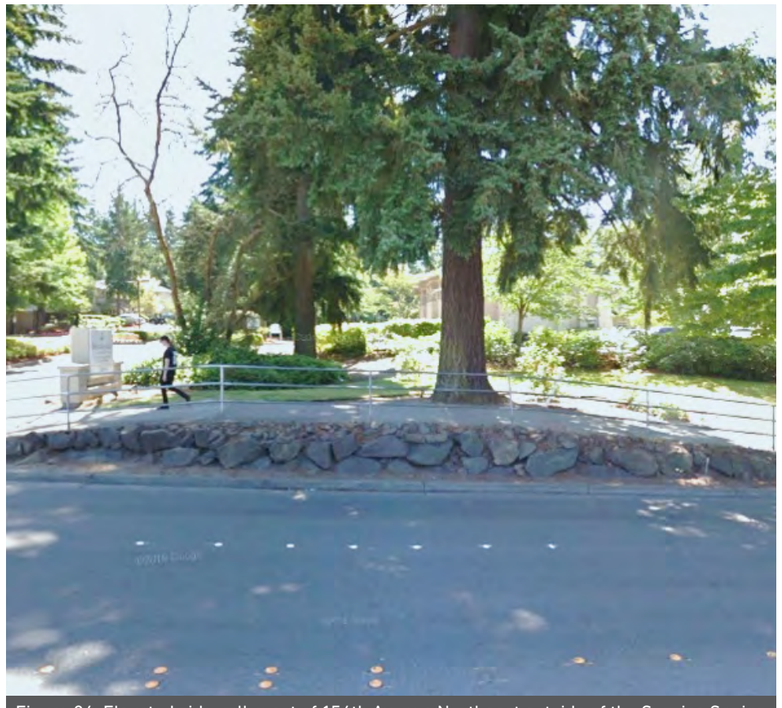


Figure 24: Elevated sidewalk west of 154th Avenue Northeast outside of the Sunrise Senior Living residence. The steep slope is not ADA compliant.

3. IMPROVEMENTS FOR CONSIDERATION

The improvements for consideration table on the next page provides recommended safety improvements specific to RSA 2, including infrastructure design and policy improvements. These recommendations are based on observations made during the community walking audits, city field visit and team workshop, as well as the comments submitted on the Engaging Bellevue website. The recommendations matrix is separated by location, and includes the recommended treatment, timeframe, estimated cost range, CMF and improvement lead. Recommendations require further engineering analysis of feasibility and design prior to determining if they should be implemented.[1]

4. PLANNED IMPROVEMENTS

There are two planned capital improvement projects within the RSA 2 study area:

- BelRed Corridor Local Street Network Project (CIP # R-193) will evaluate the feasibility of relocating the signal from the 14300 Block intersection to the new intersection (Northeast 20th Street and 143rd Avenue Northeast) that will be created through the Bel-Red Corridor Local Street Network Project.[2] The configuration of the intersection and design details have not yet been determined.
- Evergreen Transition is a new school going in across 152nd Avenue Northeast from Highland Middle School. It will establish a new school zone, a new raised crosswalk, and completely new traffic patterns. The loop being built on Highland Middle School's property is intended for vehicle turnarounds for this new school since 152nd Avenue Northeast otherwise does not have capacity for a turnaround.

Figure 25: Team for the RSA 2 city field visit, walking along NE 20th Street, northeast of Highland Middle School.

1 CMFs are sourced from the CMF Clearinghouse. The FHWA CMFs are approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of CMFs for specific locations in Bellevue, explore the CMF Clearinghouse and apply all relevant factors. All CMFs reported in this report have a 3 star rating or higher and are from US & Canada studies.

2 https://bellevuewa.gov/sites/default/files/media/pdf_document/2022/transportation-improvement-program-2023-2028-recommended-projects-list.pdf

Table 4: Recommended Improvements for RSA 2

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
NW1	At the intersection of 140th Avenue Northeast and Northeast 20th Street, consider upgrading to ADA compliant ramps at 140th Avenue Northeast intersection		✓		$$		CoB
NW2	Along Northeast 20th Street, between 140th Avenue Northeast and 14300 Block signal, consider access management to reduce the number of driveways to the north commercial strip area with redevelopment. Follow up with upcoming development			✓	$$$$		PPO/CoB
NW3	Upgrade to ADA compliant ramps on all corners at 14300 Block and Northeast 20th Street signal		✓		$$		CoB
	Consider adding leading pedestrian intervals for the north and south pedestrian movements at the 14300 Block and Northeast 20th Street signal	✓			$	0.81	CoB
NW4	Consider the need for a mid-block crossing along Northeast 20th Street between 14300 Block and 148th Avenue Northeast		✓		$$-$$$	0.6	CoB
NW5	Upgrade the northeast corner ramp and relocate the fire hydrant located on the curb ramp landing at 148th Avenue Northeast and Northeast 20th Street	✓			$$		CoR
	Consider reduced curb radii and truck aprons to reduce vehicle turning speeds at the 148th Avenue Northeast and Northeast 20th Street intersection			✓	$$$	0.56	CoR
N1	On the north side of Northeast 20th Street, between 152nd Avenue Northeast and 148th Avenue Northeast, consider upgrading the sidewalk, where appropriate, to be more even and wider		✓		$$		CoR
	Along Northeast 20th Street, consider a mid-block pedestrian crossing to accommodate north-south pedestrians and bicyclists between 148th Avenue Northeast and 152nd Avenue Northeast		✓		$$-$$$	0.6	CoR

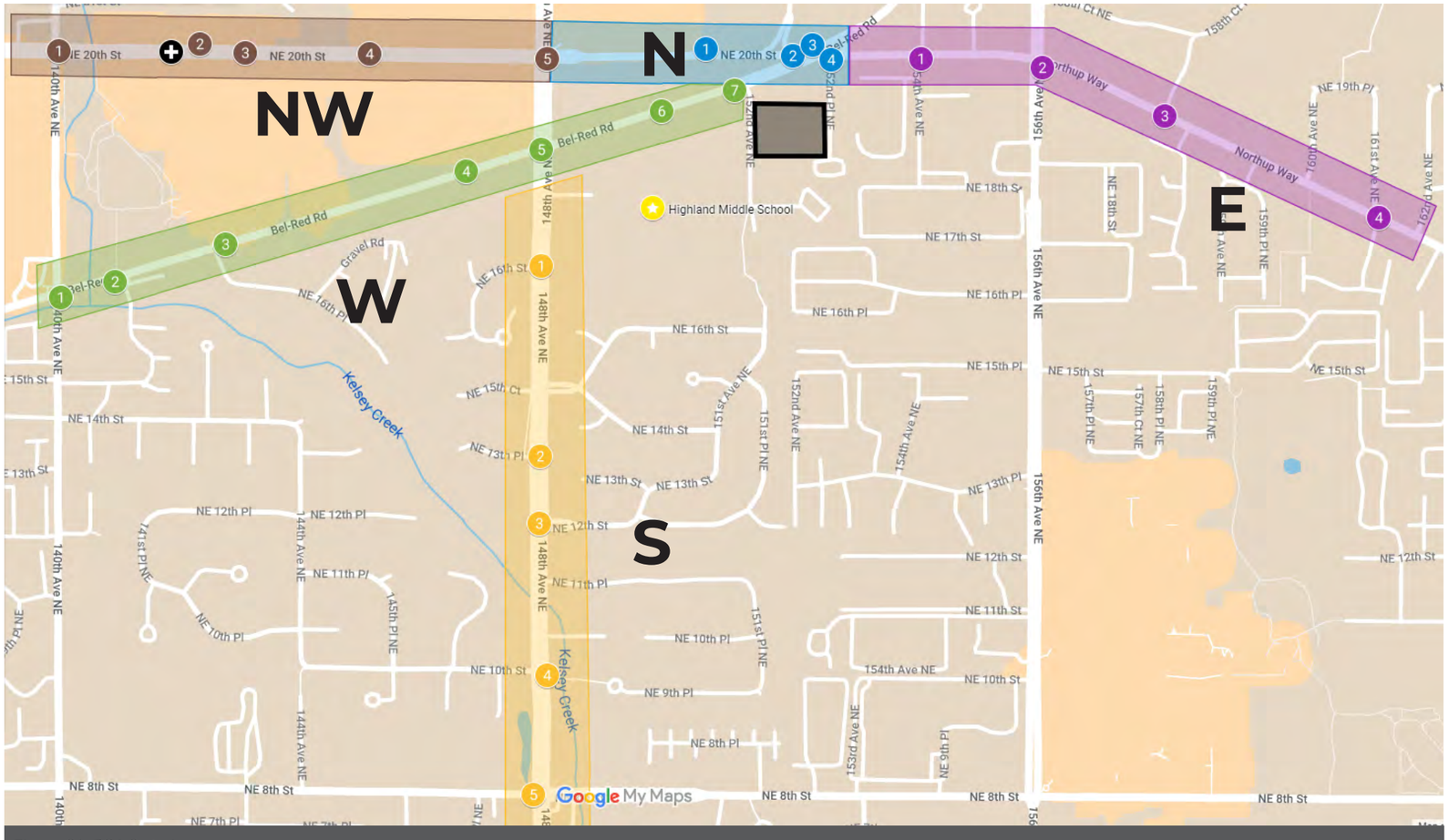


Figure 26: RSA 2 study area.

Key	
1 Black	Evergreen Transition
+	BelRed Corridor Local Street Network Project
1 Blue	Northern Area (shared jurisdiction with City of Redmond), N#
1 Brown	Northwestern area, NW#
1 Green	Western area, W#
1 Yellow	Southern area, S#
1 Purple	Eastern area, E#

#: Location code for recommended improvement

Time Frame Key	
Near-term (Near)	≤ 2 years
Intermediate (Int.)	2 - 5 years
Long-term (Long)	≥ 5 years

The estimated time frame provided is for improvement consideration, not for constructing or implementing the recommended improvement. The City is limited in the number of improvements that can be implemented per year due to staff capacity, funding, recommendation feasibility, and other factors.

Estimated Implementation Cost Key	
$	≤ $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	≥ $300,000

Improvement Lead	
KCM	King County Metro
CoB	City of Bellevue
BSD	Bellevue School District
CoR	City of Redmond
PPO	Private Property Owner

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
N2	Consider adding high visibility pedestrian crossings across 152nd Avenue Northeast	✓			$	0.6	CoB
	Consider intersection re-alignment of 152nd Avenue Northeast with Bel-Red Road			✓	$$$-$$$$		CoB
	Study the intersection of 152nd Avenue Northeast/Bel-Red Road further to determine whether a crosswalk is warranted	✓			$		CoB
N3	Work with the City of Redmond and the auto dealership to relocate the signs and parked cars outside of the walking path north of the Bel-Red Road and Northeast 20th Street intersection. (Signs and vehicles currently encroach on the sidewalk)	✓			$		PPO/CoB/CoR
N4	Consider no right turns on red for all approaches at Bel-Red Road and Northeast 20th Street intersection	✓			$		CoB
	Add pedestrian countdown timers and audible pedestrian signals for all crossings at Bel-Red Road and Northeast 20th Street intersection		✓		$		CoB
	Consider increasing crossing time for pedestrians crossing northeast or southwest at the Bel-Red Road and Northeast 20th Street intersection		✓		$		CoB
	Consider lagging pedestrian interval or other signal phasing changes to reduce conflicts with northeast-bound Bel-Red Road vehicles turning onto Bel-Red Road at the Bel-Red Road and Northeast 20th Street intersection		✓		$		CoB
	Evaluate pedestrian scramble or other accommodations to reduce overall pedestrian crossing time at the Bel-Red Road and Northeast 20th Street intersection		✓		$		CoB
	Rechannelize the intersection to clarify allowed movements for northeast-bound Bel-Red Road vehicles by lane			✓	$$$		CoB
	Long term considerations to review the Bel-Red Road and Northeast 20th Street intersection geometry and realignment with 152nd Avenue Northeast			✓	$$$		CoB
E1	Consider adding a mid-block crossing across Northeast 20th Street, near 154th Avenue Northeast		✓		$$-$$$	0.6	CoB
	Consider treatments for the steep sidewalk slope near the Sunrise Senior Living complex (south side of Northeast 20th Street)			✓	$$-$$$		CoB
E2	Prioritize high visibility crosswalk markings at Northeast 20th Street and 156th Avenue Northeast intersection	✓			$	0.6	CoB
	Prioritize the Northeast 20th Street and 156th Avenue Northeast intersection for vegetation trimming to improve visibility of all road users, especially pedestrians	✓			$		CoB
	Consider tighter curb radii and truck aprons			✓	$$$	0.56	CoB
	Consider the capacity need for permissive left turn phasing at the Northeast 20th Street and 156th Avenue Northeast intersection. Consider protected-only left turn phasing (all day or by time of day)	✓			$	F(x)	CoB
	Consider RTOR restriction for pedestrian safety (conflicts experienced during field reviews) and vehicle safety (conflicts identified by video analytics) at Bel-Red Road and Northeast 20th Street intersection		✓		$		CoB
	Trim tree overhanging to improve lighting visibility on the northeast corner at the Northeast 20th Street and 156th Avenue Northeast intersection	✓			$		CoB

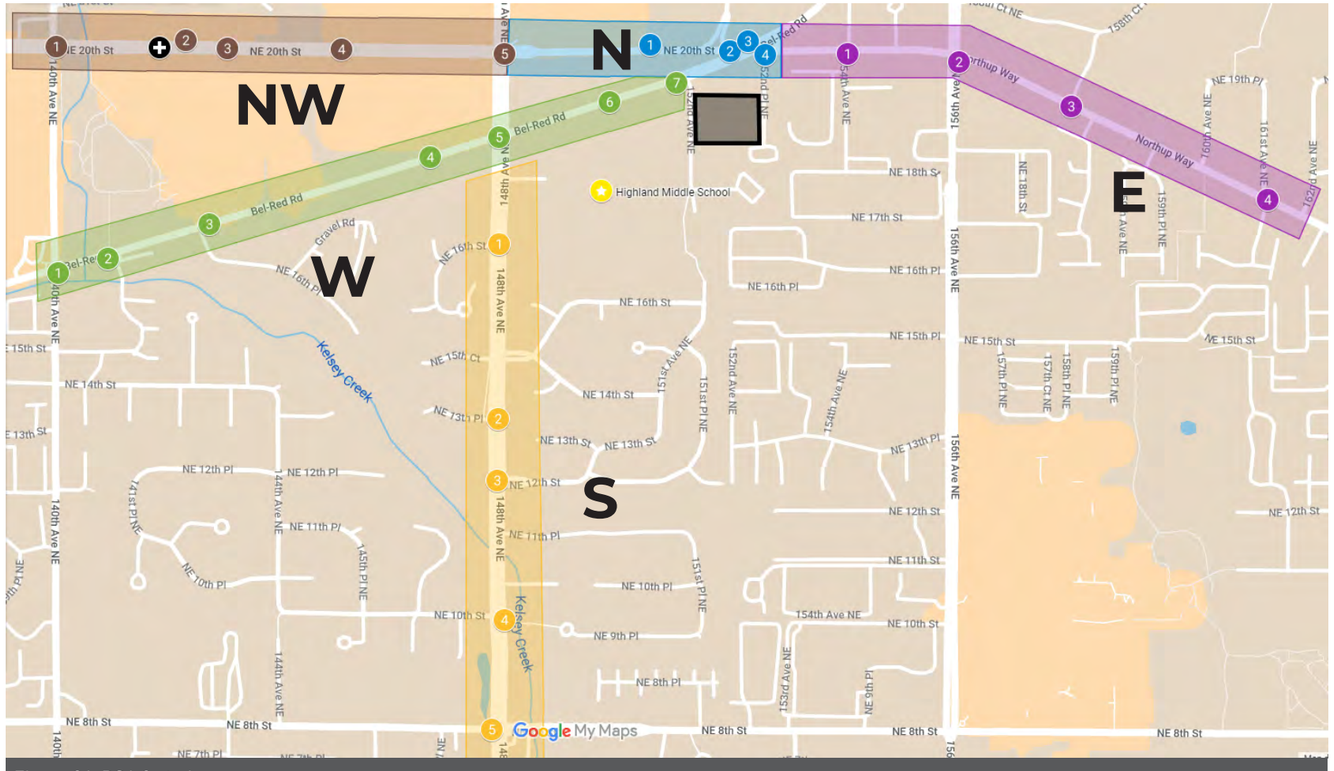


Figure 26: RSA 2 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
E3	Consider adding a mid-block crossing across Northeast 20th Street between 156th Avenue Northeast and 160th Avenue Northeast and consider traffic calming measures along this section		✓		$$-$$$		CoB
E4	At Northup Way and 161st Avenue Northeast, evaluate the stop sign for replacement	✓			$		CoB
	At the intersection of 161st Avenue Northeast and Northup Way, upgrade curbs to be ADA compliant		✓		$$		CoB
W ALL	Consider pedestrian lighting along this corridor of Bel-Red Road			✓	$$$		CoB
	Consider narrowing the lanes on Bel-Red Road to allow for more sidewalk width, and/or a vegetative buffer from traffic			✓	$$$$		CoB
	Consider bike lanes or a shared use path along Bel-Red Road			✓	$$$$	0.65	CoB
W1	Update the 4-section left-turn heads to 3-section heads to match current operation at Bel-Red Road and 140th Avenue Northeast Signal		✓		$		CoB
	Consider installing green pavement markings to define the bike lane within the Bel-Red Road and 140th Avenue Northeast intersection		✓		$		CoB
W2	Work with King County Metro to evaluate improve the eastbound bus stop #68068 to allow for more boarding area space. Perhaps provide a hard surface where there is currently a large grass buffer		✓		$$		KCM/CoB
W3	Work with King County Metro to evaluate moving the westbound bus stop #84822 closer to the pedestrian crossing to improve convenience for pedestrians			✓	$$		KCM/CoB
	At the signalized pedestrian crossing across Bel-Red Road near Northeast 16th Place, consider additional pedestrian crossing signs or advanced warning signs at ground level. (The current signing is only overhead)			✓	$	0.41	CoB
W4	Consider adding a pedestrian path from the westbound bus stop #84825, through the forested area, to the commercial area to reduce the number of pedestrians walking up a driveway with no sidewalk			✓	$$	0.41	PPO/CoB
	Move the bus stop west of 148th Avenue Northeast on Bel-Red Road closer to the Highland Middle School crossing and install a physical barrier to prevent illegal crossing			✓	$$$		KCM/CoB

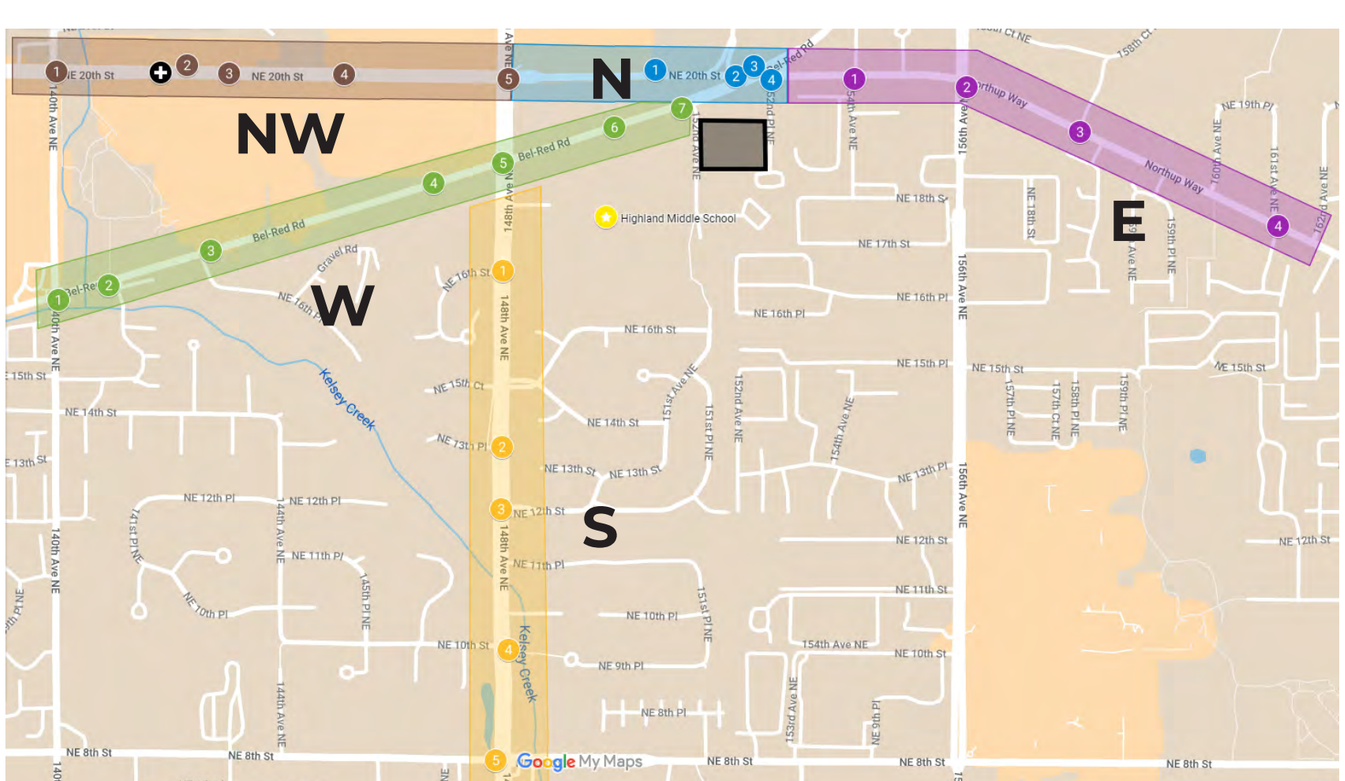


Figure 26: RSA 2 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIME FRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W5	Consider adding stop bars behind the crosswalks to discourage encroachment onto the crosswalk at Bel-Red Road and 148th Avenue Northeast intersection	✓			$		CoB
	Consider installing pedestrian countdown timers at the intersection of Bel-Red Road and 148th Avenue Northeast		✓		$	F(x)	CoB
W6	To mitigate red light running, consider decreasing cycle length to allow for efficient signal operation whenever possible at Highland Middle School main driveway	✓			$		CoB
	Consider automated red-light-running enforcement at the Bel-Red Road and Highland Middle School driveway intersection, due to the observed violation of the signal indication			✓	$$		CoB
W7	Consider installing crosswalk at the intersection of 152nd Avenue Northeast/Bel-Red Road		✓		$		CoB
S ALL	Consider the driveway curb radii and consider curb radius reduction on side street entrances off of 148th Avenue Northeast			✓	$$$	0.56	CoB
S1	Consider treatments for the steep sidewalk slope north of Northeast 16th Street on the west side of 148th Avenue Northeast. Consider adding a handrail (or similar) as a short-term treatment	✓			$		CoB
S2	Consider speaking to the neighborhood residents about the concrete wall at the entrance of Northeast 13th Place along 148th Avenue Northeast and either removing or replacing with a different treatment	✓			$		PPO/CoB
S3	Consider potential for mid-block crossing across 148th Avenue Northeast between Northeast 13th Place and Northeast 10th Street		✓		$$-$$$	0.6	CoB
S4	There is an informal path access to this neighborhood on the east side of 148th Avenue Northeast near Northeast 10th Street. Consider adding wayfinding signage and/or pedestrian lighting to encourage use	✓			$		CoB
S5	Trim tree foliage on the northwestern corner of the intersection at Northeast Eighth Street and 148th Avenue Northeast	✓			$		CoB

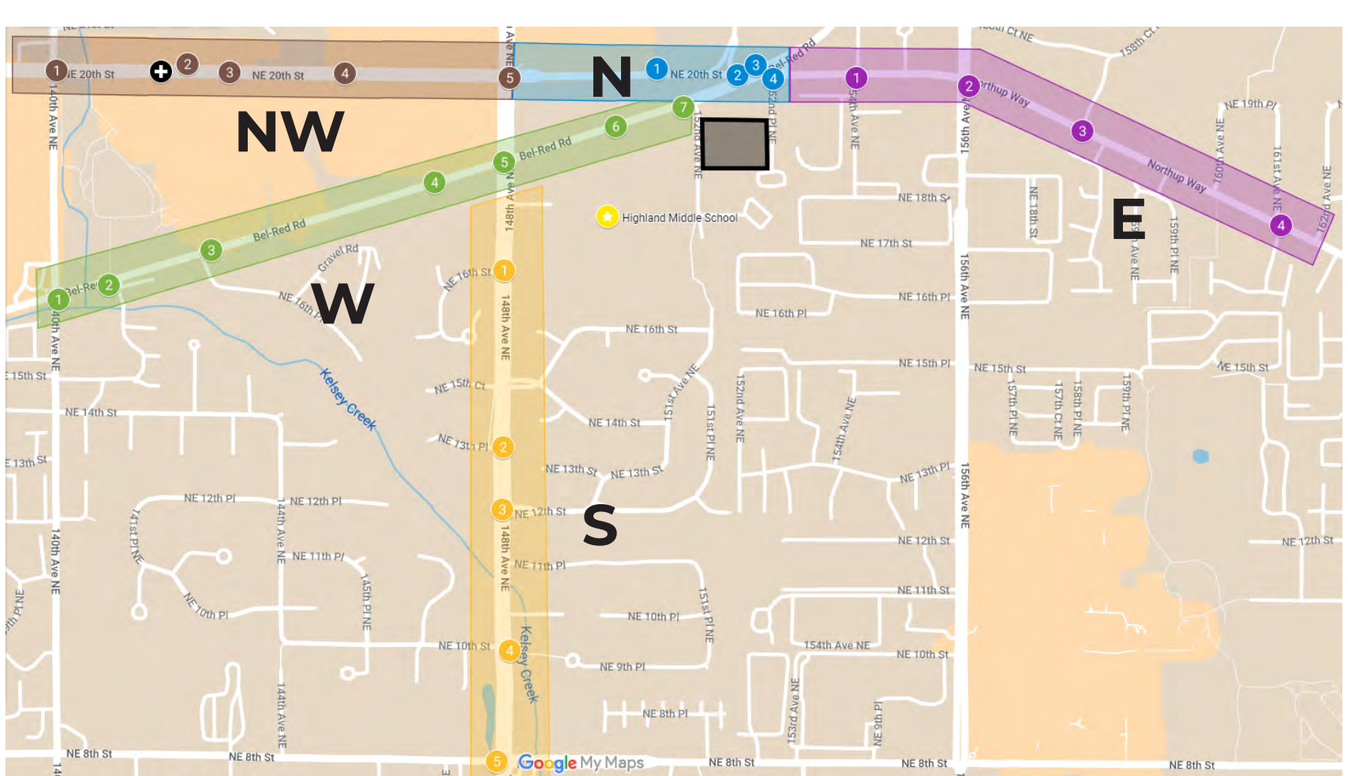


Figure 26: RSA 2 study area.

RSA 3

1. STUDY LOCATION

The study area for this RSA includes three segments along 140th Avenue Northeast, Main Street, and 148th Avenue Northeast as shown in Figure 34, on page 24. The zoning designation within the study area is primarily residential, with all schools surrounded by single and multi-family housing. There are three schools located within the RSA 3 study area, described below:

	Sammamish Middle School	Stevenson Elementary School	Odle Middle School
Address:	100 140th Avenue Southeast, Bellevue, WA 98005	14220 Northeast Eighth Street, Bellevue, WA 98007	14220 Northeast Eighth Street, Bellevue, WA 98007
Grades:	9-12	1-5	6-8
Number of Students:	1172	538	980
Arrival:	8 a.m.	8 a.m.	8:30 a.m.
Dismissal:	3 p.m.	12:15 p.m.	2:10 p.m.

2. PROCESS

On Sunday, May 15 and Saturday, May 21, 2022, the team conducted community walking audits to gather feedback from the public. An extensive public outreach plan was developed and implemented to promote the walking events to local residents. During the community walking audits, the team was able to collect valuable insights, stories, concerns and ideas, from the 15 Sammamish High School students who participated in the audit.

On Thursday, April 28, 2022, the team conducted a field visit, which focused on technical insights. On Wednesday, June 15, 2022, the team used the MURAL digital visual collaboration tool to collaborate on synthesizing notes from the community walking audit and the city field visit. The facilitator led a verbal discussion in addition to the team's written input.

Figure 27: Students from Sammamish High School attending the community walking audit.

Figure 28: Facing eastbound at the intersection of Southeast 6th Street and 140th Avenue Southeast. Wide intersections with no marked crossings and large turn radii are typical within this RSA area.

Figure 29: Water over roadway sign on the west side of 148th Avenue NE, south of Main St. This area has common flooding issues and maintenance vehicles have been known to park on the shared use path.

Figure 30: There are limited opportunities to cross 148th Avenue NE except at signalized intersections due to high vehicle volumes.

3. IMPROVEMENTS FOR CONSIDERATION

The improvements for consideration table on the next page provides recommended safety improvements specific to RSA 3, including infrastructure design and policy improvements. These recommendations are based on observations made during the community walking audits, city field visit, and team workshop, as well as the comments submitted on the Engaging Bellevue website. The recommendations matrix is separated by location, and includes the recommended treatment, timeframe, estimated cost range, CMF and responsible groups.[1] Recommendations require further engineering analysis of feasibility and design prior to implementation.

4. PLANNED IMPROVEMENTS

There are four capital improvement projects planned in the RSA 3 study area:

- Asphalt overlay projects are planned along 140th Avenue Northeast, between Southeast Eighth Street to Northeast Eighth Street and along Main Street, between 140th Avenue Northeast to 148th Avenue Northeast, to be completed by July 2023. Figures 35 and 36 show an excerpt from the design plans with some safety improvements included, such as the improved pedestrian crossings. The asphalt overlay projects will also involve upgrading crosswalk pavement markings and curb ramps.
- Additionally, two proposed developments are planned near the northeast corner of 148th Avenue Northeast and Main Street. At 110 148th Avenue Northeast, a proposed residential development will be required to add a new curb and gutter, five foot planter, eight foot sidewalk and street lights along the entire 675 foot property frontage. East of that property, a new elementary school is currently under construction. While it does not have frontage on 148th Avenue Northeast, when the school is completed and open to students, new traffic patterns (including pedestrian and bicyclist trips) are anticipated to increase.

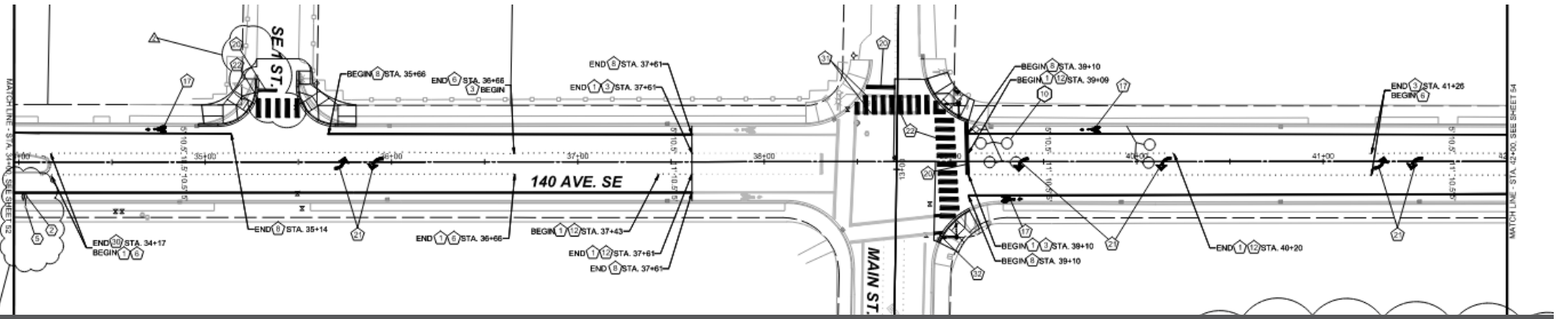


Figure 31: The City of Bellevue's Pavement Preservation Program recently completed pedestrian crossing improvements along 140th Avenue Southeast.

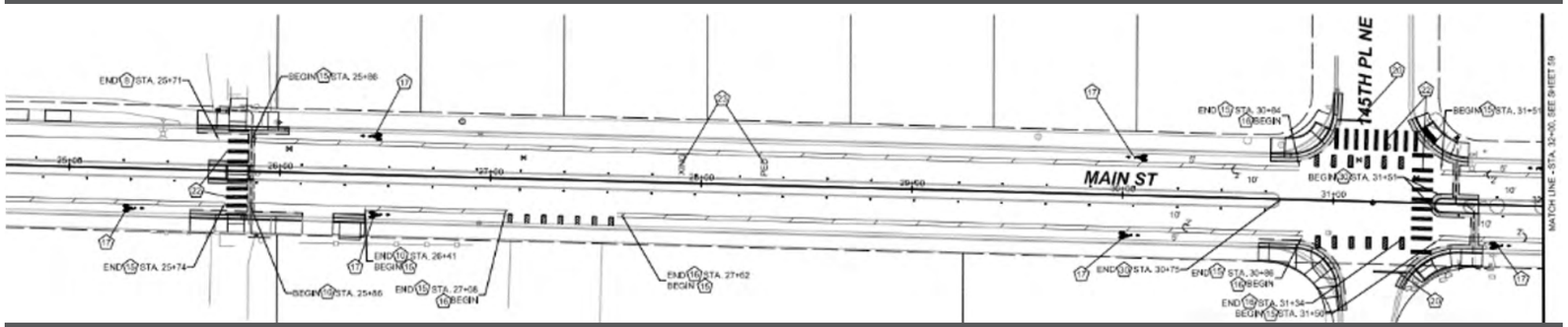


Figure 32: The City of Bellevue's Pavement Preservation Program recently completed pedestrian crossing improvements along Main Street.

Figure 33: Person riding a scooter in the bike lane on Main Street, north of Sammamish High School.

1 CMFs are sourced from the CMF Clearinghouse. The FHWA CMFs are approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of CMFs for specific locations in Bellevue, explore the CMF Clearinghouse and apply all relevant factors. All CMFs reported in this report have a 3 star rating or higher and are from US & Canada studies.

Table 5: Recommended Improvements for RSA 3

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W1	Refer to Table 4 for potential list of treatments at 140th Avenue Northeast and Bel-Red Road						
W2	Northeast 14th Street has a westbound left-turn lane. Review the operations at this intersection to consider removing the westbound left turn lane to reduce pedestrian crossing distance		✓		$$	F(x)	CoB
W3	Maintain vegetation and removed unauthorized signing at the RRFB median, located south of Northeast 13th Street, to ensure that the plants are trimmed to 3.5 feet height and unwanted advertising signage does not distract drivers	✓			$		CoB
W4	Consider adding lighting to the east side of the road for the RRFB located south of Northeast Ninth Place		✓		$		CoB
	Maintain vegetation and remove unauthorized signing at the RRFB median, located south of Northeast Ninth Place, to ensure that the plants are trimmed to 35 feet height and unwanted advertising signage does not distract drivers	✓			$		CoB
W5	At the intersection of Northeast Eighth Street and 140th Avenue Northeast, evaluate the bike pavement markings on 140th Avenue Northeast and consider extending the bike lanes on 140th Avenue Northeast that end south of the intersection up to the intersection." The overlay completed this action, and it was decided to not add pavement markings through the intersection because there are no bike lanes to the north. There is a narrow 3' shoulder for the northbound lane but CoB doesn't want to encourage people to use this as a bike lane.		✓		$$	0.65	CoB
W6	The RRFB, located south of Northeast Fifth Street, connects a trail on the east side of 140th Avenue Northeast. Consider improving wayfinding signage for this trailhead and the associated trail networks		✓		$		CoB
W7	Evaluate the signal timing at the intersection of Main Street and 140th Avenue Northeast, as it feels like there is a long wait time for pedestrians to receive the pedestrian phase after pushing the button on the east/west legs	✓			$		CoB
W8	At the entrance of the Sammamish High School, across Southeast Third Place, evaluate the design of the northbound bike lane / shared right-turn lane into the school parking lot			✓	$$-$$$		CoB
W9	At the intersection of 140th Avenue Southeast and Southeast Eighth Street, evaluate the pedestrian facilities. The push button height on the north-west corner appears to be at a lower height than current standard. The sidewalk along Southeast Eighth Street abruptly ends on the northeast corner; consider sidewalk in-fill. Consider installing pedestrian countdown timers to provide crossing pedestrians additional information			✓	$$		CoB
M1	At the intersection of Main Street and 145th Place Northeast, consider extending the median to the crosswalk to provide a pedestrian refuge at the middle of the RRFB crossing on the west side	✓			$	0.86	CoB
M2	Evaluate the westbound and eastbound bus stop locations that are west of 148th Avenue Northeast for ADA requirements. There may not be enough boarding zone area for transit riders in wheelchairs to access the facility		✓		$$		KCM/CoB
M3	Maintain vegetation on Main Street from 145th Place Southeast to 148th Avenue Southeast to clear the sidewalk area for pedestrians	✓			$		CoB
	Evaluate the sidewalk condition, on Main Street from 145th Place Southeast to 148th Avenue Southeast, on the southside for potential future resurfacing			✓	$$$		CoB

Key	
1 Green	Western Area, W#
1 Blue	Middle Area, M#
1 Purple	Eastern Area, E#
1 Black	Residential development and new elementary school

#: Location code for recommended improvement

Improvement Lead	
KCM	King County Metro
CoB	City of Bellevue
BSD	Bellevue School District
CoR	City of Redmond
PPO	Private Property Owner

Estimated Implementation Cost Key	
$	≤ $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	≥ $300,000

Time Frame Key	
Near-term (Near)	≤ 2 years
Intermediate (Int.)	2 - 5 years
Long-term (Long)	≥ 5 years

The estimated time frame provided is for improvement consideration, not for constructing or implementing the recommended improvement. The City is limited in the number of improvements that can be implemented per year due to staff capacity, funding, recommendation feasibility, and other factors.

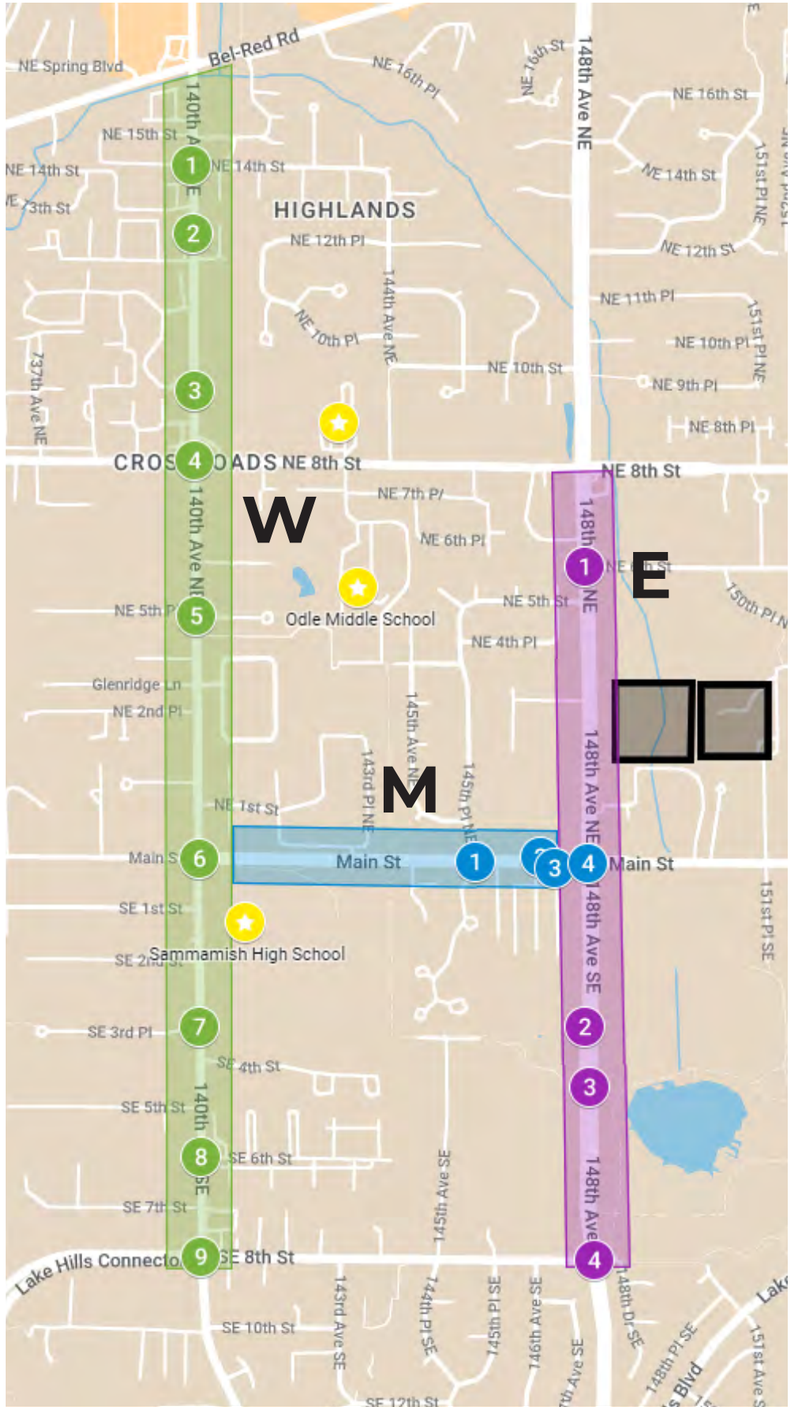


Figure 34: RSA 3 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
M4	At the intersection of 148th Avenue Northeast and Main Street, evaluate the signal timing to consider including a leading pedestrian interval and/or passive pedestrian detection to improve pedestrian timing. Consider the feasibility of a pedestrian refuge island across 148th Avenue Northeast with regard to signal timing implications and required hardware	✓			$-$$$	0.81	CoB
E1	Consider restriping the crosswalk markings along 148th Avenue Southeast at Northeast Sixth Street to improve visibility	✓			$	0.6	CoB
E2	Along the west side of 148th Avenue Southeast, approximately 1,100 feet south of Main Street intersection, consider providing a maintenance vehicle pull-out to prevent vehicles parking on the pathway			✓	$$		CoB
	Flooding is common in the area along 148th Avenue Southeast, between Main Street and Southeast Eighth Street. Consider road weather information systems or other strategies to monitor local roadway and weather conditions to alert the traveling public about inclement weather conditions			✓	$$$		CoB
E3	At the pedestrian crossing along 148th Avenue Northeast, north of Southeast Eighth Street, consider updating the wooden bollards in the median to current standard (with reflectors)	✓			$		CoB
	At the pedestrian crossing along 148th Avenue Northeast, north of Southeast Eighth Street, consider adding additional pedestrian warning signs (in advance and at the crossing) and high visibility crossing markings		✓		$	0.6	CoB
E4	There is a popular bike trail (shared-use path) east of the Southeast Eighth Street and 148th Avenue Northeast intersection. Consider adding bike lanes along Southeast Eighth Street to provide connectivity to the trail			✓	$$$$	0.65	CoB

Figure 35: The bus stop relocation recommendation at location code M2 was completed in Spring 2023 and King County Metro has seen positive feedback from the community.

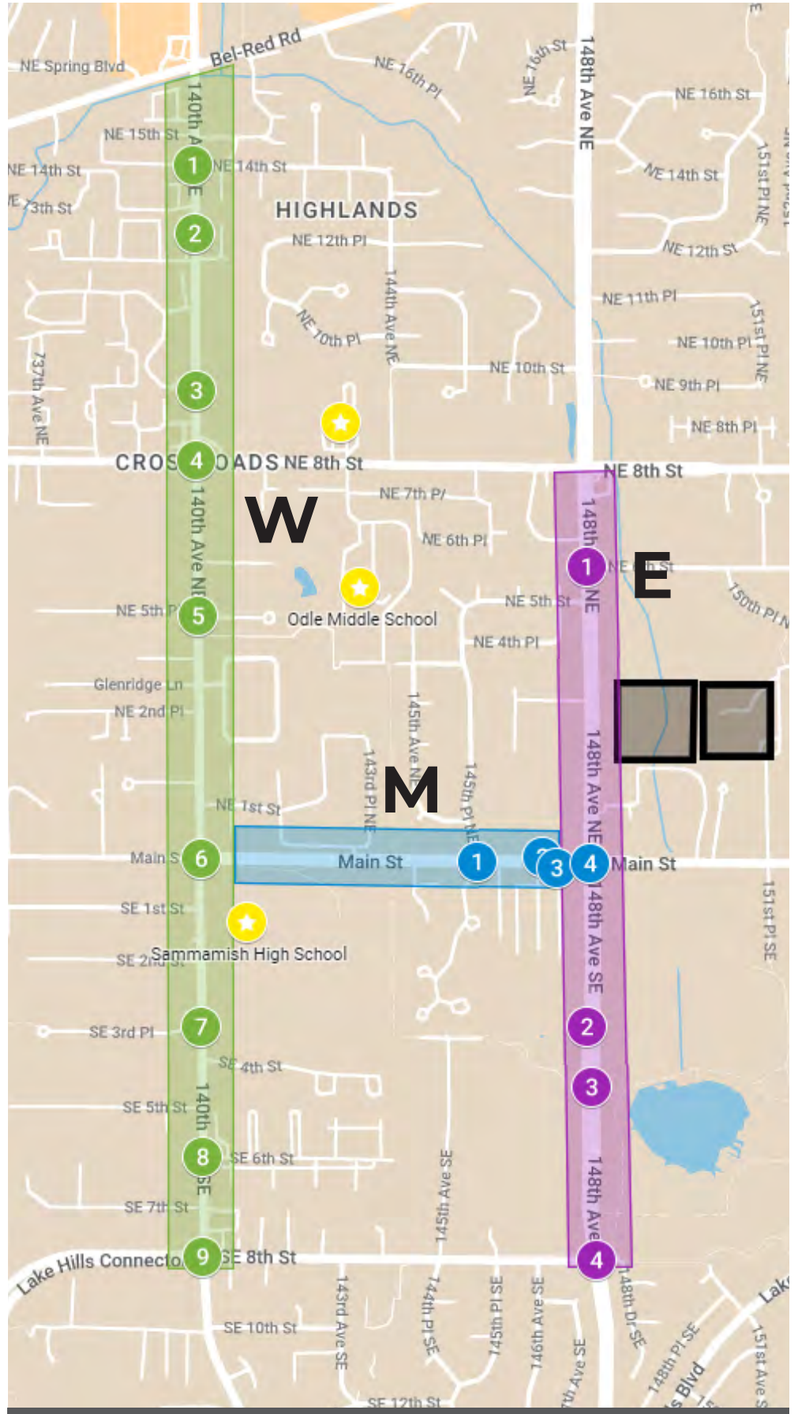


Figure 34: RSA 3 study area.

RSA 4

1. STUDY LOCATION

The study area for this RSA includes three segments along Southeast Phantom Way, 148th Avenue Southeast, and Southeast Eighth Street as shown in Figure 39, on page 28. The zoning designation within the study area is primarily single family residential, with all schools surrounded by single family housing. The zoning designations around Lake Hills Elementary and Bellevue Big Picture School are multi-family and small zones of neighborhood business and office. The four schools located within the RSA 4 area are described below:

	Lake Hills Elementary	Bellevue Big Picture School	Phantom Lake Elementary	Tillicum Middle School
Address:	14310 Southeast 12th Street, Bellevue, WA 98007	14844 Southeast 22nd Street, Bellevue, WA 98007	1050 160th Avenue Southeast, Bellevue, WA 98008	1280 160th Avenue Southeast, Bellevue, WA 98008
Grades:	PK-5	6-12	K-5	6-8
Number of Students:	464	770	310	783
Arrival:	8:40 a.m.	8-8:10 a.m.	8:40 a.m.	7:45 a.m.
Dismissal:	3:10 p.m.	3-3:05 p.m.	3:10 p.m..	2:35 p.m.

2. PROCESS

On Saturday, November 5, 2022, the team conducted a community walking audit to gather feedback from the public. An extensive public outreach plan was developed and implemented to promote the walking audit to the school communities and local residents. During the community walking audit, the team was able to collect valuable insights, stories, concerns and ideas from community members.

On Monday, November 28, 2022, the team conducted a city field visit, which focused on technical insights. During the Monday, December 5, 2022 workshop, the team used the MURAL digital visual collaboration tool to collaborate on synthesizing notes from the community walking audit and city field visit. The facilitator led a verbal discussion in addition to the team's written input.

3. IMPROVEMENTS FOR CONSIDERATION

The improvements for consideration table on the next page provides recommended safety improvements specific to RSA 4, including infrastructure design and policy improvements. These recommendations are based on observations made during the community walking audit, city field visit and team workshop, as well as the comments submitted on the Engaging Bellevue website.[1] The table is separated by location, and includes the recommended treatment, timeframe, estimated cost range, CMF and improvement lead.[2] Recommendations require further engineering analysis of feasibility and design prior to implementation.

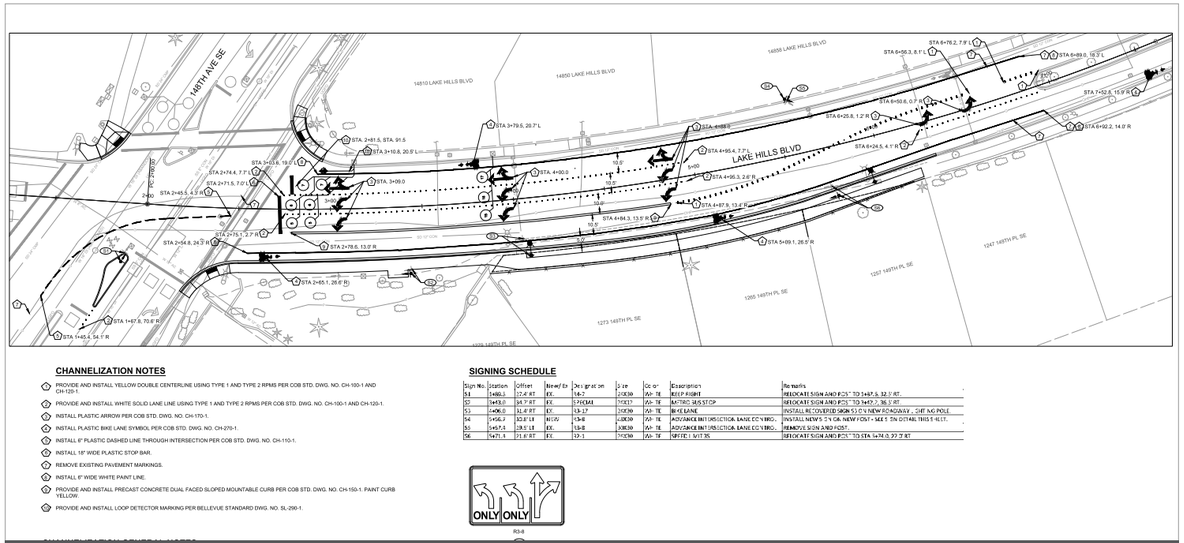
4. PLANNED IMPROVEMENTS

There are two planned capital improvement project within the RSA 4 area:

- 148th Avenue Southeast at Lake Hills Boulevard Intersection will address queuing and delays for left turns from westbound Lake Hills Boulevard to southbound 148th Avenue Southeast in both the morning and evening peak period. The project intends to widen the westbound approach from two lanes to three lanes and change the configuration to two left-turn lanes and one through/right lane. Traffic analysis showed this would increase capacity and would allow for traffic signal timing modifications that would improve operations overall. This will be accomplished by adding a dual left-turn pocket (westbound to southbound) on the east leg of the intersection. The project includes re-channelization; repaving; constructing curb, gutter, planter and sidewalk; storm drainage improvements; signal system improvements; and illumination improvements.
- An asphalt overlay project is planned for construction on 148th Avenue Southeast in 2023. The project will resurface 148th Avenue Southeast upgrade all curb ramps on this segment, upgrade crosswalk markings, and install new bike markings on Lake Hills Boulevard across the 148th Avenue Southeast intersection.

1 http://EngagingBellevue.com

2 CMFs are sourced from the CMF Clearinghouse. The FHWA CMFs are approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of CMFs for specific locations in Bellevue, explore the CMF Clearinghouse and apply all relevant factors. All CMFs reported in this report have a 3 star rating or higher and are from US & Canada studies.



CHANNELIZATION NOTES

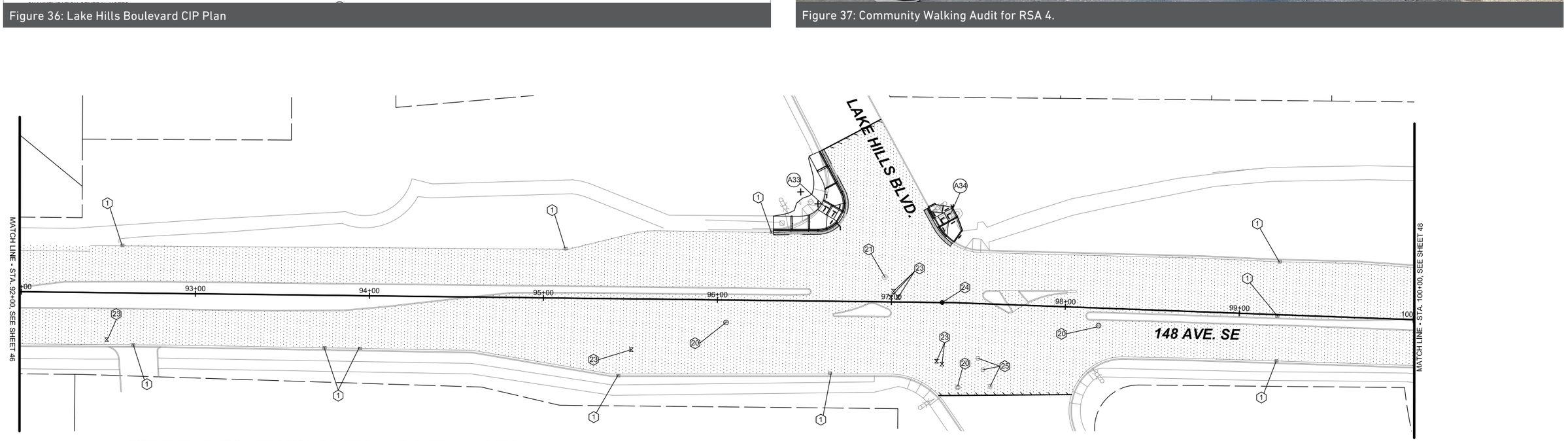
1. PROVIDE AND INSTALL YELLOW DOUBLE CENTERLINE USING TYPE 1 AND TYPE 2 RPMS PER COB STD. DWG. NO. CH-100-1 AND CH-120-1.
2. PROVIDE AND INSTALL WHITE SOLID LANE LINE USING TYPE 1 AND TYPE 2 RPMS PER COB STD. DWG. NO. CH-100-1 AND CH-120-1.
3. INSTALL PLASTIC ARROW PER COB STD. DWG. NO. CH-170-1.
4. INSTALL PLASTIC BIKE LANE SYMBOL PER COB STD. DWG. NO. CH-270-1.
5. INSTALL 6" PLASTIC DASHED LINE THROUGH INTERSECTION PER COB STD. DWG. NO. CH-110-1.
6. INSTALL 18" WIDE PLASTIC STOP BAR.
7. REMOVE EXISTING PAVEMENT MARKINGS.
8. INSTALL 8" WIDE WHITE PAINT LINE.
9. PROVIDE AND INSTALL PRECAST CONCRETE DUAL FACED SLOPED MOUNTABLE CURB PER COB STD. DWG. NO. CH-150-1. PAINT CURB YELLOW.
10. PROVIDE AND INSTALL LOOP DETECTOR MARKING PER BELLEVUE STANDARD DWG. NO. SL-290-1.

SIGNING SCHEDULE

Sign No.	Station	Offset	Mounting	Jurisdiction	Size	Qty	Description	Remarks
S1	1+60.0	17.4' RT	EX.	16-7	24X30	AS-BE	KEEP RIGHT	RELOCATE SIGN AND POST TO STA 1+97.5, 32.1' RT.
S2	1+93.0	34.1' RT	EX.	3-PSCM1	7"X21"	AS-BE	METRO, MVS STOP	RELOCATE SIGN AND POST TO STA 2+07.7, 36.1' RT.
S3	1+96.0	31.4' RT	EX.	13-17	24X36	AS-BE	BIKE LANE	INSTALL RECOVERED SIGN 5.0' FROM NEW ROADWAY, ON NEW POLE
S4	1+96.9	30.8' LT	NEW	13-8	48X30	AS-BE	ADVANCE INTERSECTION BASE COVERG	INSTALL NEW 5.0' X 6.0' NEW POST - SEE STN DETAIL THIS SHEET.
S5	1+97.1	28.5' LT	EX.	13-8	30X30	AS-BE	ADVANCE INTERSECTION BASE COVERG	REMOVE SIGN AND POST.
S6	1+71.1	21.8' RT	EX.	13-1	24X30	AS-BE	WHITE LANE MARKING	RELOCATE SIGN AND POST TO STA 1+74.0, 27.3' RT

Figure 36: Lake Hills Boulevard CIP Plan

Figure 37: Community Walking Audit for RSA 4.



SITE PREPARATION, EROSION CONTROL AND OVERLAY NOTES

1. PROVIDE AND INSTALL CATCH BASIN INLET PROTECTION PER COB CLEAR & GRADE BMP C220.
20. ADJUST MANHOLE TO FINISHED GRADE.
21. ADJUST MANHOLE TO FINISHED GRADE, BY OTHERS (LUMEN).
23. ADJUST WATER VALVE TO FINISHED GRADE.
24. ADJUST MONUMENT TO FINISHED GRADE.
25. ADJUST GAS VALVE TO FINISHED GRADE , BY OTHERS (PUGET SOUND ENERGY).

SITE SPECIFIC NOTES

1. FULL WIDTH 2" GRIND.
2. OVERLAY 2" OF HMA CL. 1/2" PG 58V-22.
3. ALL WORK AT THIS INTERSECTION SHALL BE COORDINATED WITH THE LAKE HILLS BLVD AND 148TH AVE SE INTERSECTION IMPROVEMENTS PROJECT

SCALE IN FEET
0 30 60

Figure 38: The City of Bellevue planned improvement along Lake Hills Boulevard and 148th Avenue Southeast.

Table 6: Recommended Improvements for RSA 4

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
N All	Along Southeast Eighth Street, consider hedge and other vegetation trimming on the southside of the corridor to improve sidewalk walkability.	✓			$		CoB
	Along Southeast Eighth Street, consider installing transverse rumble strips or raised paved markings to visually narrow the lanes to slow down traffic.		✓		$-$$		CoB
	Evaluate the existing sight distances for the minor approaches along Southeast Eighth Street and install stop bars (141st Place Southeast, 142nd Place Southeast, 141st Lane Southeast, 142nd Place Southeast, 143rd Place Southeast, 144th Place Southeast, 145th Avenue Southeast, and 145th Place Southeast).	✓			$-$$		CoB
N1	Refer to Bellevue RSA 3.				$		CoB
N2	At the intersection of Southeast Eighth Street and 141st Place Southeast, evaluate the sight distance from the existing stop sign location and relocate if needed.		✓		$		CoB
N3	At the intersection of Southeast Eighth Street and 142nd Place Southeast, retrofit catch basin lids to current standards to improve safety for cyclists.	✓			$		CoB
	At the intersection of Southeast Eighth Street and 142nd Place Southeast, trim the trees on the north side to improve the streetlighting that is currently being blocked by foliage.	✓			$		CoB
	At the intersection of Southeast Eighth Street and 142nd Place Southeast, consider reducing the curb radius on the southeast and southwest corners with painted or raised curb-bulb outs.		✓		$$		CoB
N4	At the intersection of Southeast Eighth Street and 143rdPlace Southeast, consider upgrading the crosswalk across Southeast Eighth Street to an RRFB and adding retro reflective strips to stop signpost for the north leg.		✓		$	0.53	CoB
	At the intersection of Southeast Eighth Street and 143rd Place Southeast, consider tree trimming for the southeast and southwest corners to improve the sight distance.	✓			$		CoB

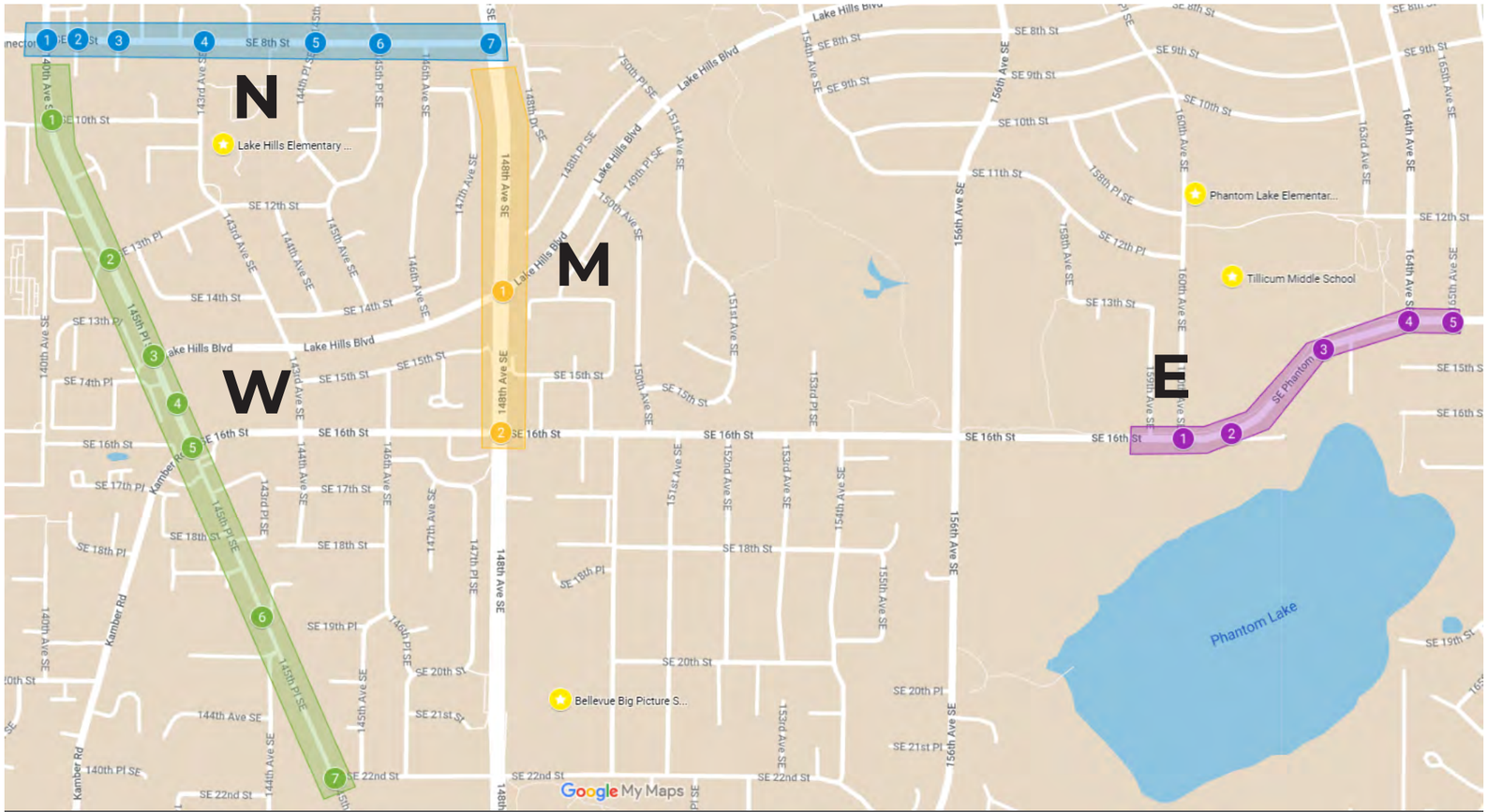


Figure 39: RSA 4 study area.

Key	
1 Green	Western Area, W#
1 Blue	North Area, N#
1 Yellow	Middle Area, M#
1 Purple	East Area, E#

#: Location code for recommended improvement

Estimated Implementation Cost Key	
$	≤ $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	≥ $300,000

Time Frame Key	
Near-term (Near)	≤ 2 years
Intermediate (Int.)	2 - 5 years
Long-term (Long)	≥ 5 years

The estimated time frame provided is for improvement consideration, not for constructing or implementing the recommended improvement. The City is limited in the number of improvements that can be implemented per year due to staff capacity, funding, recommendation feasibility, and other factors.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
N5	At the intersection of Southeast Eighth Street and 145th Avenue Southeast, consider adding crosswalk markings all approaches and installing an RRFB across Southeast Eighth Street. There is an important Lake to Lake Trail connection located north of this intersection.	✓			$$	0.53	CoB
	At the intersection of Southeast Eighth Street and 145th Avenue Southeast, consider additional lighting on the southwest corner of the intersection (there is an existing lamppost on the northeast corner).		✓		$		CoB
N6	At the intersection of Southeast Eighth Street and 145th Place Southeast, consider adding advanced warning signs on the westbound approach of pedestrian crossing. Consider other speed calming treatments around this area with a steep grade.	✓			$-$$		CoB
N7	Refer to Bellevue RSA 3.						
M1	At the intersection of Lake Hills Boulevard and 148th Avenue Northeast, consider the feasibility of improving the bike lane facilities through the intersection and improving all curb ramps to ADA requirements.			✓	$-$$$	0.5	CoB
	Consider adding lighting for the southbound bus stop south of the intersection at Lake Hills Boulevard and 148th Avenue Northeast.			✓	$		KCM
M2	At the intersection of Southeast 16th Street and 148th Avenue Northeast, consider upgrading the crosswalks to continental style and adding reflective backplates to the signals to increase visibility.	✓			$		CoB
	At the intersection of Southeast 16th Street and 148th Avenue Northeast, consider installing bike lanes along Southeast 16th Street. Based on the Mobility Implementation Plan[1], there is a bicycle gap along Southeast 16th Street between 156th Avenue Southeast and 148th Avenue Northeast.	✓			$$-$$$		CoB

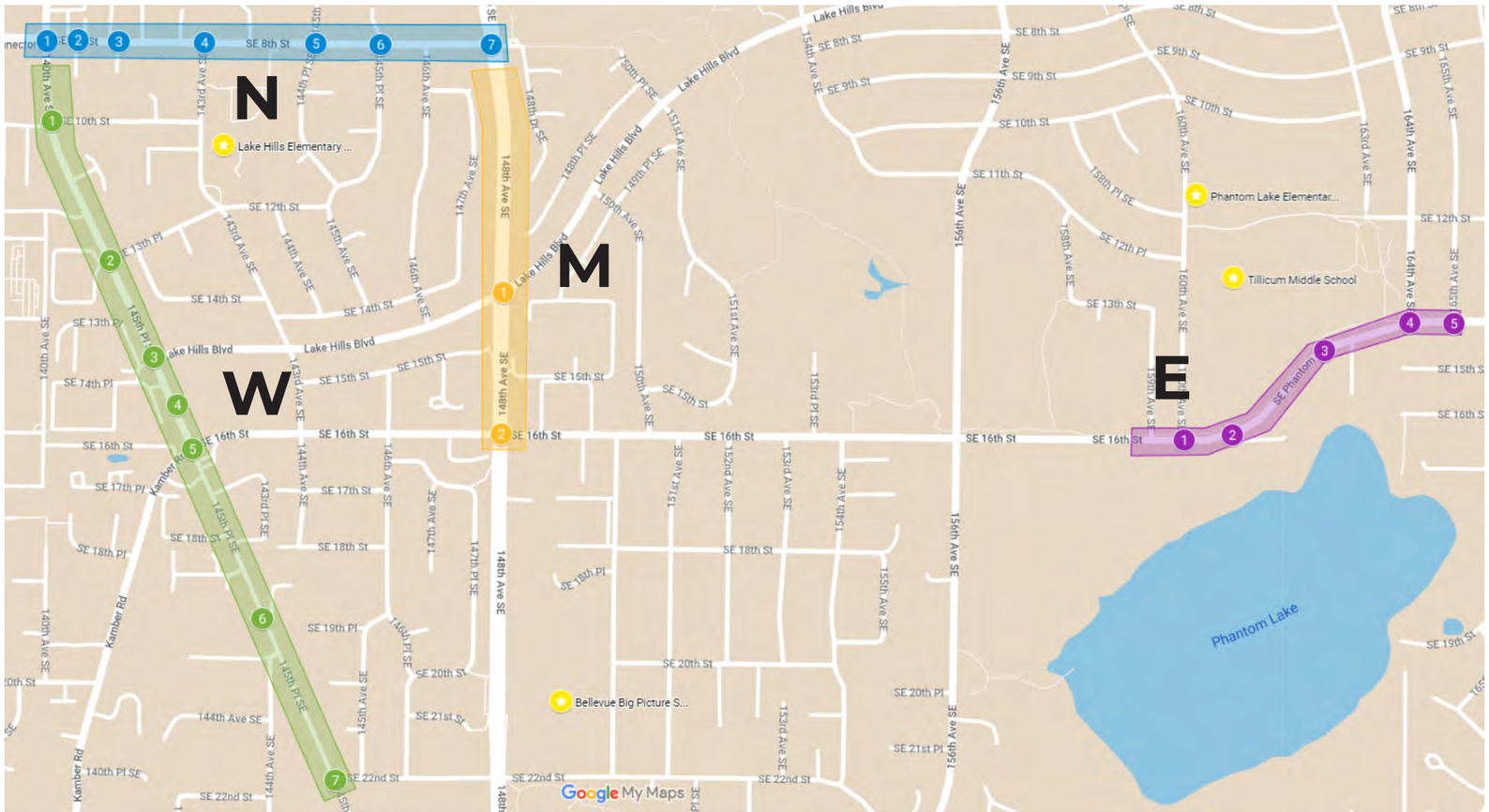


Figure 39: RSA 4 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W1	At the intersection of 145th Place Southeast and Southeast 10th Street, trim the branches near the southbound bus stop luminaire to improve lighting.	✓			$		CoB
	At the intersection of 145th Place Southeast and Southeast 10th Street, consider adding bike lanes or bike markings through this intersection.		✓		$$	0.65	CoB
	Consider the feasibility of converting the intersection of 145th Place Southeast and Southeast 10th Street into a mini roundabout, protected intersection or installing a pedestrian crossing.			✓	$$-$$$		CoB
W2	Consider updating the midblock crosswalk north of Southeast 13th Place along 145th Place Southeast to an RRFB or moving the crosswalk to Southeast 13th Place intersection. By moving the crosswalk to Southeast 13th Place, it will better serve the existing bus stops at this intersection.		✓		$$-$$$	0.53	CoB
	Consider improving lighting at the intersection of Southeast 13th Place and 145th Place Southeast.		✓		$		CoB
W3	At the intersection of 145th Place Southeast and Lake Hills Boulevard, consider intersection upgrades such as installing reflective backplates on signal heads, increasing the pedestrian crossing time for the east leg, upgrading pushbuttons to meet ADA requirements and adding bicycle detection.		✓		$-$$		CoB
	At the intersection of 145th Place Southeast and Lake Hills Boulevard, consider intersection upgrades such as installing yellow reflective backplates on signal heads, increasing the pedestrian crossing time for the east leg, upgrading pushbuttons to meet ADA requirements and adding bicycle detection.		✓		$-$$		CoB
	Fix the cabinet located south of 145th Place Southeast and Lake Hills Boulevard intersection (along 145th Place Southeast) that is damaged and there is exposed wiring / conduit.	✓			$$		CoB

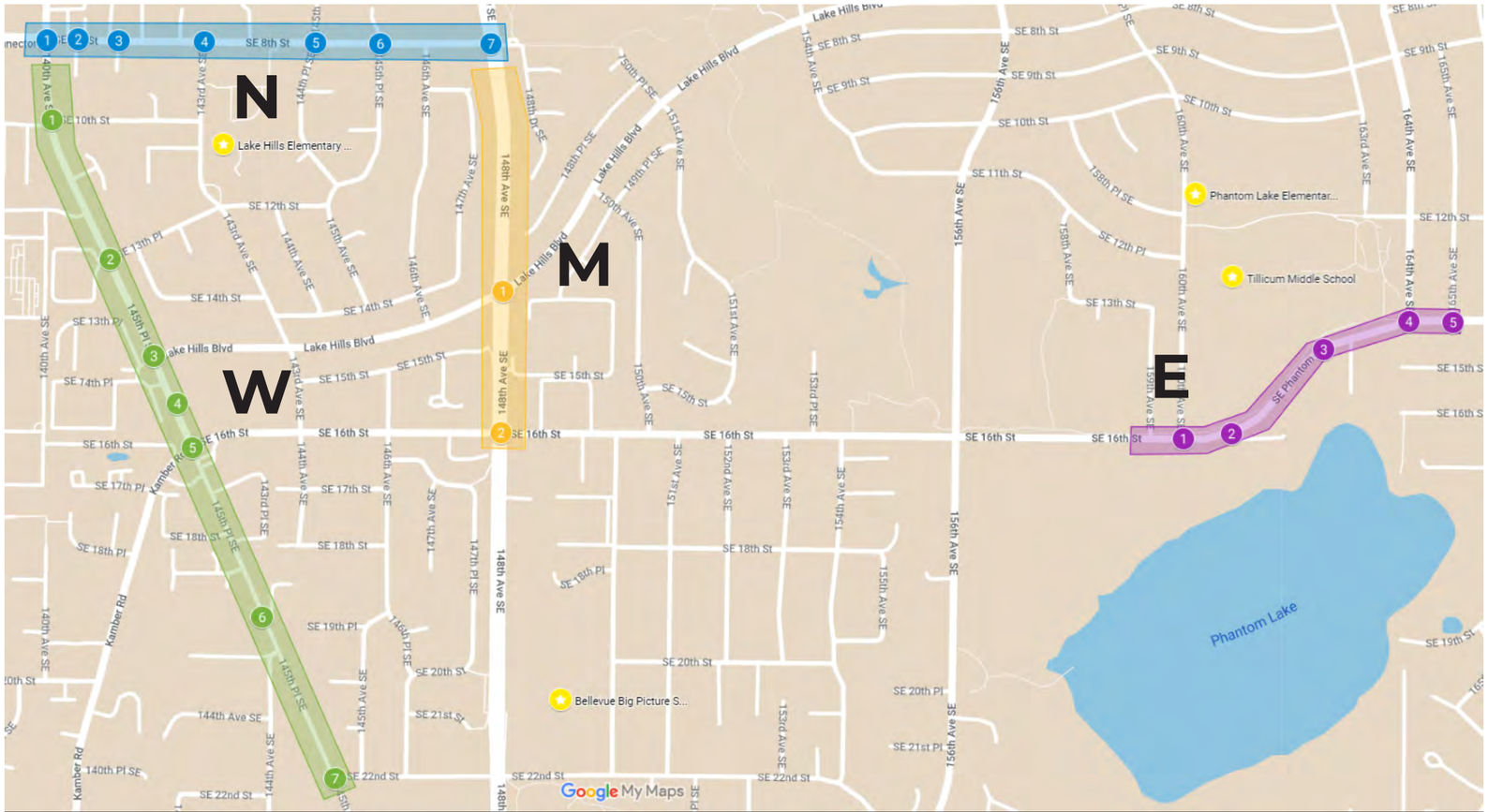


Figure 39: RSA 4 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W4	Consider providing a green bicycle crossing marking at the QFC driveway along 145th Place Southeast.	✓			$		CoB
	Evaluate access management at the QFC driveway location. Consider a C-curb or restricting the southbound left turn.			✓	$-$$		CoB
W5	At the intersection of Southeast 16th Street and 145th Place Southeast, evaluate the radius on the southwest corner and consider feasibility of painted or raised curb bulb-out to reduce the pedestrian crossing length.		✓		$$	0.56	CoB
	At the intersection of Southeast 16th Street and 145th Place Southeast, update the northwest corner curb ramp orientation so that it better aligns with the crosswalk.		✓		$$-$$$		CoB
W6	Consider adding bus shelters at locations (ID 68614 and ID 68599) with existing platforms along 145th Place Southeast, just north of 144th Avenue Southeast.		✓		*		KCM
	The midblock crossing located just north of 144th Avenue Southeast across 145th Place Southeast, should be upgraded to an RRFB and replace the overhead signs with lighting.		✓		$$	0.53	CoB
	The pedestrian sidewalk along 144th Place Southeast between Southeast 16th Street and Southeast 24th Street is made of permeable pavement that has a significant amount of moss. This moss makes it slippery during winter conditions. Provide additional maintenance during the colder season to remove this moss and algae from the sidewalk surface (e.g., pressure washer or other approved moss treatment method) to improve safety for pedestrians and permeability of the pavement.	✓			$		CoB

* Subject to partner agency.

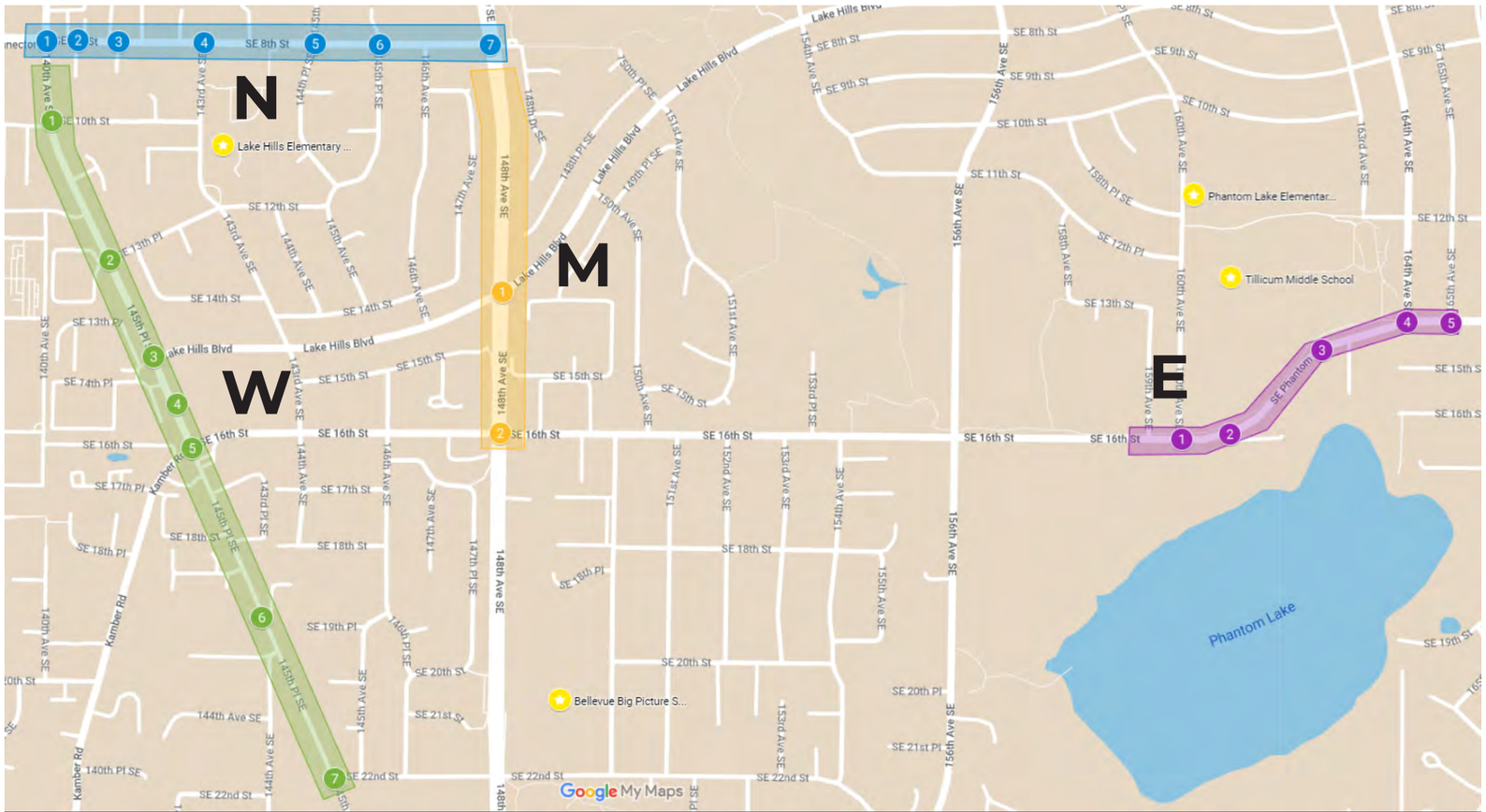


Figure 39: RSA 4 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W7	At the intersection of 145th Place Southeast and Southeast 22nd Street, remove the southeast corner curb ramp that does not have an interception curb ramp on the other side of the Southeast 22nd Street. Consider extending the sidewalk along the southside of Southeast 22nd Street to the Eastside Christian School entrance.		✓		$$$$	0.41	CoB/PPO
	Consider adding painted or curb bulb-outs for the east side crossing along Southeast 22nd Street to reduce the pedestrian crossing distance, reduce vehicle turning speed, square off the intersection and reduce curb radii.		✓		$$		CoB
	At the intersection of 145th Place Southeast and Southeast 22nd Street, consider adding bicycle marking through the intersection and 2-stage bike boxes.		✓		$$		CoB
E All	Widen the sidewalk along the east side of 160th Avenue Southeast to create a multi-use trail for cyclist and pedestrians.			✓	$$$-$$$$		CoB
	Along this segment, consider upgrading the crosswalks to continental style crosswalks.	✓			$$	0.6	CoB
E1	At the intersection of 160th Avenue Southeast and Southeast Phantom Way, trim the vegetation near northeast and northwest corners to improve sight distance for the south leg.	✓			$		CoB
	At the intersection of 160th Avenue Southeast and Southeast Phantom Way, add guardrail for fall protection on the southside of the east crosswalk.	✓			$		CoB
	Consider the feasibility of converting the east leg crosswalk into a RRFB or converting the intersection into a 3-way stop controlled intersection or roundabout.			✓	$$-$$$$	0.53	CoB
E2	Consider adding a sidewalk on the north side of Southeast 16th Street and evaluate existing lighting.		✓		$$-$$$$	0.41	CoB

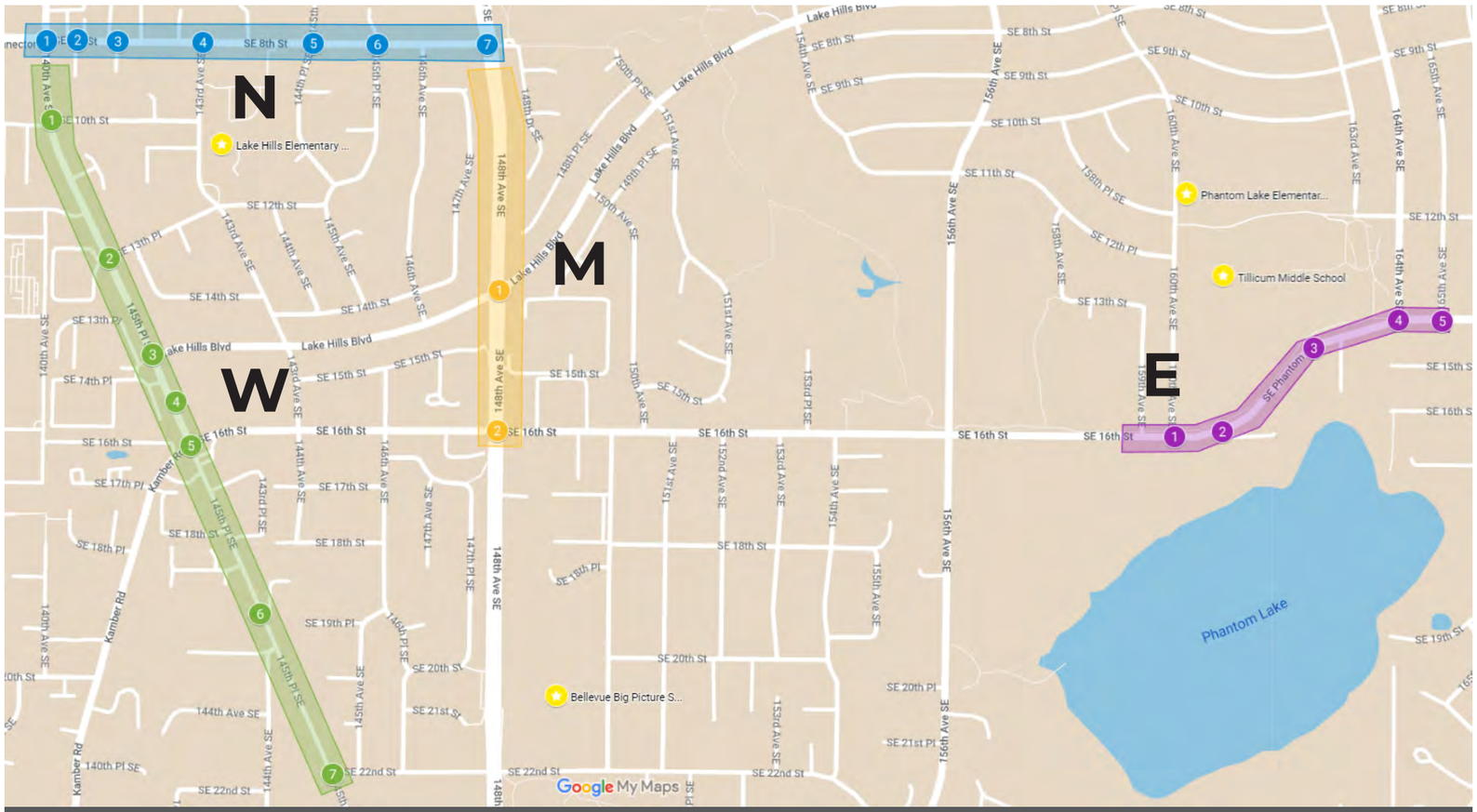


Figure 39: RSA 4 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
E3	There is evidence of pedestrians crossing the southside Southeast Phantom Way to "use" the Lake to Lake Trail at the location of the speed feedback sign (just west of 163rd Place Southeast). Evaluate the feasibility of adding an RRFB at this informal crossing location and consider moving the speed feedback sign further east of this curve.		✓		$$-$$$	0.53	CoB
	Add more wayfinding signage at this location just west of 163rd Place Southeast on the Lake to Lake Trail.	✓			$		CoB
	There is heavy foliage on the southside of Southeast Phantom Way, consider adding more pedestrian level lighting along the sidewalk where appropriate.			✓	$		CoB
E4	At the intersection of Southeast Phantom Way and 164th Avenue Southeast, the curb ramps should be installed for multi-use functionality with better orientation to the crosswalk.		✓		$$-$$$		CoB
	At the intersection of Southeast Phantom Way and 164th Avenue Southeast, there is a crosswalk on the east leg that directs pedestrians to the south side of Southeast Phantom Way with no sidewalk. Evaluate the feasibility of adding a sidewalk on the southside of Southeast Phantom Way to improve connectivity. Consider upgrading this crosswalk on the east side to be an RRFB.			✓	$$-$$$$	0.41	CoB
E5	The bus stops Southeast 14th Street and 165th Avenue Southeast (ID 67150 and 66880) should be moved further west to be paired with the crossing at Southeast Phantom Way and 164th Avenue Southeast. Currently, there are no bus stop facilities or mid-block crossings where existing bus stops are located.		✓		$$	0.6	KCM/CoB
	Trim the vegetation hedges on the north side of Southeast 14th Street.	✓			$		CoB

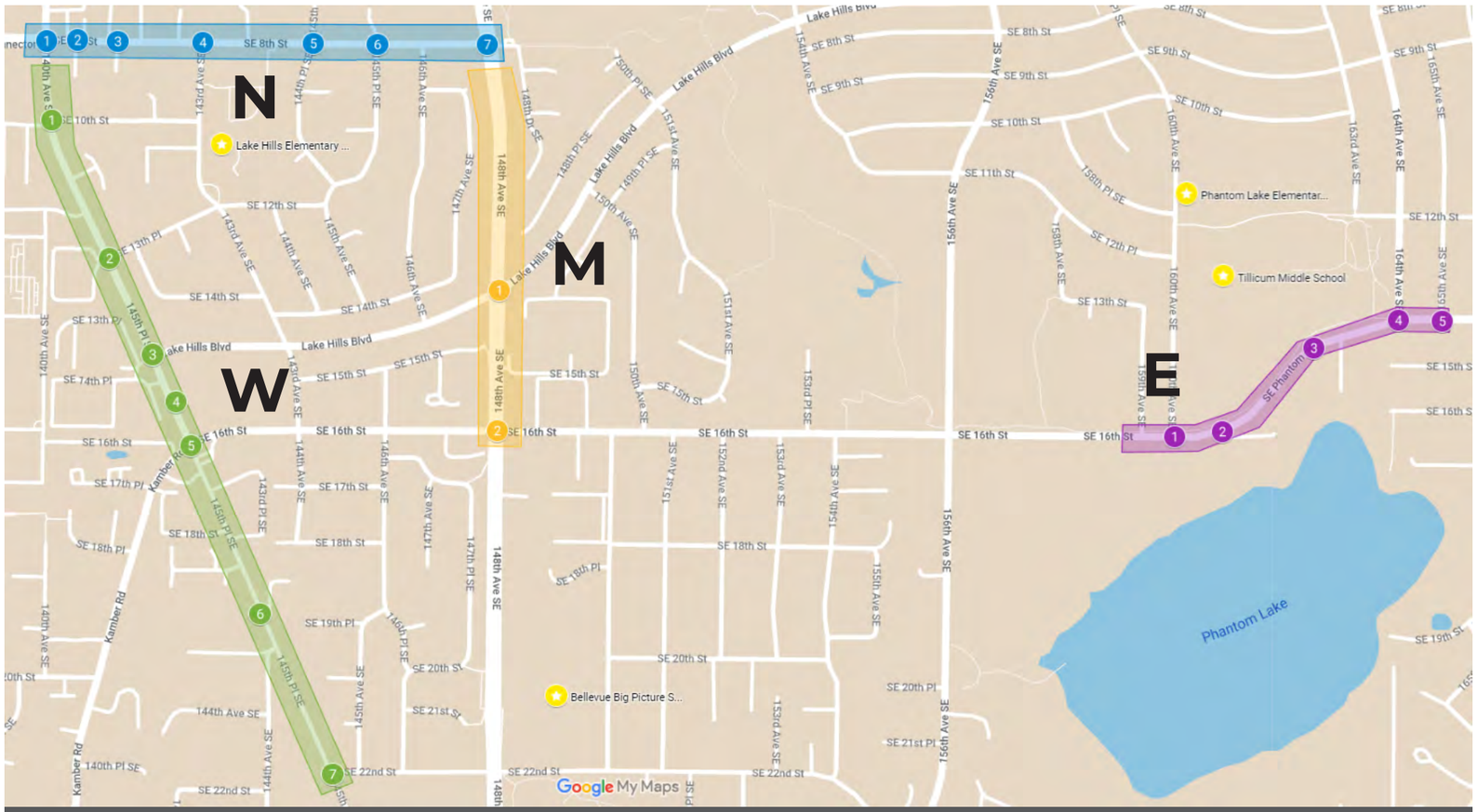


Figure 39: RSA 4 study area.

RSA 5

1. STUDY LOCATION

The study area for this RSA includes two segments along Southeast Eighth Street and Lake Hills Connector as shown in Figure 45, on page 36. The zoning designations within the study area primarily single family residential, with International School surrounded by multi-family housing. There are also light industrial, office, and commercial zoning designations nearby. The one school located within the RSA 5 area is described below:

	International School
Address:	445 128th Avenue Southeast, Bellevue, WA 98005
Grades:	6-12
Number of Students:	588
Arrival:	8:15 a.m.
Dismissal:	3:15 p.m.

2. PROCESS

On Saturday, February 4, 2023 and Saturday, February 11, 2023, the team conducted community walking audits to gather feedback from the public. An extensive public outreach plan was developed and implemented to promote the walking audits to the school communities and local residents. During the community walking audit, the team was able to collect valuable insights, stories, concerns and ideas from 12 community members.

On Wednesday, February 22, 2023, the team conducted a city field visit, which focused on technical insights. During the Monday, February 27, 2023 workshop, the team used the MURAL digital visual collaboration tool to collaborate on synthesizing notes from the community walking audit and city field visit. The facilitator led a verbal discussion in addition to the team's written input.

3. IMPROVEMENTS FOR CONSIDERATION

The improvements for consideration table on the next page provides recommended safety improvements specific to RSA 5, including infrastructure design and policy improvements. These recommendations are based on observations made during the community walking audits, city field visit and team workshop, as well as the comments submitted on the Engaging Bellevue website. The table is separated by location, and includes the recommended treatment, timeframe, estimated cost range, CMF and improvement lead.[1] Recommendations require further engineering analysis of feasibility and design prior to implementation.

Figure 40: Community Walking Audit for RSA 5.

Figure 41: Community Walking Audit at the intersection of 114th Avenue Southeast/118th Avenue Southeast and Southeast Eighth Street

1 CMFs are sourced from the CMF Clearinghouse. The FHWA CMFs are approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of CMFs for specific locations in Bellevue, explore the CMF Clearinghouse and apply all relevant factors. All CMFs reported in this report have a 3 star rating or higher and are from US & Canada studies.

4. PLANNED IMPROVEMENTS

There are three planned capital improvement projects within the RSA 5 area:

- Lake Hills Connector at Southeast Eighth Street Signal Upgrade is currently in the design phase. The Lake Hills Connector Corridor is a major arterial that provides access to residential neighborhoods, schools, parks and travel between I-405 and Lake Hills. The Lake Hills Connector and Southeast Eighth Street signalized intersection project will add an additional left turn lane to provide increased capacity for the westbound approach to improve traffic flow.
- 121st Avenue Southeast at Southeast Eighth Street roundabout is a planned project that is not yet funded. This project proposes to convert the existing three-leg intersection at 121st Avenue Southeast and Southeast Eighth Street into a roundabout to reduce intersection travel time delays. This roundabout concept was developed in conjunction with a roundabout at Southeast Eighth Street and Lake Hills Connector and would be constructed together.
- 114th Avenue Southeast and 118th Avenue Southeast and Southeast Eighth Street improvements is currently in the conceptual phase. The project will include several intersection improvements, including a dual-left turn on 114th Avenue Southeast.

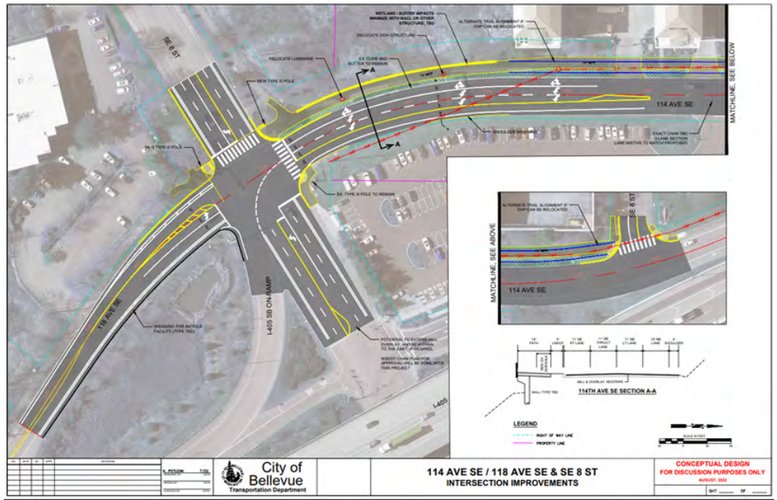


Figure 42: City of Bellevue planned Improvement 114th Avenue Southeast and 118th Avenue Southeast and Southeast Eighth Street.

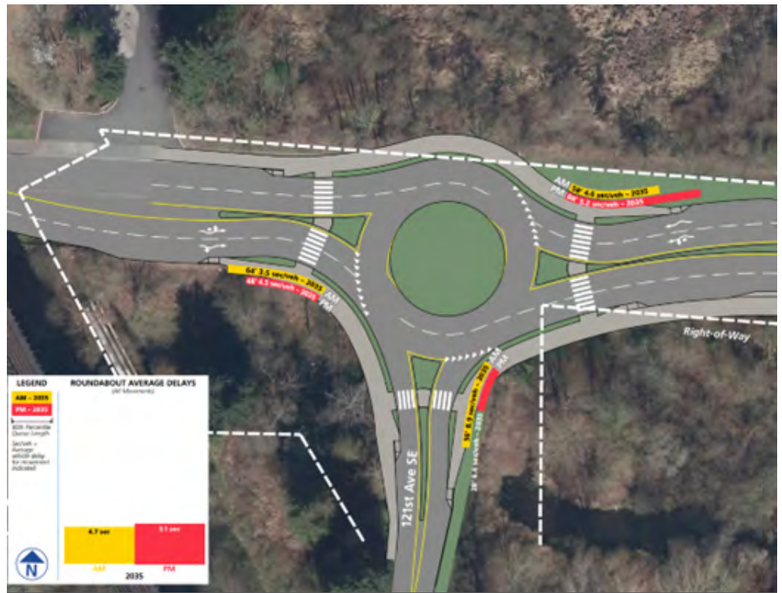


Figure 43: City of Bellevue planned mprovement 121st Avenue Southeast at Southeast Eighth Street roundabout.

Figure 44: City of Bellevue planned Improvements Lake Hills Connector at Southeast Eighth Street Signal Upgrade.

Table 7: Recommended Improvements for RSA 5

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W1	At the intersection of Southeast Eighth Street and 112th Avenue Southeast, improve wayfinding for cyclists travelling eastbound. Direct cyclists to the multi-use path on the west side of 112th Avenue Southeast because there are no bike lanes on 112th Avenue Southeast.	✓			$		CoB
W2	On the southeast corner of the intersection of Southeast Eighth Street and 112th Avenue Southeast, there is a sidewalk gap that is approximately 125 feet long between sidewalks on the southside of Southeast Eighth Street. Consider completingthe sidewalk to improve connectivity and consider adding a 5-foot vegetation buffer to match sidewalk further east.		✓		$$-$$$	0.41	CoB/PPO
W3	Improve the drainage along the bike lane on the northside of Southeast Eighth Street between 114th Avenue and 112th Avenue Southeast to reduce the potential for flooding.	✓			$-$$$		CoB
W4	On the northwest corner of Southeast Eighth Street and 114th Avenue Southeast, improve the sidewalk area near the transit stop landing pad. Currently, there is uneven pavement (sidewalk heaving) that makes the section difficult for wheelchair users to traverse.	✓			$$-$$$$		CoB
W5	On the southeast corner of Southeast Eighth Street and 114th Avenue Southeast, consider adding a paved connection from the bus stop landing pad to the pathway on the east side.		✓		$$$-$$$$		CoB/KCM

Key	
1 Green	Western Area, W#
1 Blue	Middle Area, M#
1 Purple	East Area, E#

#: Location code for recommended improvement

Estimated Implementation Cost Key	
$	≤ $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	≥ $300,000

Time Frame Key	
Near-term (Near)	≤ 2 years
Intermediate (Int.)	2 - 5 years
Long-term (Long)	≥ 5 years

The estimated time frame provided is for improvement consideration, not for constructing or implementing the recommended improvement. The City is limited in the number of improvements that can be implemented per year due to staff capacity, funding, recommendation feasibility, and other factors.

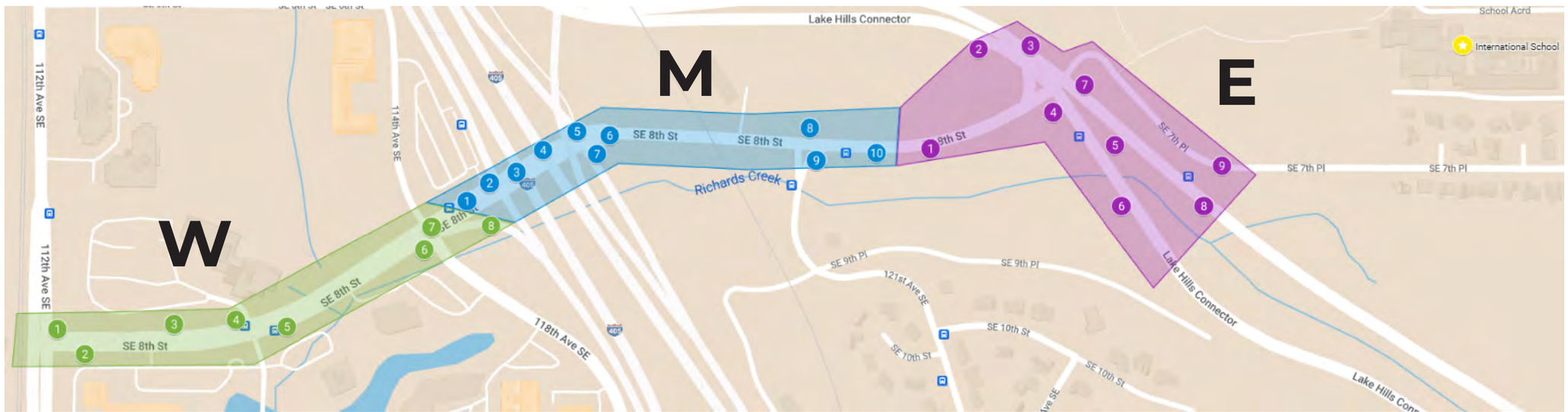


Figure 45: RSA 5 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W6	On the southwest corner of Southeast Eighth Street and 118th Avenue Southeast, add circular bike markings on the eastbound bike lane to direct cyclists to use the sidewalk to continue their journey.	✓			$		CoB
	On the southwest corner of Southeast Eighth Street and 118th Avenue Southeast, evaluate the design of the area to improve the bicycle and pedestrian facilities. Currently, the bike lane ends at this intersection travelling eastbound and there is no wayfinding to guide cyclists to continue eastbound.			✓	$-$$$		CoB
W7	At the intersection of Southeast Eighth Street and 118th Avenue Southeast, add high visibility crosswalks, ADA compliant ramps, updated push buttons, and retroreflective signal backplates.		✓		$$	0.6	CoB
	At the intersection of Southeast Eighth Street and 118th Avenue Southeast, evaluate bike facilities improvements. Consider adding buffered bike lanes in the northbound and southbound directions with green skipped pavement markings through the intersection.			✓	$$$$		CoB
W8	At the intersection of Southeast Eighth Street and 118th Avenue Southeast, conduct a traffic impact assessment on the feasibility of closing the on-ramp slip lane to allow space for bike lanes in the eastbound direction.			✓	$		CoB/WSDOT
M1	Coordinate with King County Metro to study the bus pull out area on the northeast corner of Southeast Eighth Street and 118th Avenue Southeast. Consider the feasibility of a multi-use path on the north side of Southeast Eighth Street between 118th Avenue Southeast and 121st Avenue Southeast.			✓	$$$$		KCM/CoB
M2	On the northwest corner of the intersection of Southeast Eighth Street and the I-405 southbound off-ramp, consider reducing the curb radius to lower speeds of right-turning vehicles.		✓		$$-$$$	0.56	CoB/WSDOT
M3	At the intersection of Southeast Eighth Street and the I-405 southbound off-ramp, remove the vegetation on the northeast and northwest corners to improve visibility.	✓			$		CoB
M4	Conduct a lighting analysis under the I-405 bridge and consider improving lighting, particularly above the sidewalk on the northside of Southeast Eighth Street.	✓			$		CoB/WSDOT
	Coordinate with WSDOT to evaluate the feasibility of a multi-use path on the north side of Southeast Eighth Street between 118th Avenue Southeast and 121st Avenue Southeast.			✓	*		CoB/WSDOT
M5	Coordinate with King County Metro to remove the unused bus stop and shelter on the I-405 northbound on-ramp.	✓			*		CoB/KCM
	At the intersection of Southeast Eighth Street and the I-405 northbound on-ramp, coordinate with WSDOT to lengthen the pedestrian crossing signal timing for the north leg.	✓			$		WSDOT
	At the intersection of Southeast Eighth Street and the I-405 northbound on-ramp, coordinate with WSDOT to refresh the pavement crossing markings and add pedestrian crossing warning signs for the eastbound approach.	✓			$		CoB/WSDOT
	At the intersection of Southeast Eighth Street and the I-405 northbound on-ramp, coordinate with WSDOT to conduct a study to improve the northwest corner for pedestrian facilities. Consider moving the ramp further away from the bridge column and providing an ADA compliant ramp.			✓	*		CoB/WSDOT
M6	At the intersection of Southeast Eighth Street and the I-405 northbound on-ramp, coordinate with WSDOT to add a stop bar for the westbound approach and refresh all pavement lane markings.	✓			$		CoB/WSDOT

* Subject to partner agency.

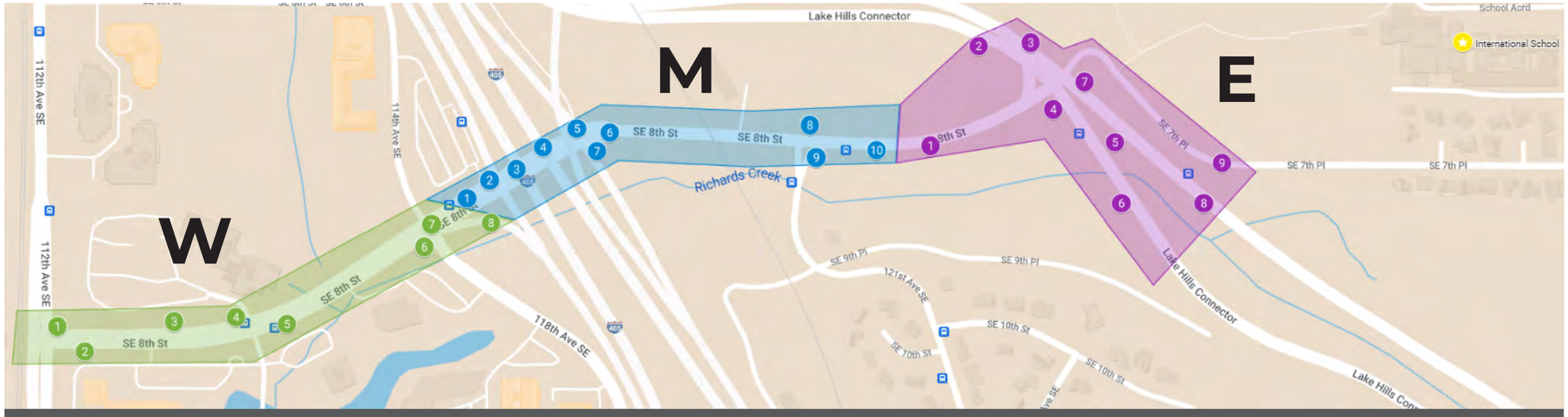


Figure 45: RSA 5 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
M7	At the intersection of Southeast Eighth Street and I-405 northbound on-ramp, remove the vegetation on the southwest corner to improve visibility.	✓			$		CoB
	At the intersection of Southeast Eighth Street and I-405 northbound on-ramp, coordinate with WSDOT to evaluate potential solutions to reduce turning radius of the northbound right-turn because vehicles are currently driving over the shoulder and cutting the corner significantly.	✓			*		CoB/WSDOT
	On the southeast corner of Southeast Eighth Street and the I-405 northbound off-ramp intersection, coordinate with WSDOT to conduct a study to better utilize the space in this area. As of March 2023, it is used an informal truck rest location.			✓	*		CoB/WSDOT
M8	At the intersection of Southeast Eighth Street and 121st Avenue Southeast, trim the trees on the north side to improve signal visibility and illumination from the streetlights.	✓			$		CoB
	At the intersection of Southeast Eighth Street and 121st Avenue Southeast, improve wayfinding signage for pedestrians and cyclists since they must use multiple crossings to continue along Southeast Eighth Street due to limited connectivity.	✓			$		CoB
	At the intersection of Southeast Eighth Street and 121st Avenue Southeast, improve this intersection with updated high visibility crosswalks, ADA compliant ramps, updated push buttons and retroreflective signal backplates.		✓		$$	0.6	CoB
M9	At the intersection of Southeast Eighth Street and 121st Avenue Southeast, add yield pavement markings for the northbound approach on the right-turn slip lane.	✓			$		CoB
	At the intersection of Southeast Eighth Street and 121st Avenue Southeast, conduct a feasibility study to remove the median and right-turn slip lane to reduce the number of pedestrian crossings.			✓	$$-$$$		CoB
M10	At the intersection of Southeast Eighth Street and 121st Avenue Southeast, coordinate with King County Metro to evaluate the bus stop location and amenities. Consider moving it further east to reduce the potential of a northbound right-turn conflict and adding a concrete bus stop landing since there are thorny bushes in this area.	✓			*		CoB/KCM
E1	Between 121st Avenue Southeast and Lake Hills Connector, remove the moss on the sidewalk on the southside of Southeast Eighth Street.	✓			$		CoB
	Between 121st Avenue Southeast and Lake Hills Connector, conduct an evaluation of bike facilities, pavement markings, and wayfinding signage along Southeast Eighth Street to clarify expected bicycle route.	✓			$$$		CoB
	Between 121st Avenue Southeast and Lake Hills Connector, consider adding lighting on the southside to illuminate the sidewalk.		✓		$		CoB
	Between 121st Avenue Southeast and Lake Hills Connector, assess the feasibility of converting the sidewalk on the southside to a multi-use path since there are no dedicated bikes lanes along Southeast Eighth Street.			✓	$$$$		CoB
E2	Evaluate the feasibility of installing a speed feedback sign or other speed management techniques on Lake Hills Connector or to reduce motor vehicle speeds.		✓		$-$$		CoB

* Subject to partner agency.

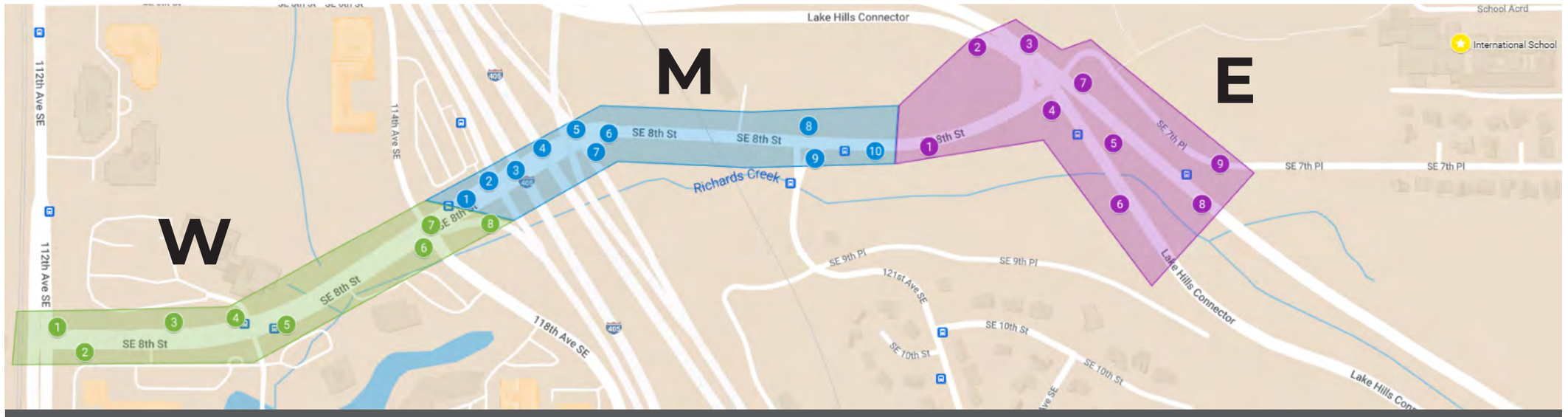


Figure 45: RSA 5 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
E3	Along the northside of Lake Hills Connector, consider converting the rounded curb to a vertical curb to prevent vehicles driving over the rounded curb.		✓		$$$		CoB
	On the north corner of the Lake Hills Connector and Southeast Eighth Street, consider adding a bus stop location for Route 271 that continues northbound. Coordinate with King County Metro to discuss moving the Route 271 bus stop to this far side location to reduce the number of students needing to cross Southeast 7th Place.		✓		*		KCM/CoB
E4	At the intersection of Lake Hills Connector and Southeast Eighth Street, evaluate pedestrian safety improvements for the south leg crossing. Consider restricting right-turn-on-red for the eastbound movement and a raised pedestrian crossing.	✓			$-$$$		CoB
	At the intersection of Lake Hills Connector and Southeast Eighth Street, consider adding a pedestrian refuge island for the south leg crossing.		✓		$$$$	0.86	CoB
E5	At the intersection of Lake Hills Connector and Southeast Eighth Street, close off the paved pathway on the south leg that pedestrians are using as an informal pedestrian refuge to cut across Lake Hills Connector.	✓			$-$$		CoB
E6	Along the southside of Lake Hills Connector in the southbound approach, consider moving the concrete blocks between the bike lane and the drive lane to provide some protection to cyclists.	✓			$		CoB
	Along the southside of Lake Hills Connector in the southbound approach, consider adding vertical separation between bike lane and vehicle lane.			✓	$-$$$		CoB
E7	At the intersection of Lake Hills Connector and Southeast Eighth Street, add signage on the east corner to direct pedestrians to use the crosswalk along Southeast 7th Place to access the transit stop further south, rather than walking along the shoulder near motor vehicle traffic.	✓			$		CoB
	Evaluate the feasibility of adding a protective barrier or consider installing a raised sidewalk along the north side of Lake Hills Connector to reach the transit stop. Consider connecting the sidewalk that abruptly ends further south of the study segment to the intersection of Southeast Eighth Street and Lake Hills Connector.		✓		$$$-$$$$	0.41	CoB/KCM
	Assess establishing school zones and school crossings on Southeast Eighth Street, Southeast Seventh Place and Lake Hills Connector.		✓		$		CoB
E8	Coordinate with KCM to improve the bus stop location on the northside of Lake Hills Connector. Consider adding a large bus shelter for students, a concrete landing pad, improved lighting and better access to this bus stop.		✓		$$$$		KCM
E9	Although Southeast 7th Place is not part of this specific study area, it is a common pathway for students attending the International School to reach transit stop locations. Consider adding a buffered multi-use path with lighting on one side of the Southeast 7th Place to improve connectivity from the school to the bus stops along Lake Hills Connector.			✓	$$$$		CoB/BSD

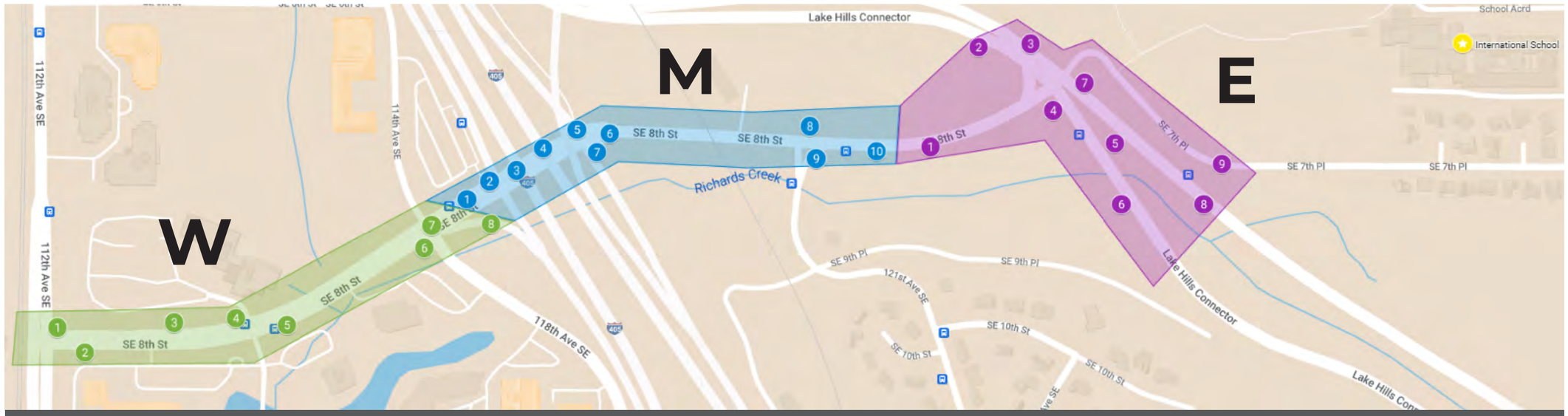


Figure 45: RSA 5 study area.

RSA 6

1. STUDY LOCATION

The study area for this RSA includes three segments along Coal Creek Parkway Southeast, Factoria Boulevard Southeast and Southeast Newport Way as shown in Figure 51, on page 42. The zoning designations within study area is primarily single family residential, with Newport High School surrounded by multi-family housing. There are some office zoning designations nearby, as well as a large commercial zoning designation. The school located within the RSA 6 area is described below:

	Newport High School
Address:	4333 Factoria Boulevard Southeast, Bellevue, WA 98006
Grades:	9-12
Number of Students:	1755
Arrival:	8 a.m.
Dismissal:	3 p.m.

2. PROCESS

On Saturday, March 25, 2023 and Saturday, April 1, 2023, the team conducted community walking audits to gather feedback from the public. An extensive public outreach plan was developed and implemented to promote the walking audits to the school communities and local residents. During the community walking audit, the team was able to collect valuable insights, stories, concerns and ideas from about 15 community members.

On Thursday, April 6, 2023, the team conducted a city field visit, which focused on technical insights. During the Monday, April 10, 2023 workshop, the team used the MURAL digital visual collaboration tool to collaborate on synthesizing notes from the community walking audit and city field visit. The facilitator led a verbal discussion in addition to the team's written input.

3. IMPROVEMENTS FOR CONSIDERATION

The improvements for consideration table on the next page provides recommended safety improvements specific to RSA 6, including infrastructure design and policy improvements. These recommendations are based on observations made during the community walking audits, city field visit, and team workshop, as well as the comments submitted on the Engaging Bellevue website. The table is separated by location, and includes the recommended treatment, timeframe, estimated cost range, CMF and improvement lead.[1] Recommendations require further engineering analysis of feasibility and design prior to implementation.

Figure 46: Community Walking Audit at the intersection of Southeast Newport Way and Factoria Boulevard Southeast.

Figure 47: Community Walking Audit for RSA 6.

1 CMFs are sourced from the CMF Clearinghouse. The FHWA CMFs are approximate for the general countermeasure. A specific CMF should be determined for each unique scenario. For selection of CMFs for specific locations in Bellevue, explore the CMF Clearinghouse and apply all relevant factors. All CMFs reported in this report have a 3 star rating or higher and are from US & Canada studies.

4. PLANNED IMPROVEMENTS

There are five planned or proposed capital improvement projects within the RSA 6 study area:

- Coal Creek Parkway/120th Avenue Southeast/I-405: 119th Avenue Southeast is identified as project #54 in the City of Bellevue 2023-2028 Transportation Improvement Program. The project intends to convert the three signalized intersections on Coal Creek Parkway Southeast–two intersections at the I-405 ramps and the 119th Avenue Southeast & 120th Avenue Southeast intersection–to a series of four roundabouts.
- Basel Newport Townhomes is currently under construction and involves 58 townhomes in nine separate buildings on a 5.06-acre project site south of the Coal Creek Parkway Southeast and Factoria Boulevard Southeast intersection, shown in Figure 60.
- Newport High School Modernization project includes frontage improvements along the public roadway and walkway surrounding the school property. The project proposes updates to sections of Factoria Boulevard Southeast from Southeast 44th Street to Coal Creek Parkway Southeast, Coal Creek Parkway Southeast from Factoria Boulevard Southeast to 124th Avenue Southeast, and 124th Avenue Southeast along school property lines. This will include pavement restoration, wider sidewalks, pavement markings, curb ramps, bus shelters, lighting, and the addition of planters, retaining walls, traffic curbs, and other designs to improve safety and comfort.
- Coal Creek Parkway Southeast from Factoria Boulevard Southeast to Southeast 66th Street is a proposed speed management project, shown in Figure 62. The project proposes lowering the speed limit from 40 mph to 35 mph and adding profiled edge line raised pavement markers.
- The Holy Cross Affordable Housing Project is proposed to be located at 4315 129th Place Southeast, Bellevue. The preliminary proposed plan is to remove the existing structures and develop a new 3,500 square foot Religious Institution and 25 affordable single family attached housing units (average 1,250 square feet) with surface parking (58 stalls).

Figure 48: Planned Improvement Basel Newport Townhomes.

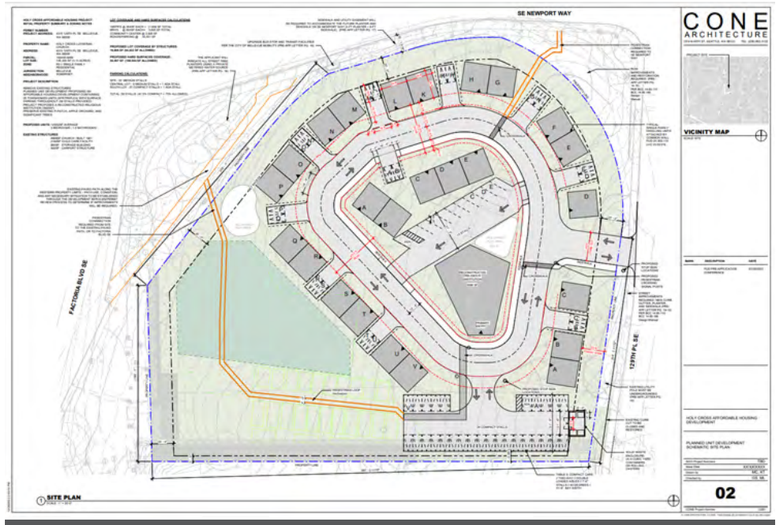


Figure 49: City of Bellevue planned Improvement Holy Cross Affordable Housing Project.

Figure 50: City of Bellevue planned Improvement Coal Creek Parkway Southeast from Factoria Boulevard Southeast to Southeast 66th Street.

Table 8: Recommended Improvements for RSA 6

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
RSA-wide	Study the potential impact on bus stop improvements, transit signal priority, and other bus priority infrastructure.		✓		$$$		CoB/KCM
N1	Consider adding lighting on the west side of the Factoria Boulevard Southeast and Southeast Newport Way intersection.		✓		$		CoB
	On the west leg of the Factoria Boulevard Southeast and Southeast Newport Way intersection, consider upgrading the crossings with the continental style crosswalks and detectable warning pads.		✓		$	0.6	CoB
N2	Conduct a bicycle study at the intersection of Factoria Boulevard Southeast and Southeast Newport Way to evaluate potential bicycle facility improvements. Consider painting the bike lanes along Southeast Newport Way green to improve visibility and continuing the green pavement markings through the Factoria Boulevard Southeast intersection to help navigate cyclists making a westbound left-turn. Consider adding a bike box in the westbound direction ahead of vehicle traffic or adding wayfinding signage.			✓	$$$-$$$$		CoB
	On the east leg of the Factoria Boulevard Southeast and Southeast Newport Way intersection, consider installing reduced curb radii or channelization islands (i.e., "pork chops") for the northbound right-turn and westbound right-turn movements.		✓		$$$-$$$$	0.56	CoB
N3	On the southeast corner of Factoria Boulevard Southeast and Southeast Newport Way intersection, increase the audio volume for the north leg pedestrian crossing push button.	✓			$		CoB
	Consider making the southeast corner of Factoria Boulevard Southeast and Southeast Newport Way intersection a rest point along the asphalt path. Adding benches, artwork and/or a water feature may provide a community gathering area for the upcoming affordable housing project that will be built in the area.			✓	$-$$$$		CoB
	Upgrade the asphalt path into a multi-purpose path (MPP) and add a curb ramp from the MPP to the on-street bike facility to eastbound Newport Way.			✓	$$$$	0.5	CoB
N4	On the southeast corner of Southeast Newport Way and 129th Place Southeast, consider upgrading the pedestrian crossing signage to school crossing signage.		✓		$		CoB/BSD

Figure 51: RSA 6 study area.

Estimated Implementation Cost Key	
$	≤ $75,000
$$	$75,000-$150,000
$$$	$150,000-$300,000
$$$$	≥ $300,000

The estimated time frame provided is for improvement consideration, not for constructing or implementing the recommended improvement. The City is limited in the number of improvements that can be implemented per year due to staff capacity, funding, recommendation feasibility, and other factors.

Time Frame Key	
Near-term (Near)	≤ 2 years
Intermediate (Int.)	2 - 5 years
Long-term (Long)	≥ 5 years

Key	
1 Green	Western Area, W#
1 Yellow	South Area, S#
1 Purple	North Area, N#

#: Location code for recommended improvement

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
N5	At the Southeast Newport Way and 130th Place Southeast intersection, evaluate the turning radii and consider the potential of adding a crosswalk on the west leg of the intersection.		✓		$$$	0.6	CoB
	At the Southeast Newport Way and 130th Place Southeast intersection, improve the bike buffer around the corner to avoid vehicles tracking over the bike lane.		✓		$		CoB
	Along Southeast Newport Way near Newport Children's School assess establishing school zones for all streets in the RSA 6 Area.		✓		$		CoB/PPO
	Along Southeast Newport Way near Newport Children's School, consider enhancing the advanced warning signage to the 129th Place Southeast pedestrian crossing.		✓		$		CoB
	Determine feasibility for enhanced pedestrian crossing treatment (e.g., RRFB) or a full traffic signal, if warranted.		✓		$$	0.53	CoB
N*	Evaluate the transit facilities at the intersection of Southeast 44th Street and Factoria Boulevard Southeast. Consider moving the southbound near-side transit stop to a far-side stop to allow more space for students to safely wait for the bus with a larger shelter. Also, consider moving the northbound bus stop to a near-side stop on the southeast corner.		✓		*		KCM
	Upgrade the parallel crosswalk markings to high visibility continental crosswalks for crossings at the intersection of Southeast 44th Street and Factoria Boulevard Southeast.	✓			$	0.6	CoB
S1	Trim the vegetation on the east side of Factoria Boulevard Southeast that is encroaching on the sidewalk.	✓			$		CoB

* Subject to partner agency.

Figure 51: RSA 6 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
S2	Trim the vegetation on the north corner of Factoria Boulevard Southeast and Coal Creek Parkway Southeast.	✓			$		CoB
	Add wayfinding signage at the intersection of Factoria Boulevard Southeast and Coal Creek Parkway Southeast for cyclists.	✓			$		CoB
	Provide signage directing pedestrians to only cross Coal Creek Parkway Southeast on the south leg of the intersection.	✓			$		CoB
	Refresh pavement markings for all directions at the intersection of Factoria Boulevard Southeast and Coal Creek Parkway Southeast.	✓			$		CoB
	Consider reducing the turning radius for the southbound right-turn movement at the intersection of Factoria Boulevard Southeast and Coal Creek Parkway Southeast by installing a mountable curb (i.e., truck apron).		✓		$$$$		CoB
S3	Consider installing a physically separated bike lane in both directions along Coal Creek Parkway Southeast to meet the Level of Traffic Stress (LTS) target in the Mobility Implementation Plan.			✓	$$$$		CoB
	Consider reducing the travel lane width to the minimum required for a priority truck route.		✓		$$$		CoB
	Consider installing a radar feedback sign for speed management.		✓		$$		CoB
S4	Conduct a study to evaluate pedestrian and bicycle improvements for the east side of Coal Creek Parkway Southeast, south of the Factoria Boulevard Southeast intersection. Currently, there are no pedestrian facilities on the west side of Coal Creek Parkway Southeast. There may be an opportunity to improve lighting, reduce the posted speed limit, reduce vehicle lane widths and provide a separated shared use path on the east side of Coal Creek Parkway Southeast.		✓		$$$$		CoB
	Consider installing a radar feedback sign for speed management.		✓		$$		CoB
W1	Move the transit sign (#82785) on the I-405 on-ramp closer to the sidewalk (south of the transit shelter) to improve visibility.	✓			$		KCM
	Provide a sidewalk connection to the transit stop (#82785) on the I-405 on-ramp.		✓		$$$$	0.41	CoB/WSDOT/KCM

Figure 51: RSA 6 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W2	Remove or fix the broken delineators on the northeast corner of the I-405 on-ramp and Coal Creek Parkway Southeast intersection.	✓			$		CoB
	Upgrade the traffic signal heads with retroreflective back plates and consider adding signal head louvers (vertical slats or “fins”) or programmable heads for the signal heads around the I-405 and Coal Creek Parkway Southeast intersection.		✓		$		CoB
	Refresh pavement markings for all directions at the intersection I-405 and Coal Creek Parkway Southeast.		✓		$		CoB
	Evaluate bicycle crossing markings and signage through Coal Creek Parkway Southeast (across 119th Avenue Southeast and I-405 ramp intersections). Consider a two-stage turn box to improve bicycle connectivity.	✓			$-$$		CoB
	Consider reconstructing the curb ramp on the northeast corner of I-405 and Coal Creek Parkway Southeast intersection. Consider reorienting the curb ramp to face the crosswalk or designing a mountable curb bulb-out for the northeast corner.		✓		$$$$		CoB
	Consider adding a pedestrian refuge in the median of the south leg crossing across Coal Creek Parkway Southeast, as no vehicular movements use this space.		✓		$$$		CoB
W3	Modify the signal timing at 119th Avenue Southeast and Coal Creek Parkway Southeast intersection to allow more all-red time after the northbound left turn movement (to delay the Coal Creek Parkway Southeast westbound traffic by a few more seconds). Increase the pedestrian walk time for the east leg on Coal Creek Parkway Southeast by 5 seconds or more.	✓			$		CoB
	Evaluate improving the connection to residential area to the northeast of the 119th Avenue Southeast and Coal Creek Parkway Southeast intersection. There is currently a gravel path and wooden stairwell.		✓		$$		CoB
W4	Consider installing a mountable curb median along Coal Creek Parkway Southeast between 124th Avenue Southeast and 119th Avenue Southeast.		✓		$$$-$$$$		CoB
	Consider reducing the travel lane width to the minimum required for a priority truck route.		✓		$$-$$$		CoB
	Consider installing a radar feedback sign for speed management.		✓		$$		CoB

Figure 51: RSA 6 study area.

LOCATION CODE	IMPROVEMENTS FOR CONSIDERATION	TIMEFRAME			COST	CMF	IMPROVEMENT LEAD
		NEAR	INT.	LONG			
W5	At the intersection of 124th Avenue Southeast and Coal Creek Parkway Southeast, consider adding a pedestrian refuge island on the east leg of the intersection.		✓		$$$	0.86	CoB
	At the intersection of 124th Avenue Southeast and Coal Creek Parkway Southeast, add more intuitive wayfinding signage (icons and pavement coloring) to direct westbound cyclists to the multipurpose path on the south side of Coal Creek Parkway Southeast.		✓		$		CoB
	For the southbound approach at the 124th Avenue Southeast and Coal Creek Parkway Southeast intersection, consider installing a bicycle ramp alignment that has detectable warning surfaces and a taper to direct cyclists to the sidewalk.		✓		$$$		CoB
	Consider adding a bicycle ramp from the multi-purpose path on the south side of Coal Creek Parkway Southeast approaching the intersection, creating a transition to the on-street bike facility.		✓		$$$		CoB
W6	Evaluate the left-turn movement at the intersection of 125th Avenue Southeast and Coal Creek Parkway Southeast. Evaluate the sight distance setback lines per Bellevue Standard drawing RL-100-1 for the northbound vehicles making a left turn movement onto Coal Creek Parkway Southeast. Study the feasibility of prohibiting the left-turn movement and providing a right-turn then U-turn alternative, or improving the design of the median island to more intuitively guide road users.		✓		$-$$$$		CoB

Figure 51: RSA 6 study area.

CONCLUSION

POLICY IMPROVEMENTS FOR CONSIDERATION

As a result of discussions during the workshops, the following policy changes to city code are recommended to provide a more consistent application of safety treatments:

- Provide additional design guidance on access management to ensure adequate sight distance from driveways and limit conflicts and exposures, especially for people walking and biking.
- Evaluate RTOR restriction on streets with high pedestrian crossing, intersection with high conflicts or locations with children crossing for pedestrian safety. If prohibiting right turns on red is not possible, evaluate part-time RTOR.
- Evaluate pedestrian exposure time at all signalized intersections and update crosswalk timing design guidance to ensure adequate crossing time, and develop guidance for implementation of LPIs and other safety features near school zones and locations with high pedestrian volumes.
- Revisit Bellevue Municipal Code 9.11.100 regarding trash and recycle bin proper placement to ensure it is not in pedestrians walk path.

LESSONS LEARNED

Based on the success and lessons learned of this project, the following activities are recommended for future RSA projects:

- Hold community walking audits on the weekends.
- Include results from community walking audits as part of the inputs for the RSA workshop.
- Use the MURAL digital visual collaboration tool for the virtual RSA workshop to encourage parallel inputs by all participants.
- Coordinate with school principals to distribute information on the RSAs to parents and students through flyers, announcements, websites, e-newsletters and text messages.
- Coordinate with school principals to provide community service credits to high school students who attend the community walking audits.
- Post informational Engaging Bellevue signage at intersections within the RSA area.
- Conduct social media outreach via Twitter, Nextdoor, and Facebook.
- Distribute information about the community walk audits to nearby private schools, residential complexes, churches, retirement centers and other community amenities.
- Develop a multi-language project website that hosts a questionnaire and an interactive comment map to gather broad-based public feedback in languages used by students and households in the neighborhood, potentially including but not limited to Spanish, Japanese, Cantonese, Mandarin, Korean, Punjabi, Russian and Vietnamese.
- Update the City of Bellevue's crash database with the latest crash data available for recent years.
- Focus potential treatments on implementation activities (e.g., design and installation), rather than considerations in future plans.
- As part of future RSA studies, include next steps as part of the work products – location-specific feasibility studies, pilot programs and conceptual design – to move directly into project and strategy implementation.

NEXT STEPS

The RSA recommendations should be revisited annually, and the City of Bellevue may consider conducting a follow-up RSA every five years, or on a schedule determined by the City during development of a citywide RSA program, to evaluate effectiveness of implemented recommendations. Measuring the effectiveness of each improvement implemented is key to the success of eliminating fatal and serious injury crashes in these areas. The City of Bellevue should identify which improvements are working in order to apply them across Bellevue in similar contexts.

The City of Bellevue should move forward on near-term safety treatments deemed feasible, track the effectiveness of those treatments, and replicate those that provide the most benefit. For intermediate and long-term safety recommendations, City staff should begin the process of evaluating feasibility and begin identifying funding. This could include Federal and State funding.

Figure 52: RSA 2 City Field Audit near Highland Middle School.

Figure 53: Highland Middle School Student, Ethan Lee.