



City of Sammamish

## Issaquah-Fall City Road Improvements Project

Phase I Design: 242nd Avenue SE to Klahanie Drive SE

# Welcome

Welcome to the second community workshop for the Issaquah-Fall City Road Improvements Project.

## AGENDA

**6:00 p.m. – Welcome and sign-in**

**6:05 p.m. – Presentation**

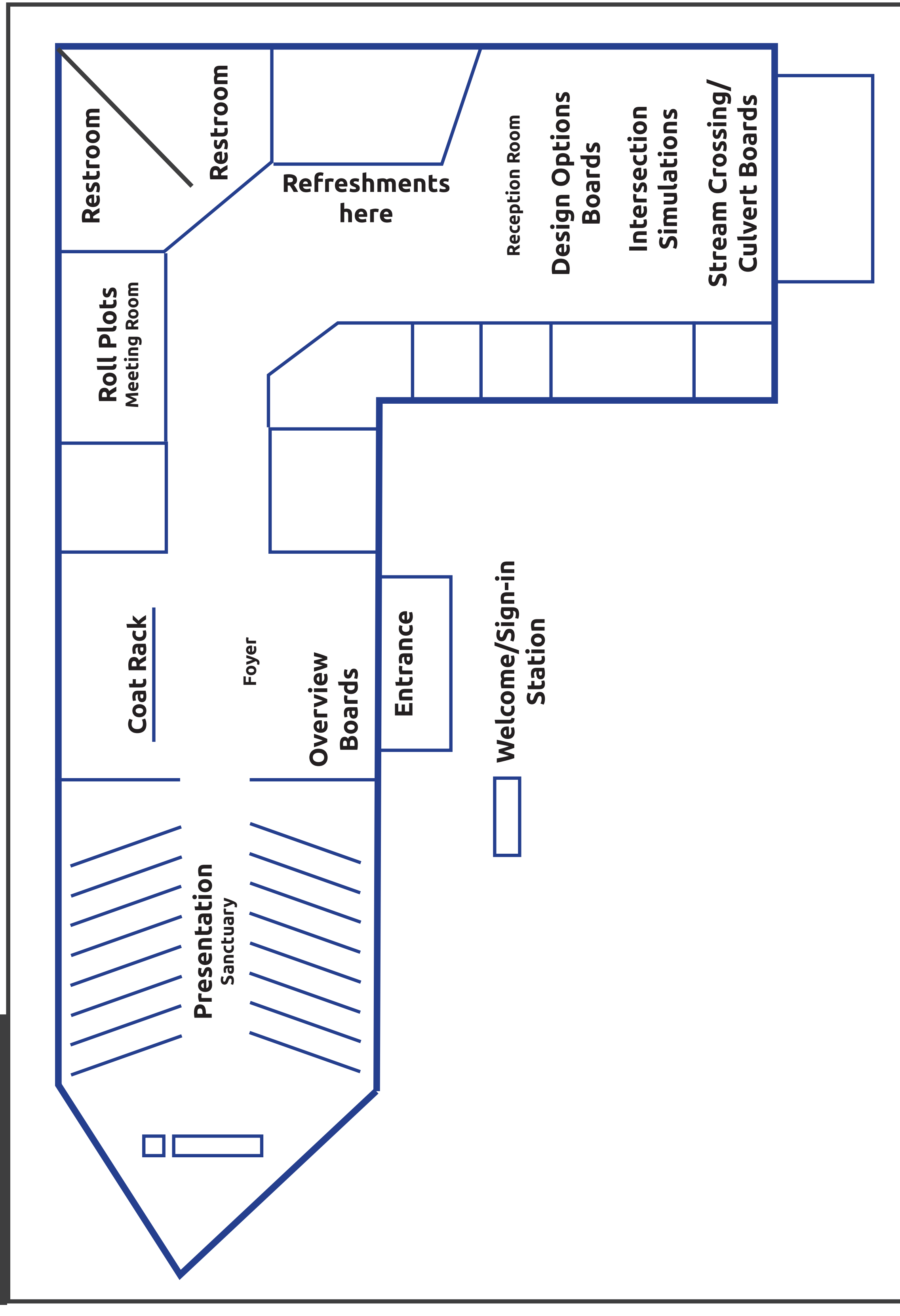
- Project overview
- Design options
- Brief Q & A

**6:35 p.m. – Open house stations**

- View design options
- Provide feedback
- Talk to project staff

**8:00 p.m. – Event ends**

### Room layout





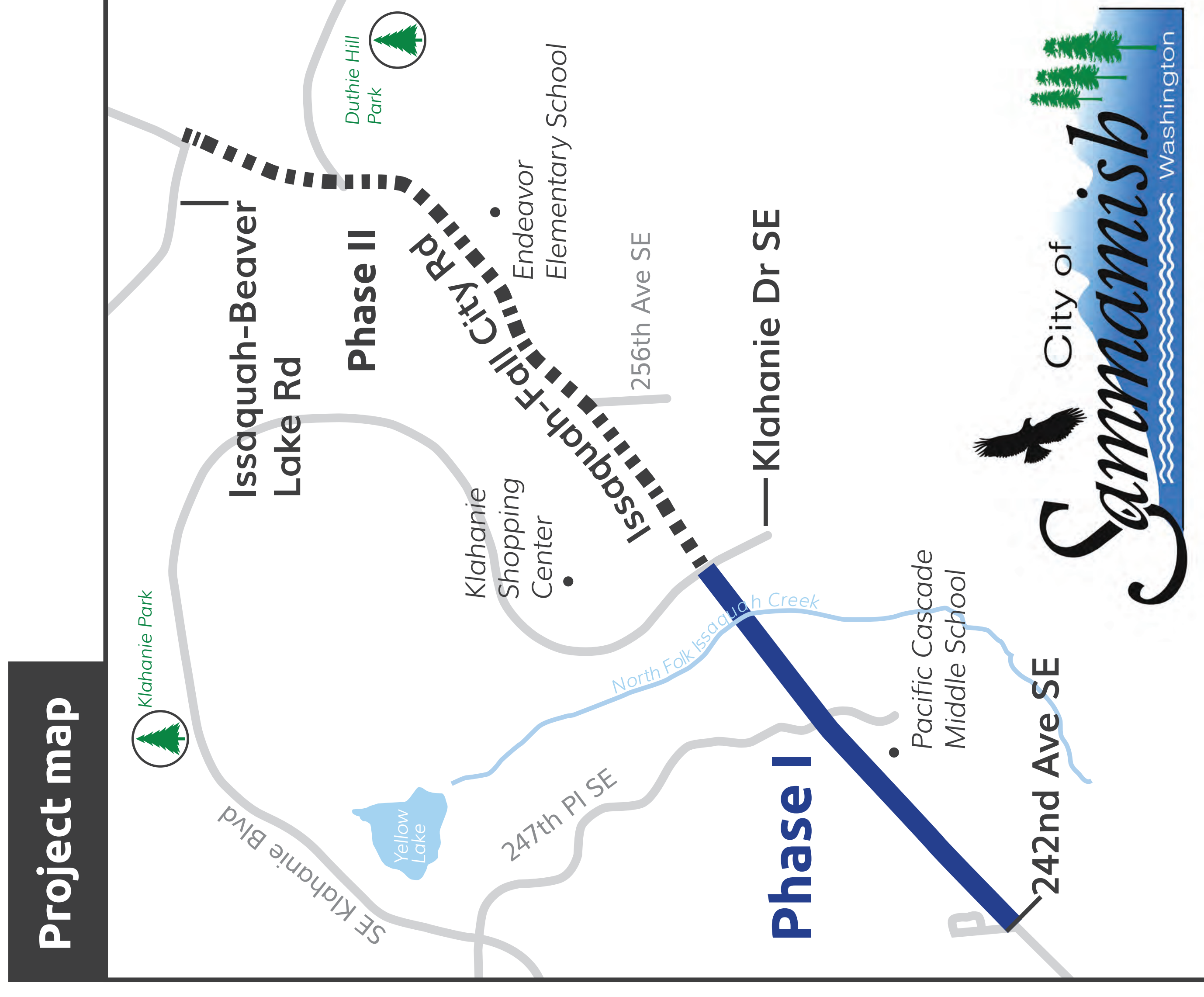
City of Sammamish

## Issaquah-Fall City Road Improvements Project

Phase I Design: 242nd Avenue SE to Klahanie Drive SE

# Project Overview

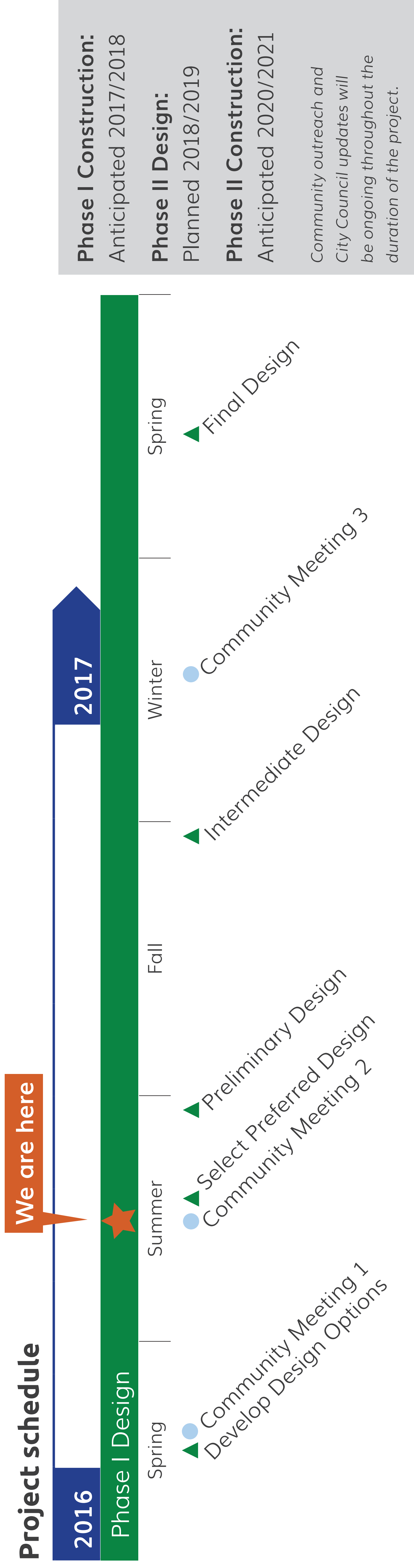
- The City of Sammamish is planning to widen Issaquah-Fall City Road from 242nd Avenue SE to Issaquah-Beaver Lake Road SE.
- The Issaquah-Fall City Road Improvements Project will:
  - Improve safety for drivers, cyclists, and pedestrians along the roadway and at intersections
  - Improve operations at intersections
  - Increase capacity with additional travel lanes
  - Protect mature trees and environmentally sensitive areas where possible





# Schedule

In Spring 2016, the City of Sammamish started design for Phase I of the Issaquah-Fall City Road Improvements Project. During Phase I the City will consider alternatives and finalize the design for Issaquah-Fall City Road improvements between 242nd Avenue SE and Klahanie Drive SE.





City of Sammamish

**Issaquah-Fall City Road Improvements Project**

Phase I Design: 242nd Avenue SE to Klahanie Drive SE

# What We've Heard

The table below provides a summary of high-level community feedback on the proposed improvements for Issaquah-Fall City Road and how the City will work to incorporate this feedback into the preferred design option.

Topic	Community Feedback	City Response
Roadway width and bike lanes	Preference for a 5-lane roadway with a buffered or protected bike lane throughout the corridor.	All options will have a bike lane throughout the corridor. There are both 5- and 4-lane options for the community to provide feedback on this evening and online through July 18.
Roundabouts vs. traffic signals	No clear preference for roundabouts or traffic signals. Priority is to use design option that keeps traffic moving and people safe.	Both roundabout and signal options are currently available for public feedback this evening and online through July 18. Supporting traffic data is shared for each option to inform additional input.
Pedestrian crossings	Concern for pedestrian safety along the corridor.	Pedestrian safety has been evaluated carefully under each design option. Results of these analyses are available this evening and online through July 18, including information about pedestrian safety at roundabouts.
Green space and trails	Interest in protecting green space, mature trees and keeping existing trails where possible, including the Klahanie Trail.	Design options have been provided that protect and add green space. While some tree removal will be required under each option, impacts to mature trees will be minimized to the greatest extent possible. The Klahanie Trail is in Phase II of the project. Design of Phase II is anticipated to begin in 2018. Currently, there are no plans to impact the Klahanie Trail.
Noise	Concern for increased noise levels should buffer zones be reduced as a result of roadway widening.	The City will plant additional vegetation along the roadway, where possible, to help mitigate any additional noise from the roadway improvements.



City of Sammamish

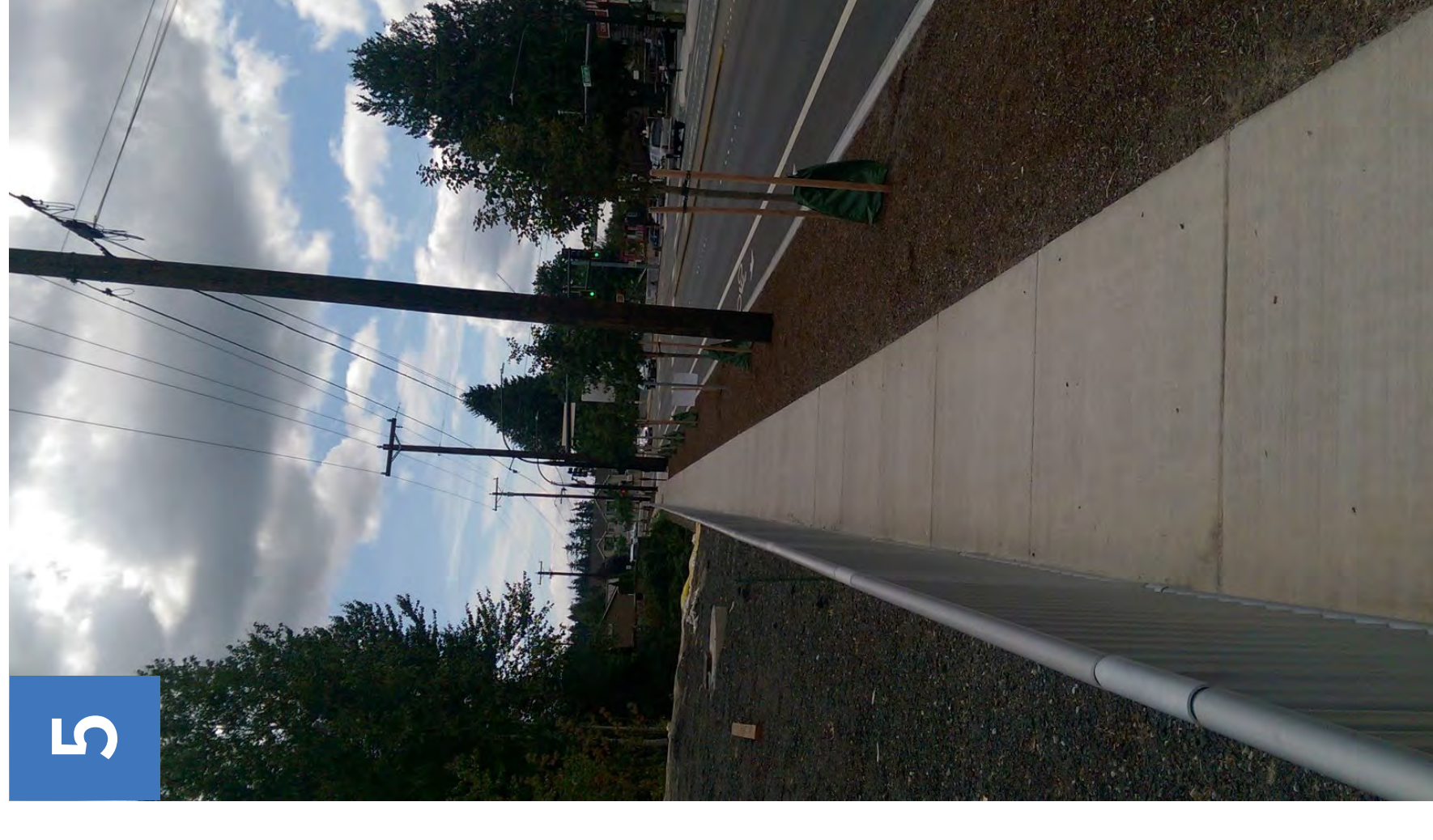
## Issaquah-Fall City Road Improvements Project

Phase I Design: 242nd Avenue SE to Klahanie Drive SE

# Design Elements for All Options

Based on feedback from the community and City Council, the project team has identified improvements that will be incorporated into all design options, including:

- 1 Buffered bike lane
- 2 Amenity zone
- 3 Enhanced landscaping
- 4 Lighting
- 5 Sidewalk (may only be on one side of the roadway at the stream crossing)



*Photos are examples of improvements for discussion purposes only.*

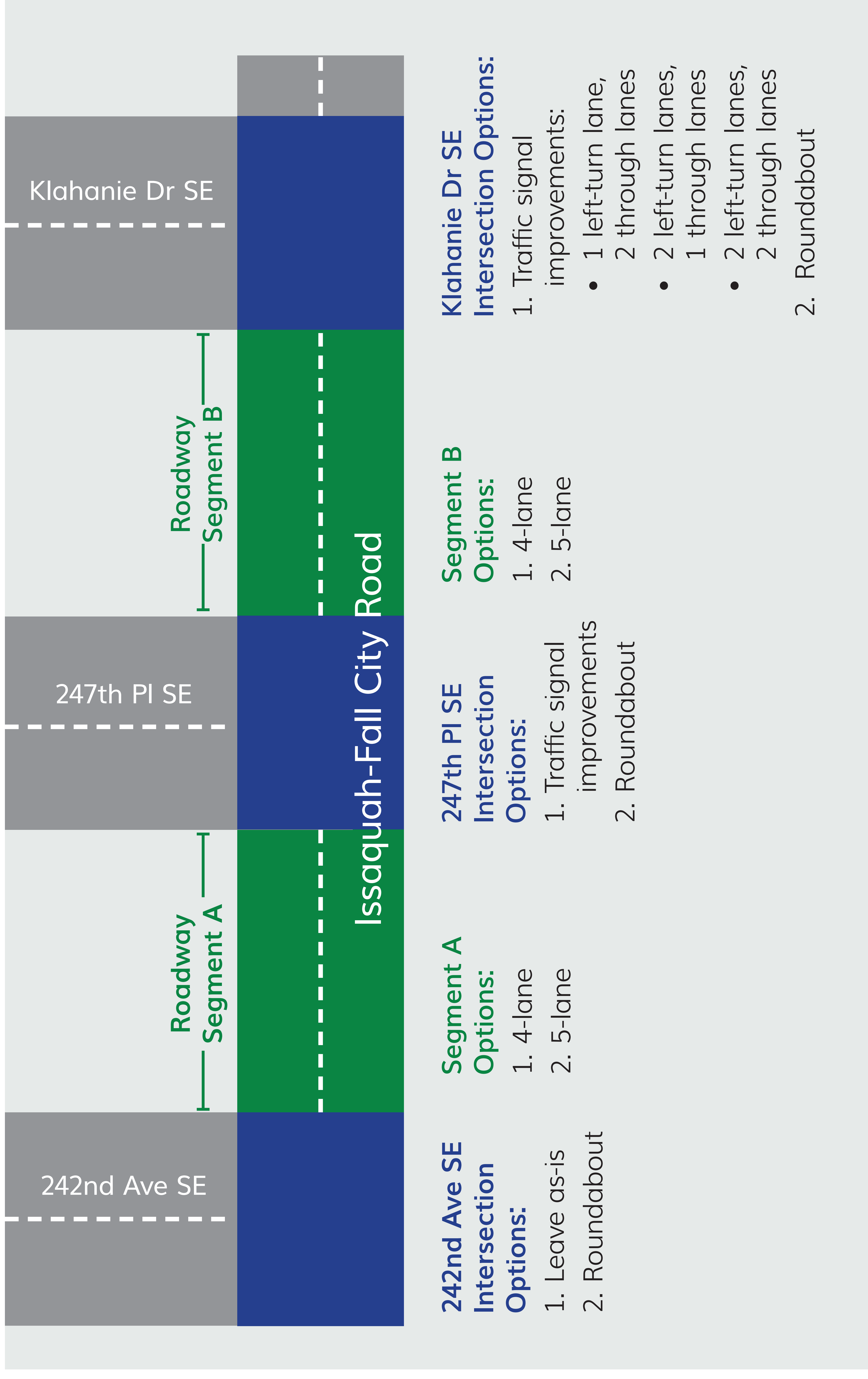
# Intersection and Segment Design Options

The City considered a wide range of design options for Phase I of the corridor. A number of design combinations were evaluated based on the options for each intersection and segment.



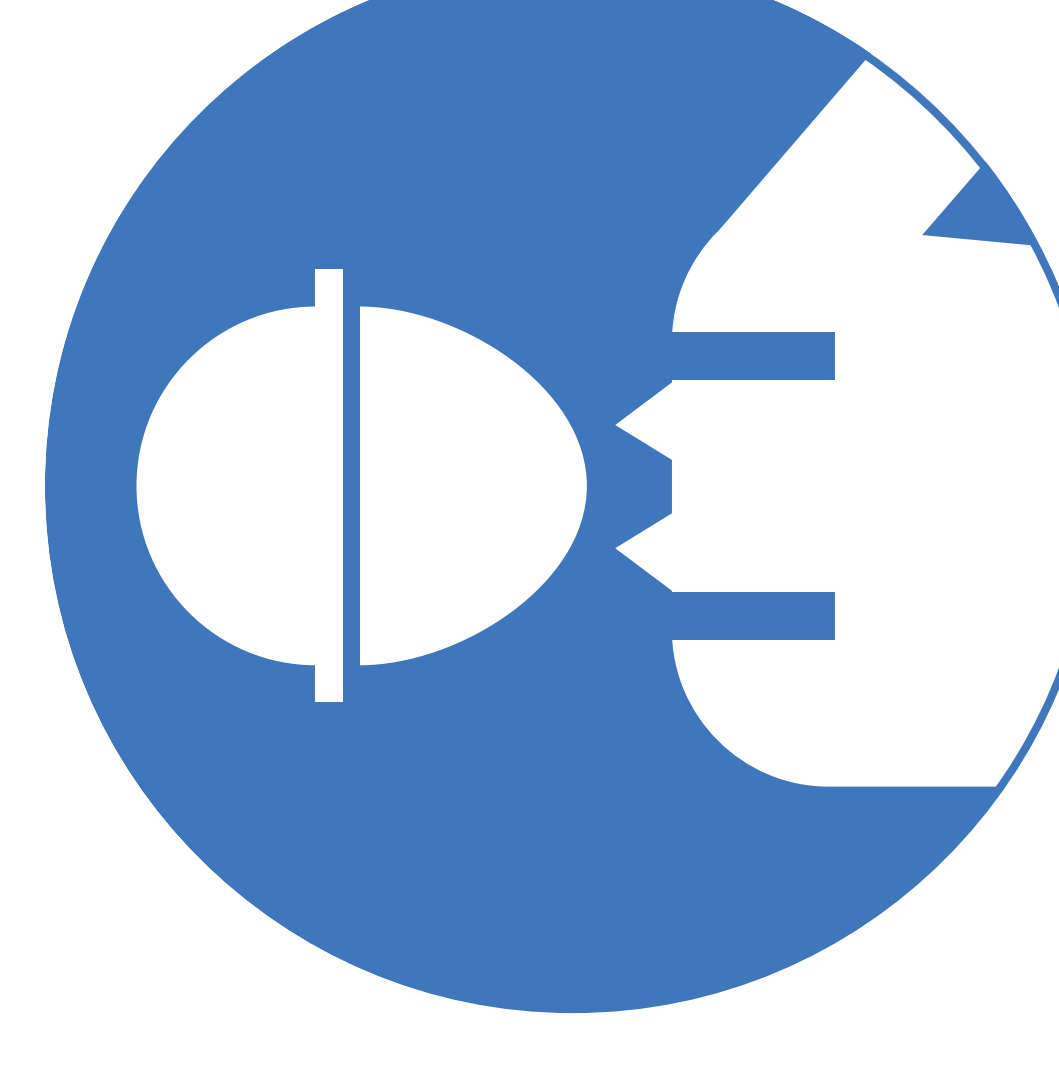
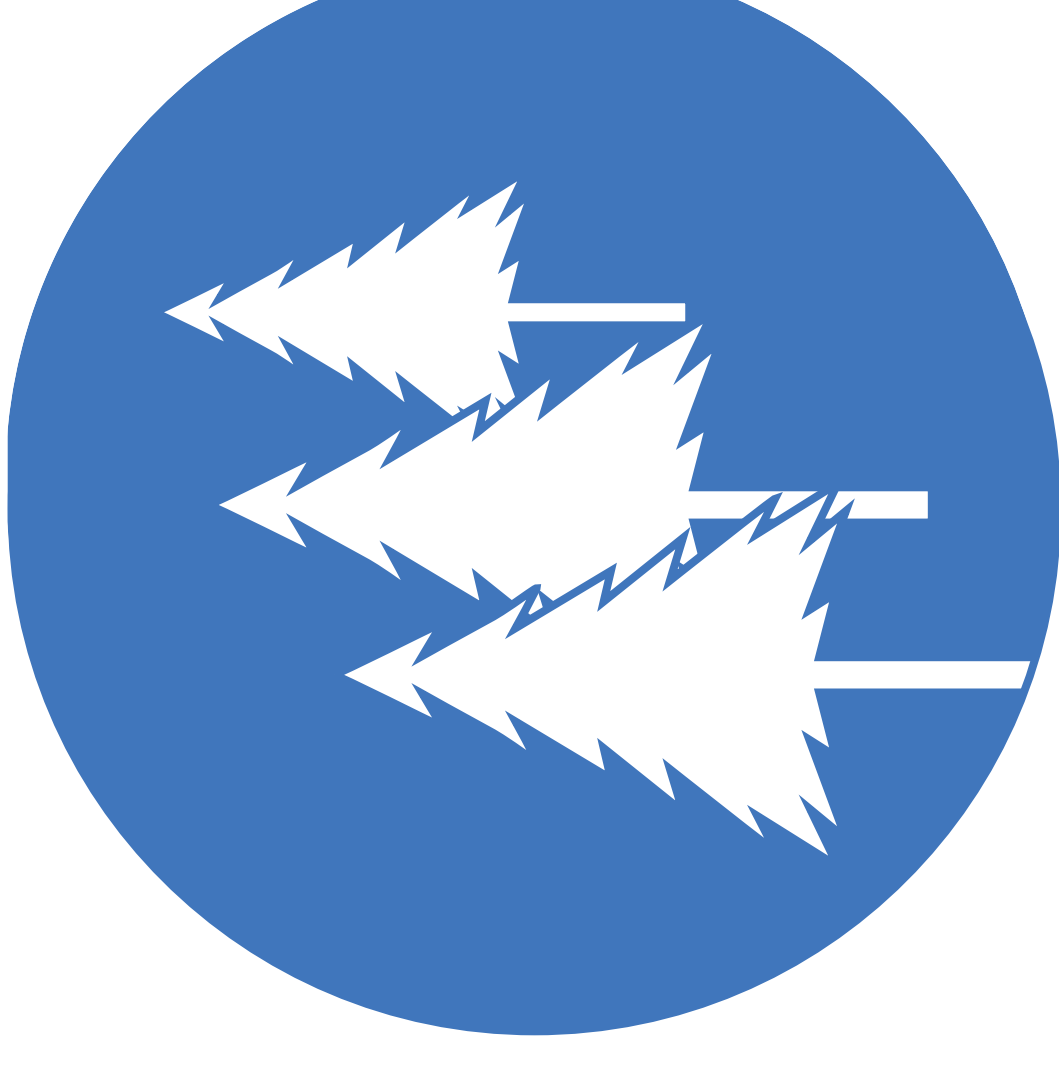


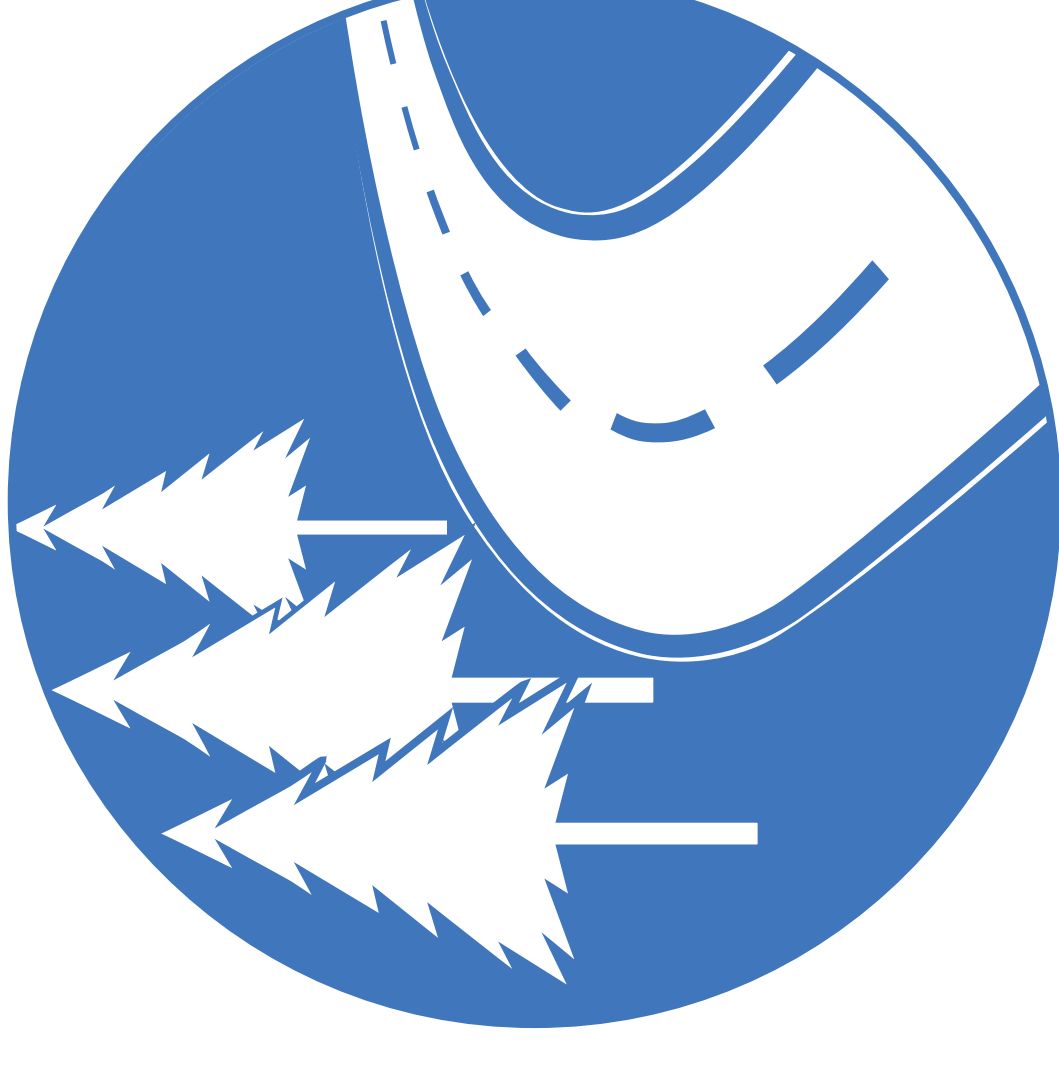
Five options emerged as the highest-performing. Detailed drawings of these design options are available for your review on the following boards.

**After considering all five options, please place a sticker-dot on the design option board you like best.**

## Phase I: 242nd Avenue SE to Klahanie Drive SE



The project team considered a number of different factors when reviewing and evaluating each design option. A description of these factors can be found in this table:

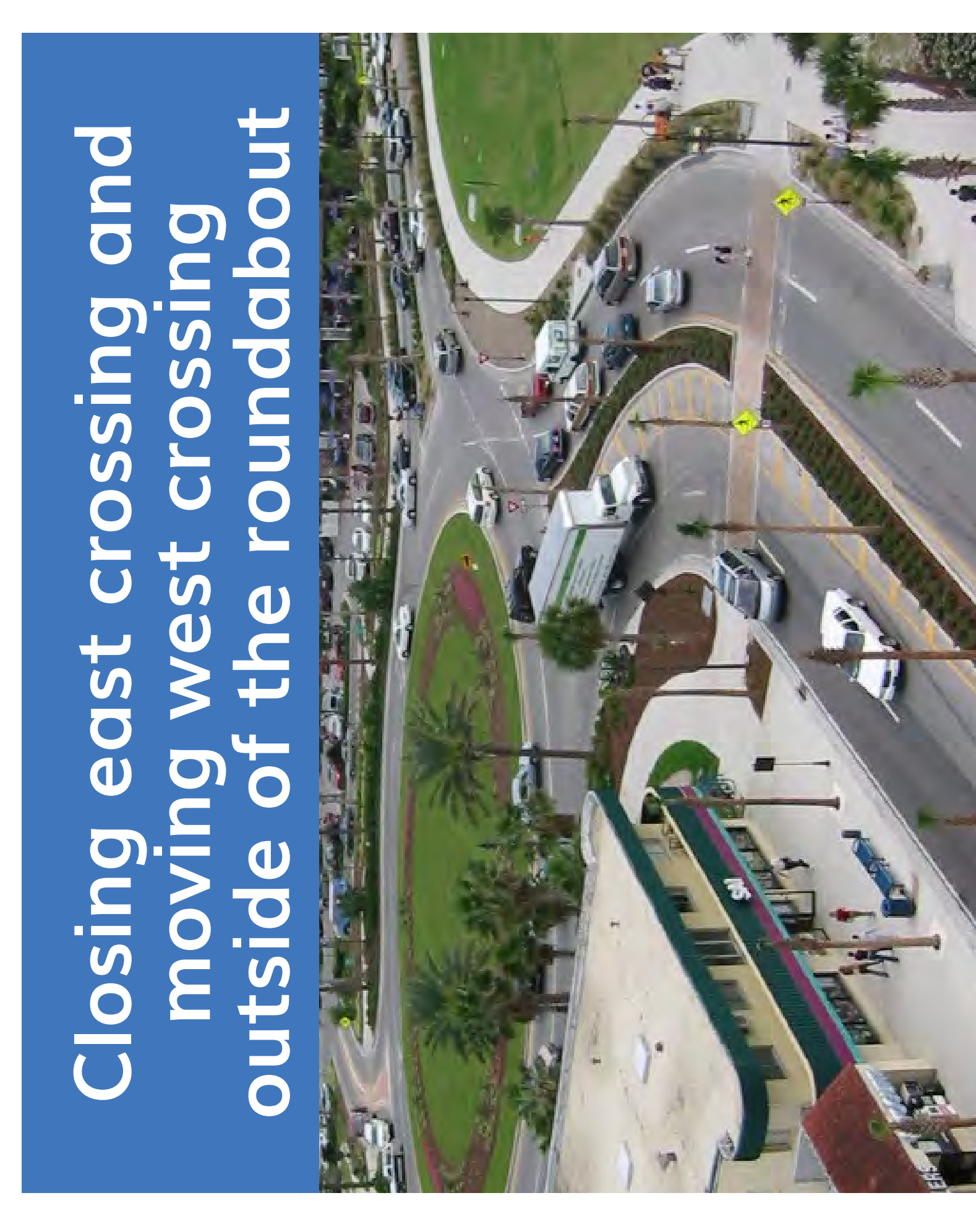
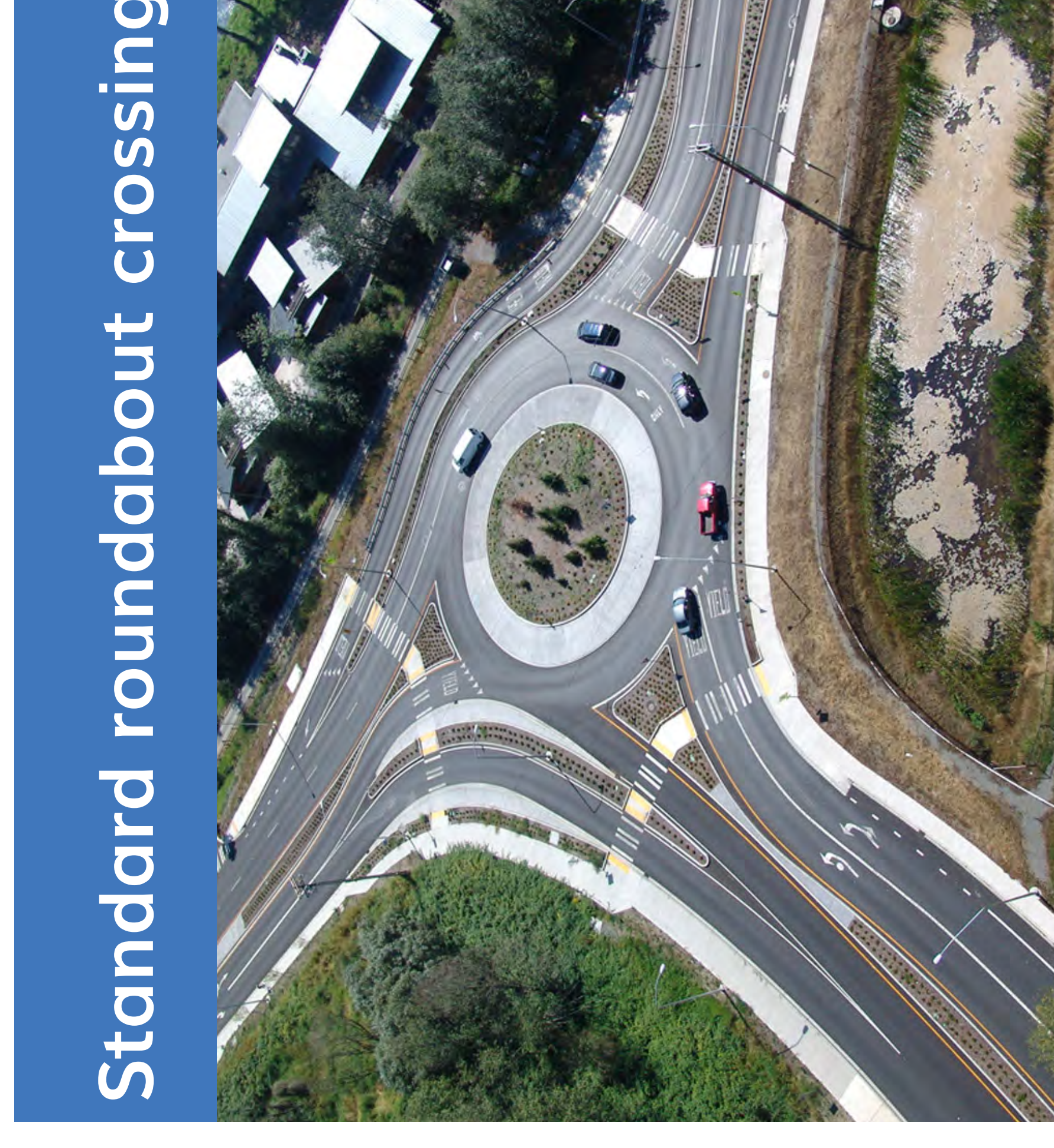
<p><b>Operations: Opening year</b></p>  <p>Movement throughout the corridor and at each intersection once construction is complete.</p>	<p><b>Operations: Future</b></p>  <p>The expected movement throughout the corridor and at each intersection in 2035.</p>	<p><b>Cost</b></p>  <p>The estimated cost to design, build, and maintain each roadway design option.</p>	<p><b>Maintenance</b></p>  <p>Includes staff time, landscaping, and updating and replacing equipment over time.</p>
<p><b>Environment</b></p>  <p>Ability to minimize impacts to sensitive areas (e.g. wetlands), amount of impervious surface, and impacts to trees.</p>	<p><b>Right-of-way (ROW) impacts</b></p>  <p>The anticipated impacts to private property.</p>	<p><b>Safety</b></p>  <p>Ability for pedestrians, cyclists, and vehicles to safely navigate the corridor, particularly at intersections.</p>	<p><b>Aesthetics</b></p>  <p>Ability to match the look and feel of the design with that of the surrounding community.</p>

# Pedestrian Safety and Roundabouts

## What we know:

- Roundabouts reduce injury crashes by 75 percent at intersections where stop signs or signals were previously used for traffic control<sup>1</sup>
- Drivers must slow down and yield to traffic and pedestrians before entering a roundabout<sup>2</sup>
- Speeds in a roundabout are typically between 15 and 20 miles per hour<sup>2</sup>
- The lower design speed of roundabouts are likely to improve yielding, safety, and comfort for pedestrians and bicyclists<sup>3</sup>
- Compared to traditional intersections, roundabouts typically offer the following safety benefits and features for pedestrians<sup>3</sup>:
  - Fewer conflict points
  - Higher visibility of pedestrians in the crosswalk
  - Shorter wait time for pedestrians to cross than at signalized intersections
  - Lower exposure to motor vehicles because of the shortened crossing distance
  - Simpler crossing due to the splitter islands, which provide mid-crossing refuge and allow the pedestrian to focus on traffic from one direction at a time

## What options are being considered for pedestrian crossing at roundabouts on Issaquah-Fall City Road?

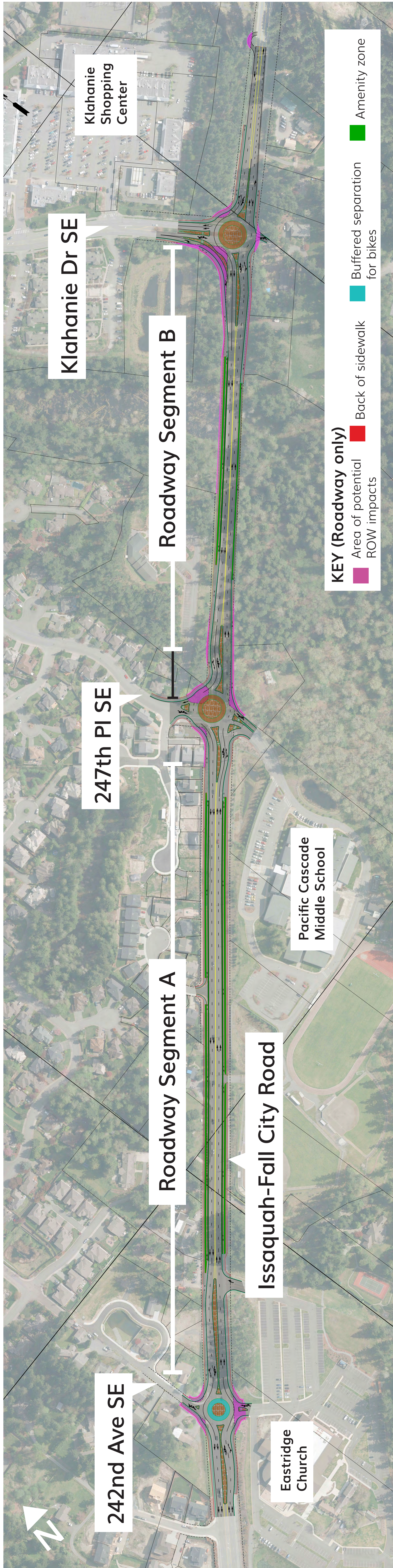


*Photos are examples of improvements for discussion purposes only.*

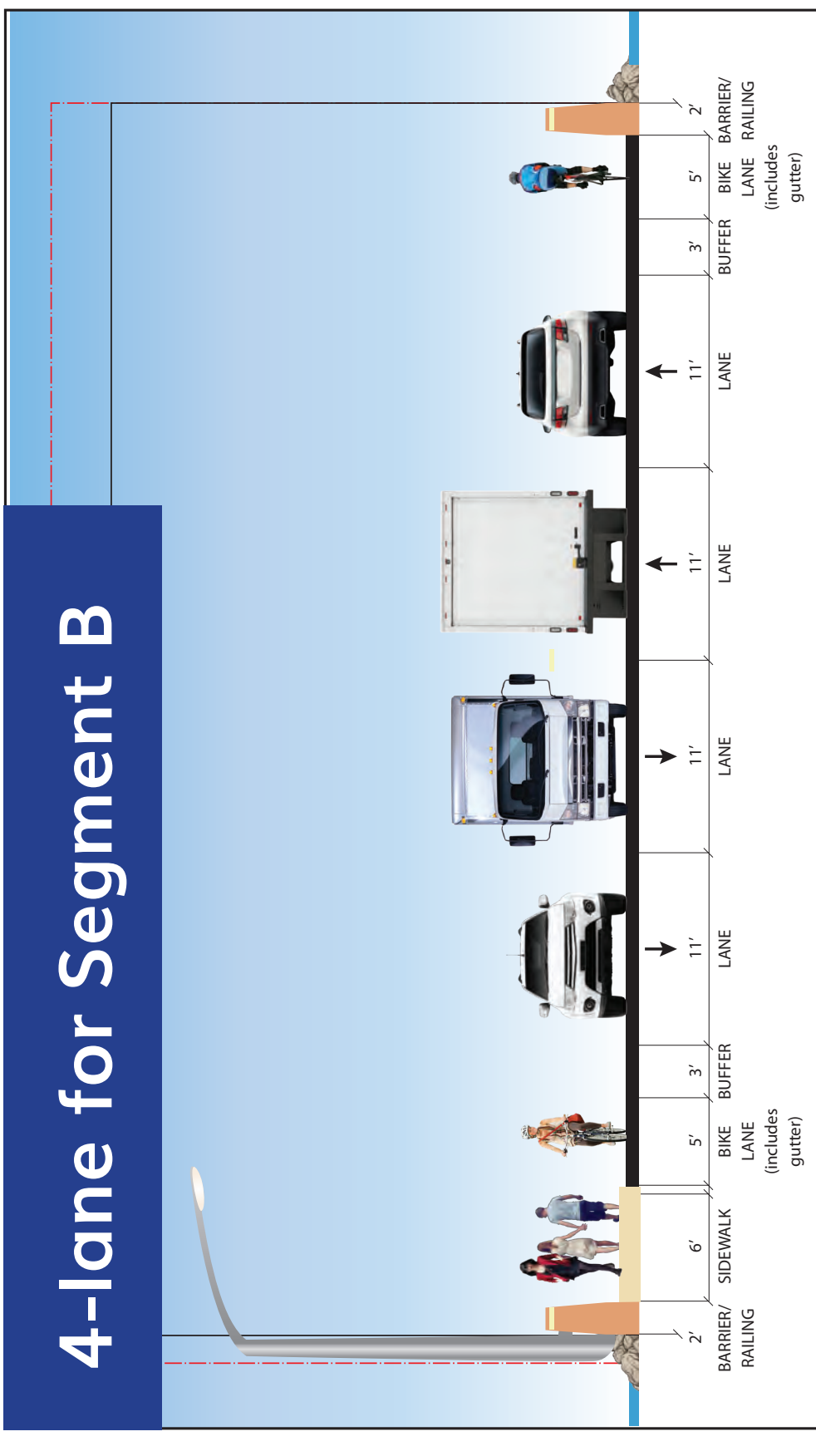
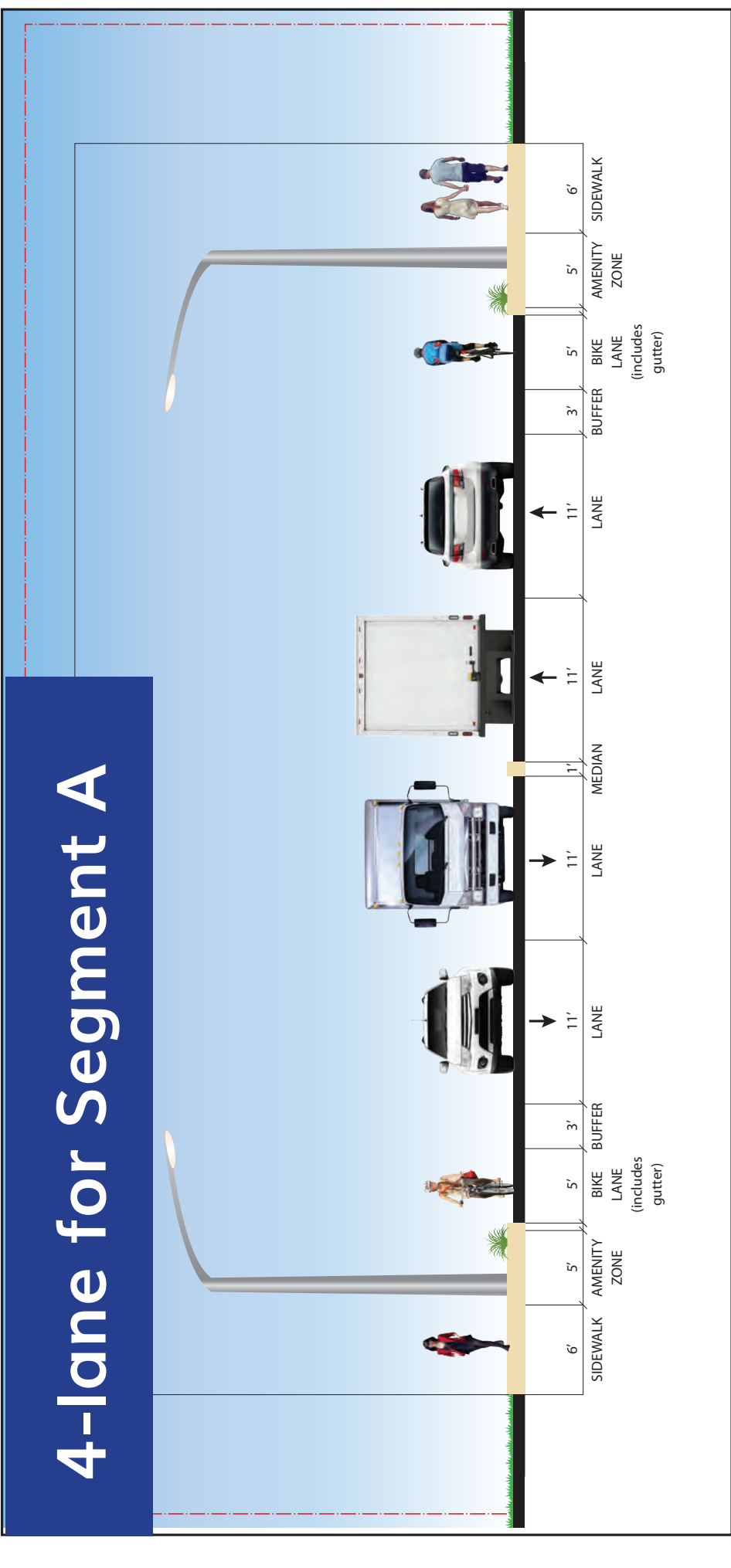
1 - Insurance Institute for Highway Safety  
 2 - WSDOT Roundabout Benefits  
 3 - FHWA/Safe Routes to School



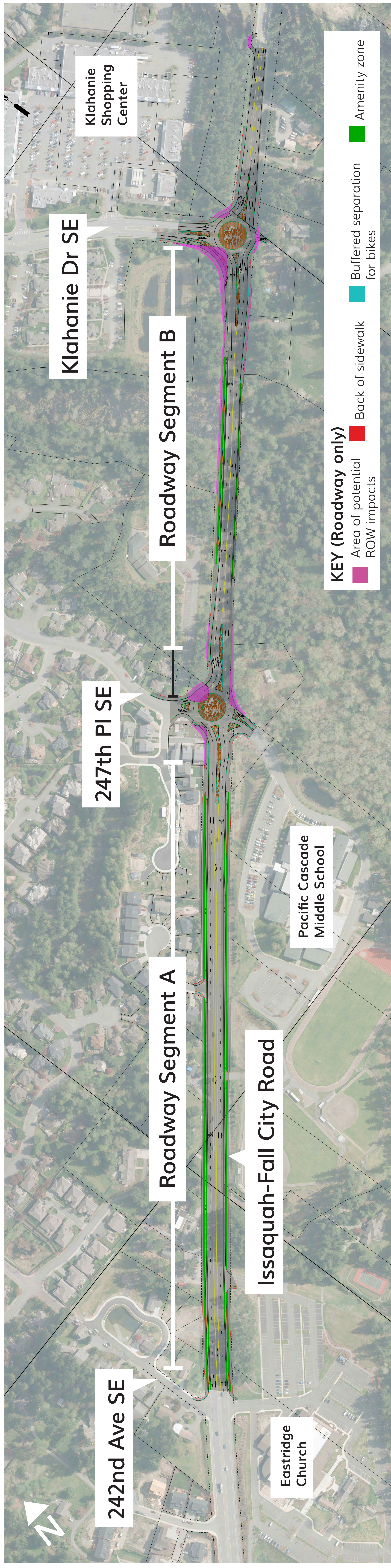
**Option 1:** Roundabout at 242nd Ave SE, 4-lane section between 242nd Ave SE and 247th PI SE, roundabout at 247th PI SE, 4-lane section between 247th PI SE and Klahanie Dr SE, roundabout at Klahanie Dr SE.



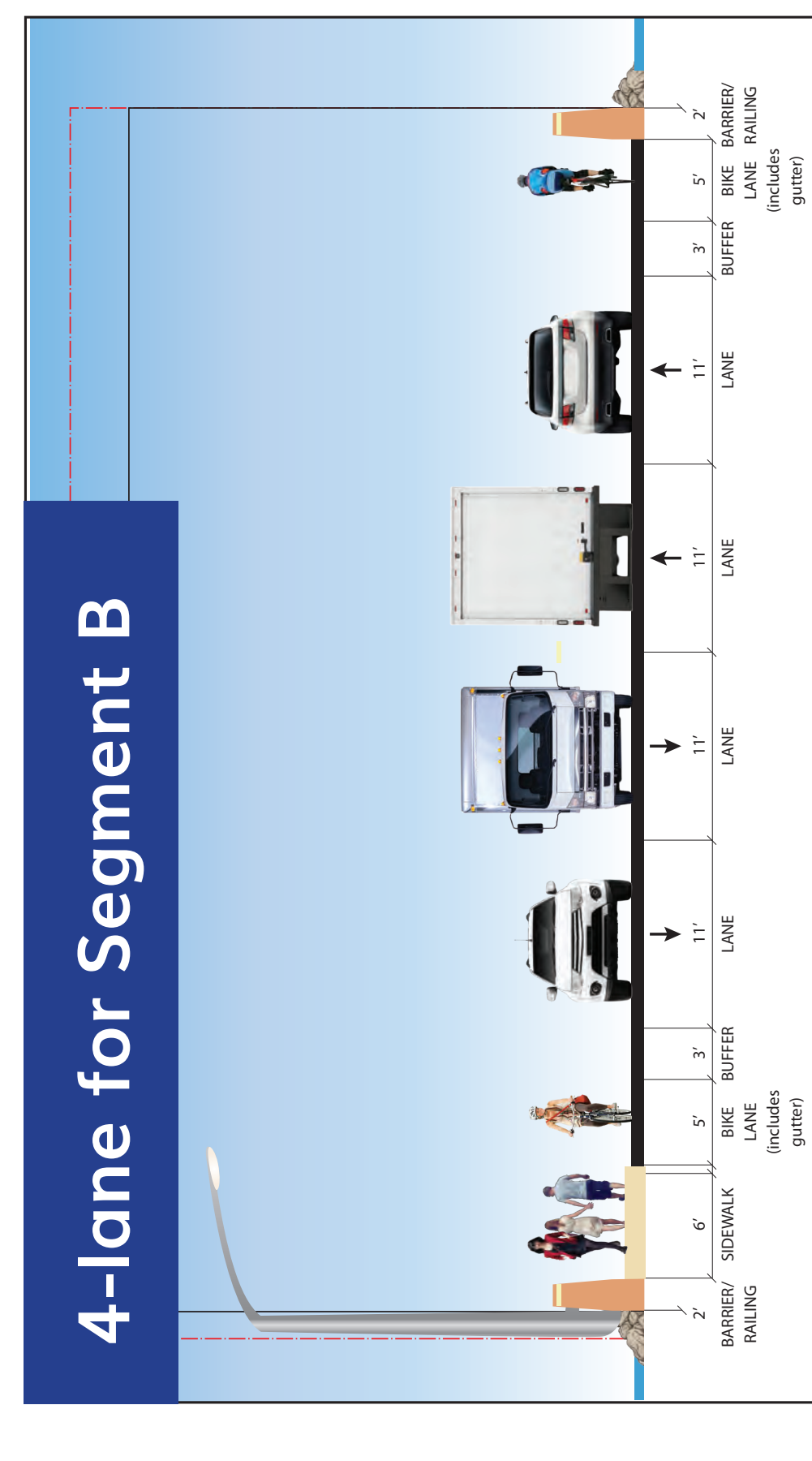
**If Option 1 is your preferred option, please place a sticker-dot in the space provided:**



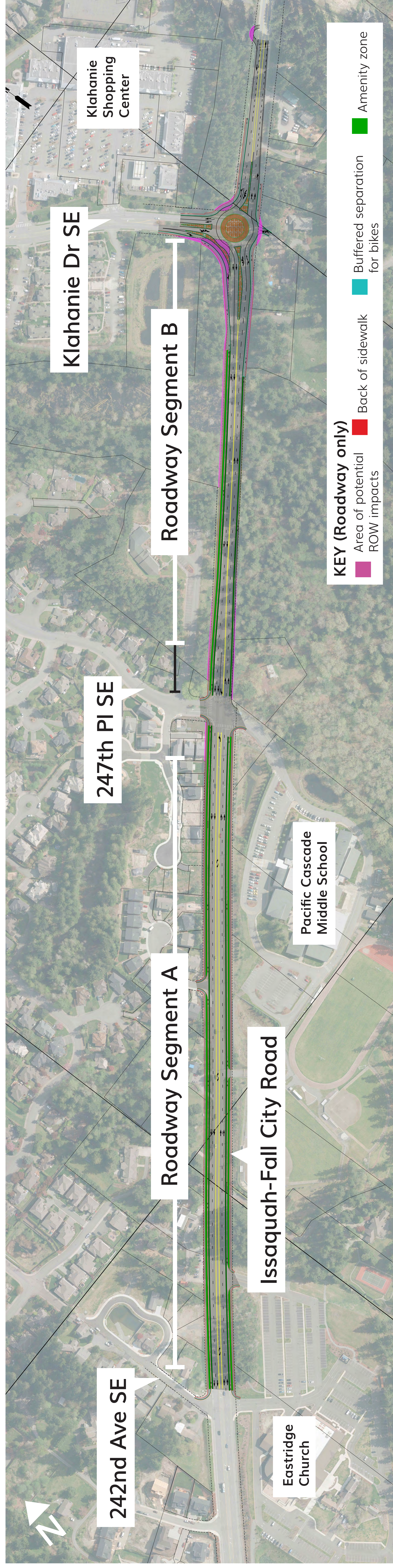
**Option 2:** 2-way stop controlled at 242nd Ave SE (as it is today), 5-lane section between 242nd Ave SE and 247th PI SE, roundabout at 247th PI SE, 4-lane section between 247th PI SE and Klahanie Dr SE, roundabout at Klahanie Dr SE.



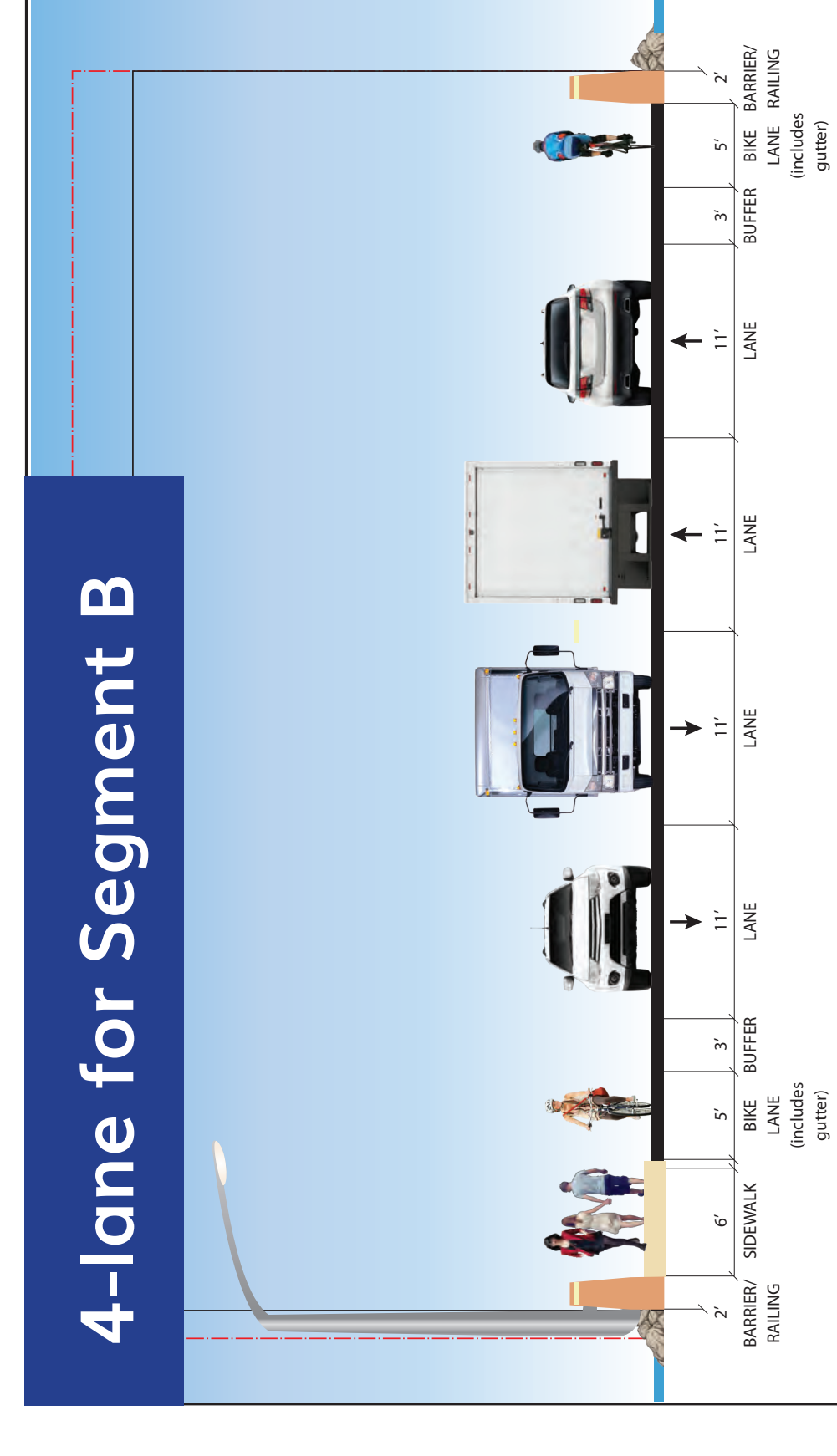
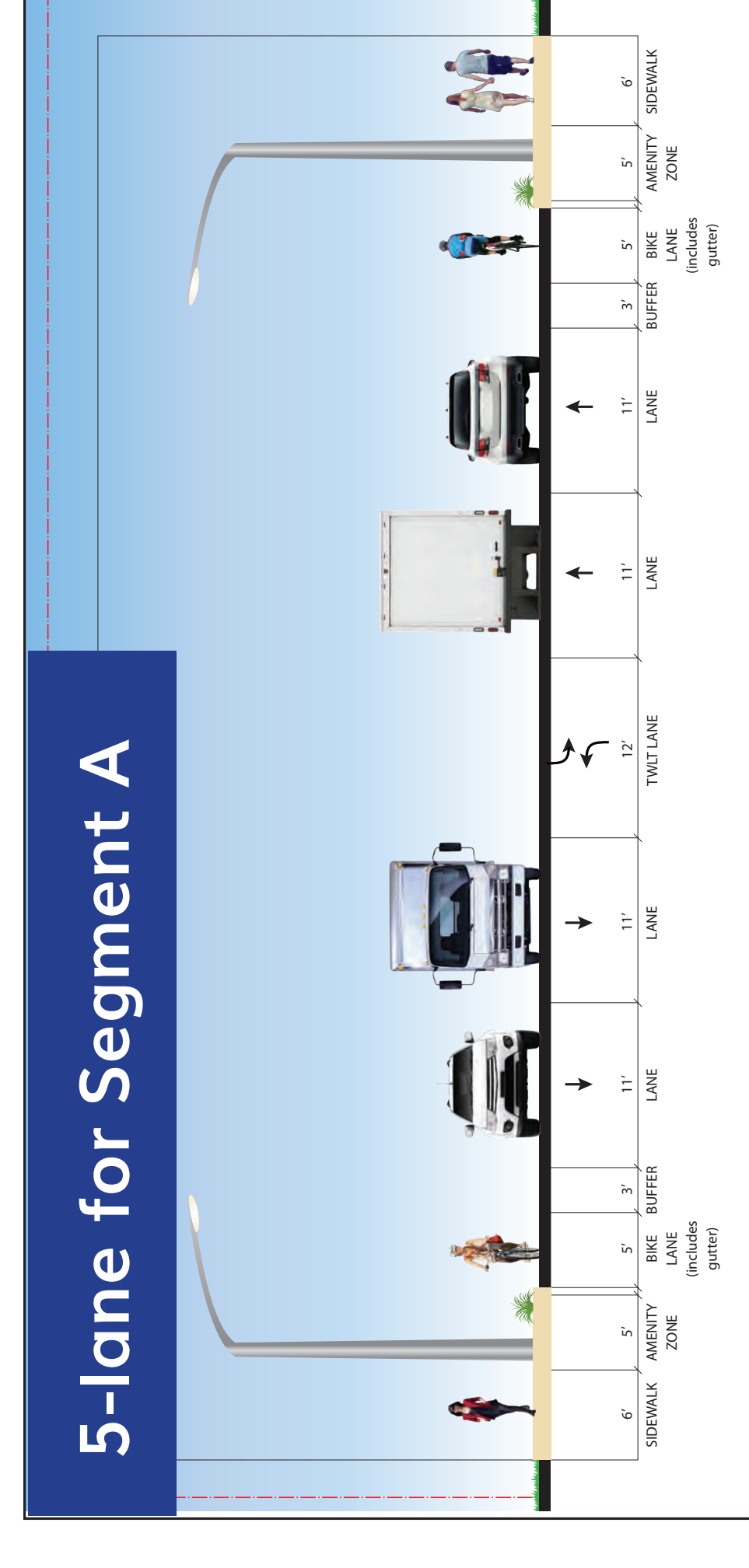
**If Option 2 is your preferred option, please place a sticker-dot in the space provided:**



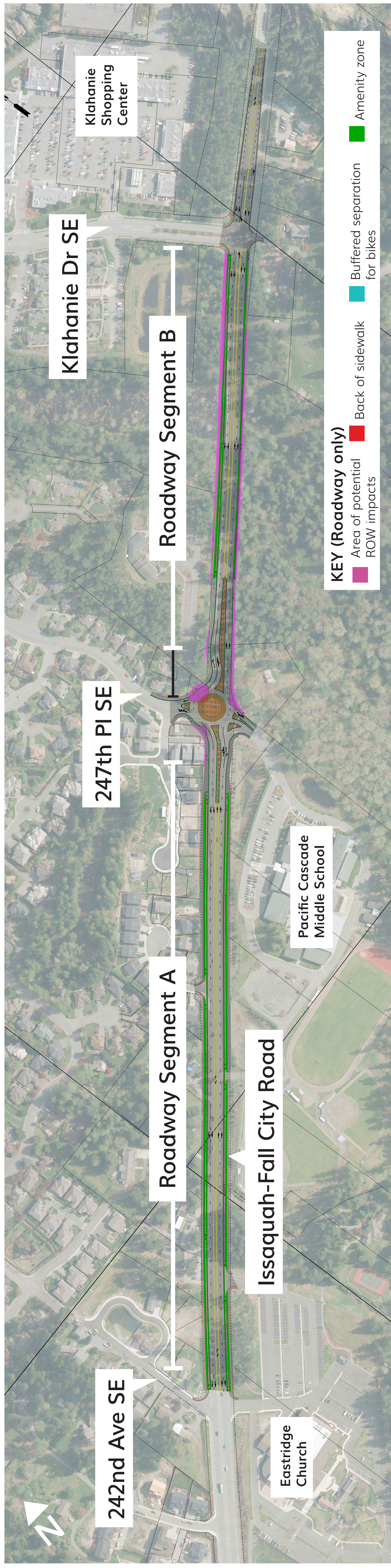
**Option 3:** 2-way stop controlled at 242nd Ave SE (as it is today), 5-lane section between 242nd Ave SE and 247th PI SE, signal at 247th PI SE, 4-lane section between 247th PI SE and Klahanie Dr SE, roundabout at Klahanie Dr SE.



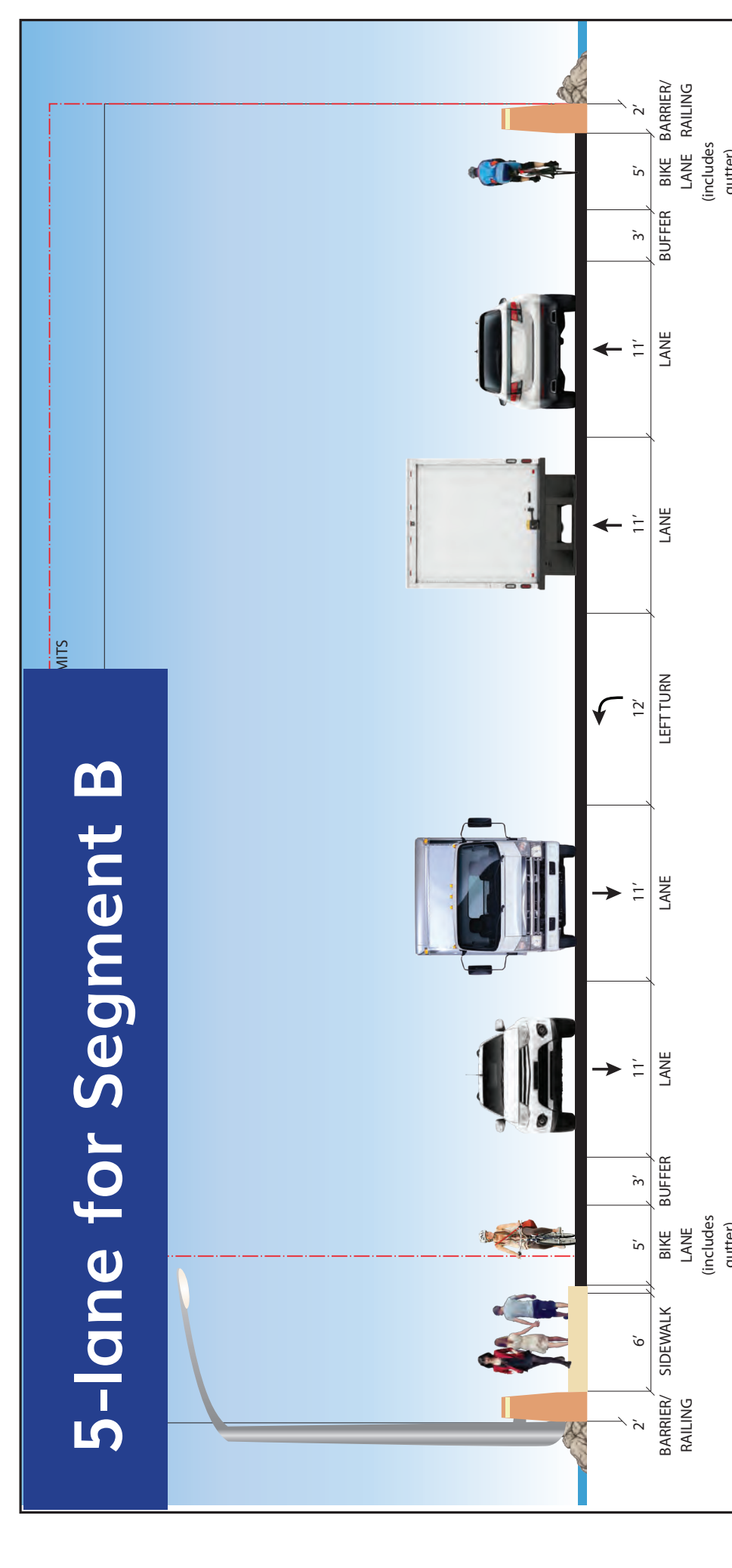
**If Option 3 is your preferred option, please place a sticker-dot in the space provided:**



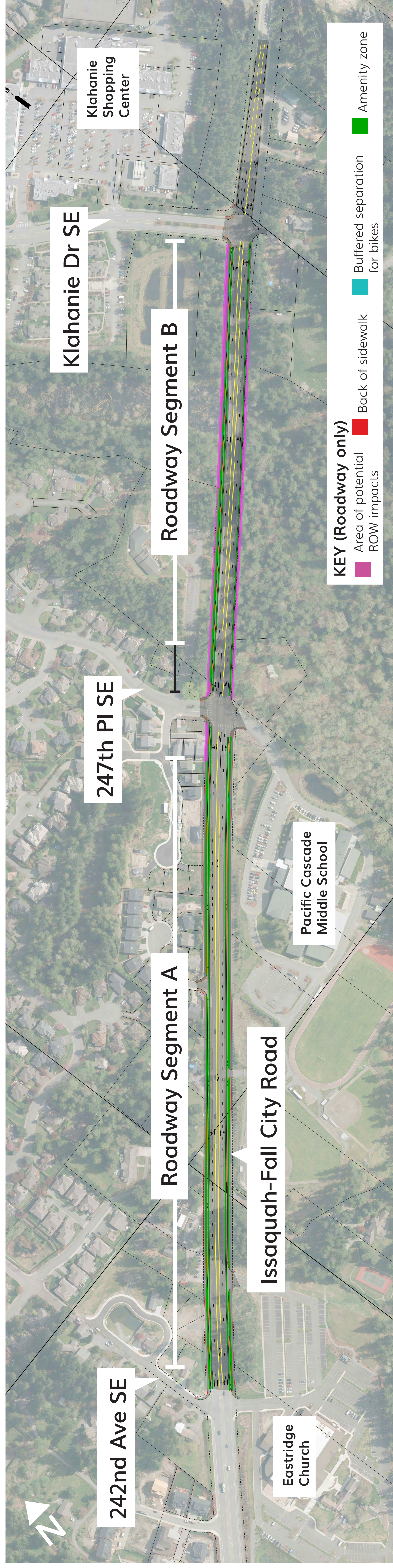
**Option 4:** 2-way stop controlled at 242nd Ave SE (as it is today), 5-lane section between 242nd Ave SE and 247th PI SE, roundabout at 247th PI SE, 5-lane section between 247th PI SE and Klahanie Dr SE, signal at Klahanie Dr SE.



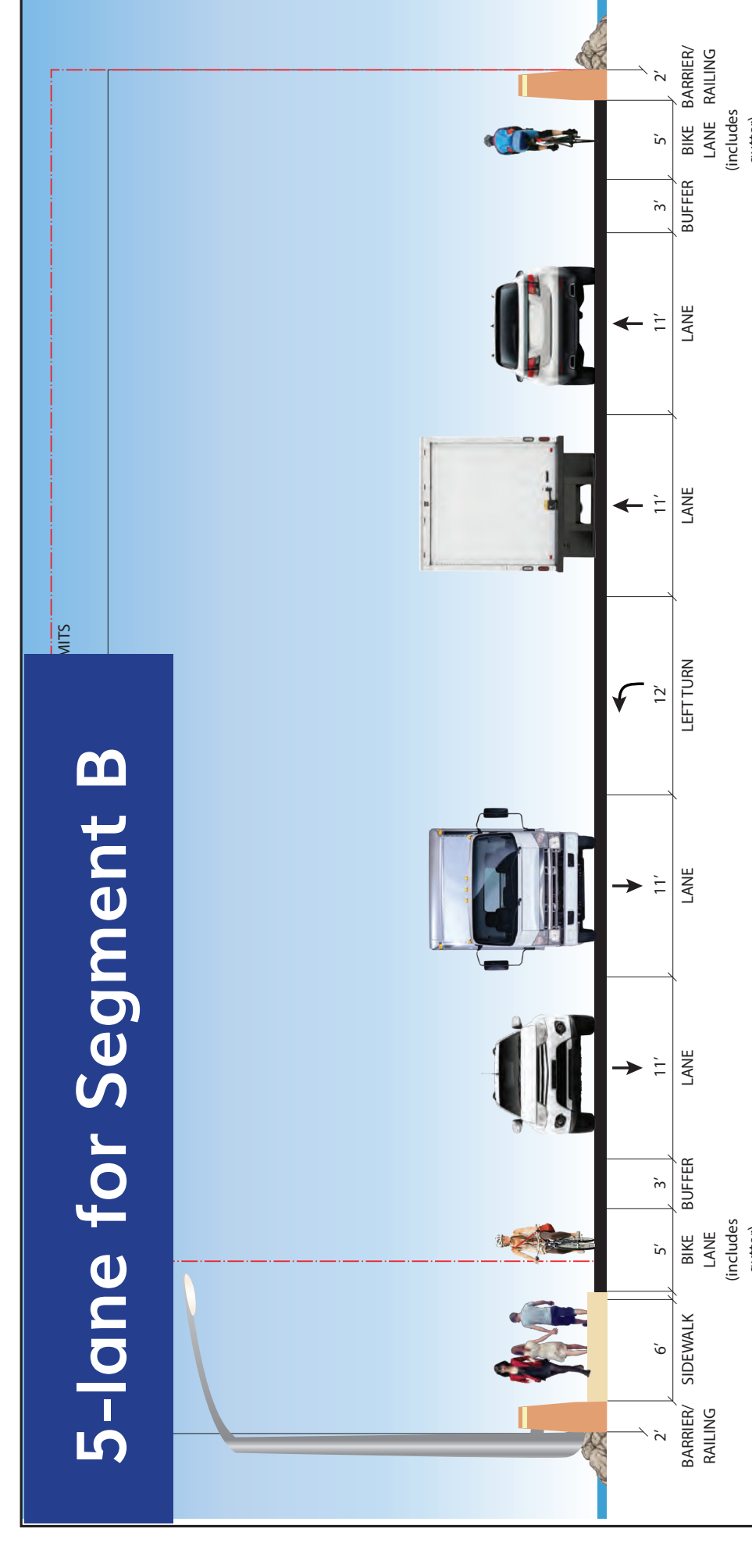
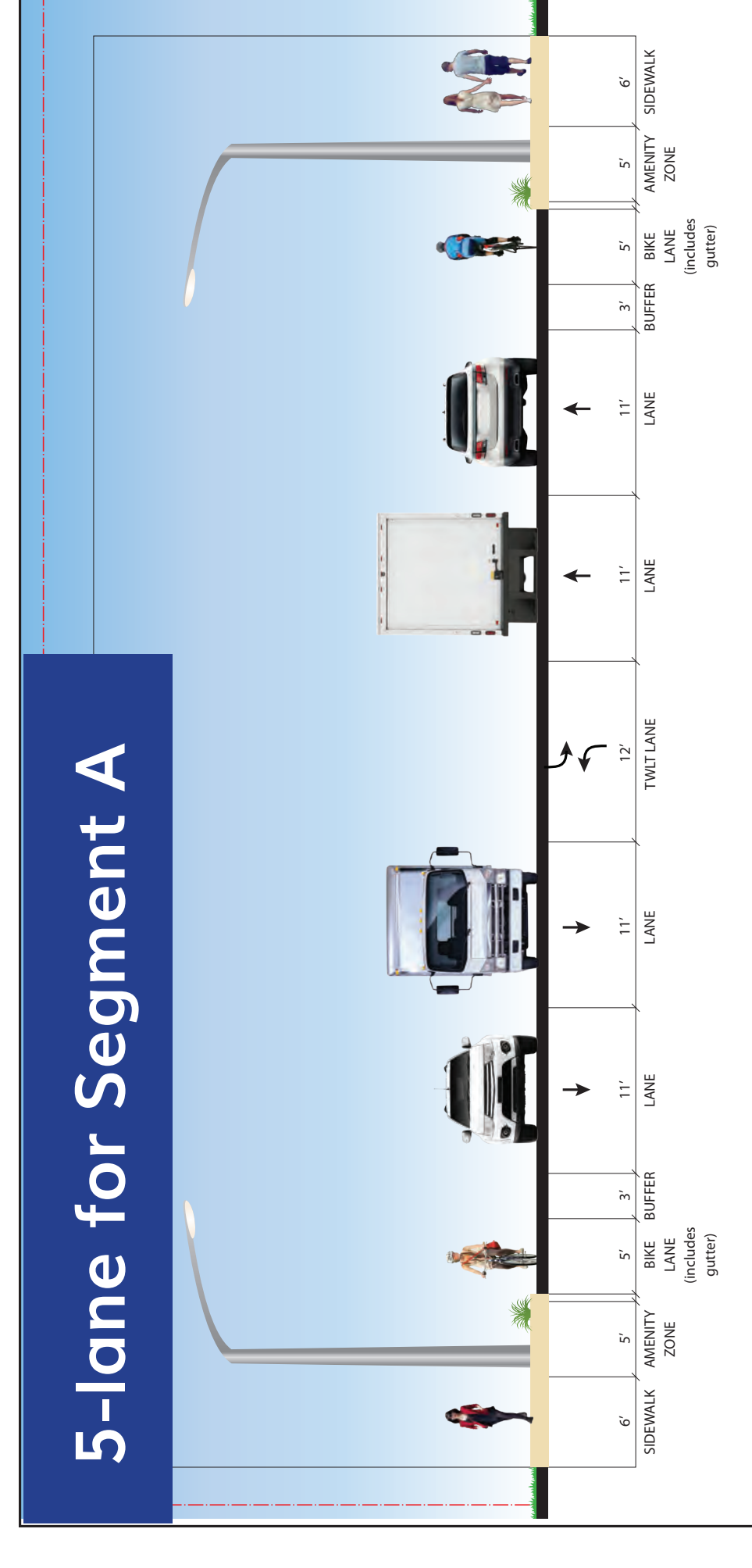
**If Option 4 is your preferred option, please place a sticker-dot in the space provided:**



**Option 5:** 2-way stop controlled at 242nd Ave SE (as it is today), 5-lane section between 242nd Ave SE and 247th PI SE, signal at 247th PI SE, 5-lane section between 247th PI SE and Klahanie Dr SE, signal at Klahanie Dr SE.



**If Option 5 is your preferred option, please place a sticker-dot in the space provided:**



# Evaluating the Design Options

The matrix below shows five potential roadway design options the City is considering and the factors it is using to evaluate the design options. Each box contains information on how the options perform.

## PERFORMANCE KEY




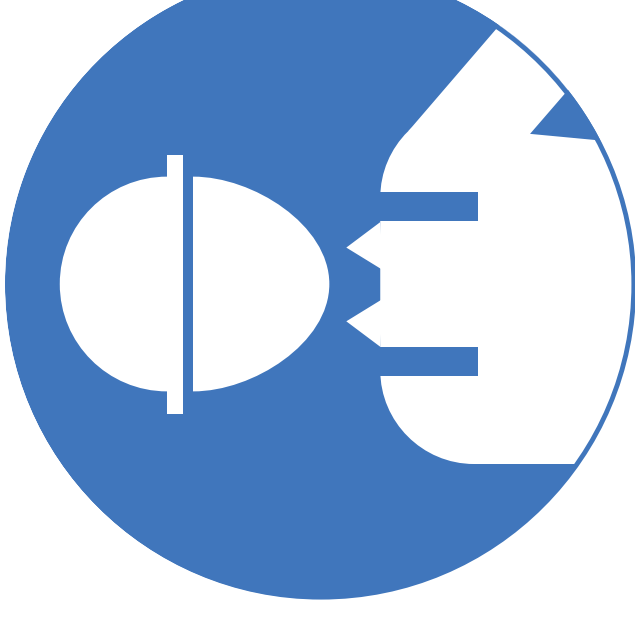
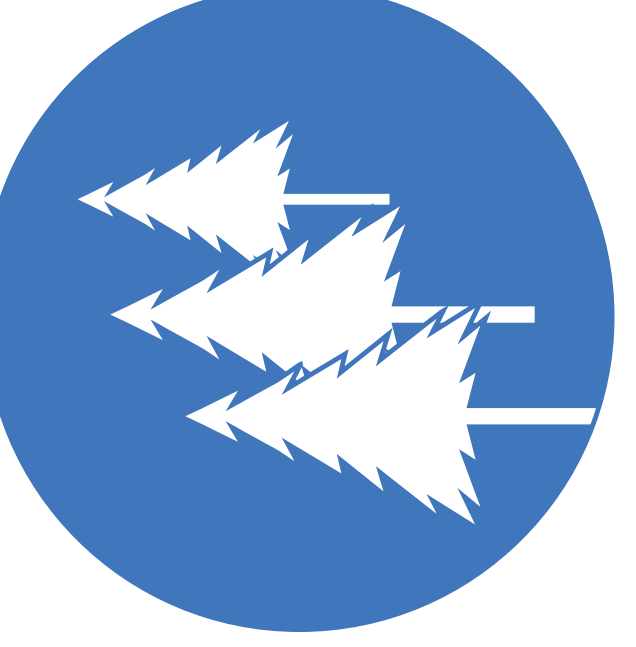

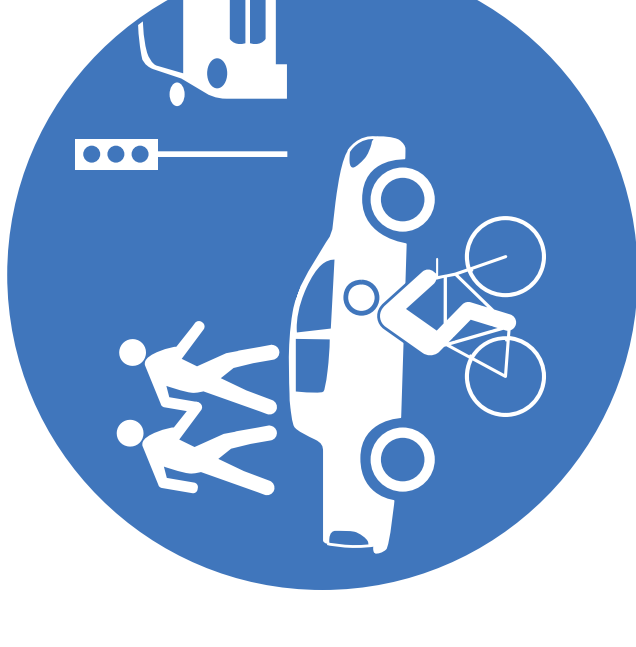
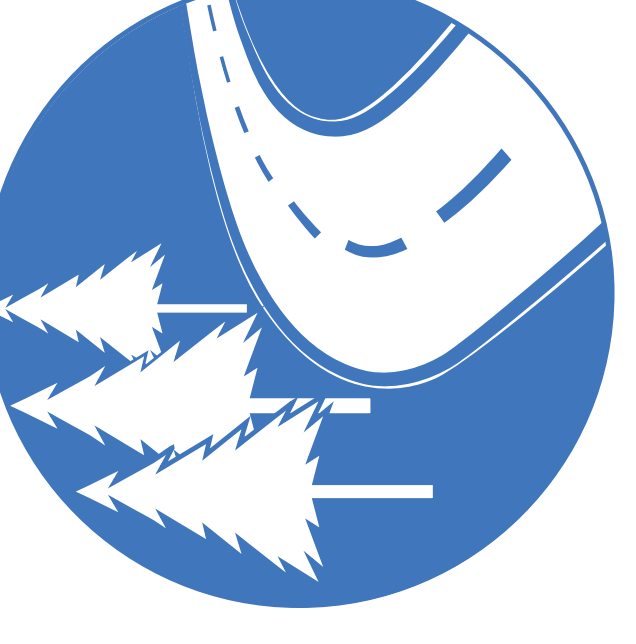


Design Options	Factors									
	Operations: Opening year	Operations: Future	Cost	Maintenance	Environment	Right-of-way (ROW) impacts	Safety	Aesthetics		
<b>Option 1</b> 242nd: RAB Road A: 4-lane 247th: RAB Road B: 4-lane Klahanie: RAB	<ul style="list-style-type: none"> <li>All roundabouts operate at LOS A with shorter vehicle queuing</li> </ul>	<ul style="list-style-type: none"> <li>All roundabouts operate at LOS B or better with shorter vehicle queuing</li> </ul>	\$14.9 M – \$15.6 M	<ul style="list-style-type: none"> <li>Roundabout dependent on center island design</li> </ul>	<ul style="list-style-type: none"> <li>4-lane segment A &amp; B provides least environmental impact</li> </ul>	Area of Impact = 0.80 Acre	<ul style="list-style-type: none"> <li>Eliminates left turn conflicts at intersections</li> <li>Elements two-way left turn lane</li> <li>Roundabouts operate at lower speeds</li> </ul>	<ul style="list-style-type: none"> <li>3 roundabouts with center island</li> <li>Reduced roadway width allows for additional landscaping</li> <li>High potential for rain gardens/ low-impact development</li> </ul>		
<b>Option 2</b> 242nd: None Road A: 5-lane 247th: RAB Road B: 4-lane Klahanie: RAB	<ul style="list-style-type: none"> <li>All roundabouts operate at LOS A with shorter vehicle queuing</li> </ul>	<ul style="list-style-type: none"> <li>All roundabouts operate at LOS B or better with shorter vehicle queuing</li> </ul>	\$16.7 M – \$17.4 M	<ul style="list-style-type: none"> <li>Roundabout dependent on center island design</li> </ul>	<ul style="list-style-type: none"> <li>4-lane segment B provides low environmental impact</li> </ul>	Area of Impact = 0.61 Acre	<ul style="list-style-type: none"> <li>Eliminates left turn conflicts at intersections</li> <li>Roundabouts operate at lower speeds</li> </ul>	<ul style="list-style-type: none"> <li>2 roundabouts with center island</li> <li>5-lane segment may allow for intermittent planted median</li> <li>Moderate potential for rain gardens/ low-impact development</li> </ul>		
<b>Option 3</b> 242nd: None Road A: 5-lane 247th: SIG Road B: 4-lane Klahanie: RAB	<ul style="list-style-type: none"> <li>Signal operates at LOS C or better</li> <li>Roundabout operates at LOS A</li> <li>Signal can have queues of 380 ft in PM peak hour</li> <li>Roundabout has queues of up to 120 ft in PM peak hour</li> </ul>	<ul style="list-style-type: none"> <li>Signal operates at LOS C</li> <li>Roundabout operates at LOS B</li> <li>Signal can have queues of 1,000 ft in PM peak hour</li> <li>Roundabout has queues up to 360 ft in PM peak hour</li> </ul>	\$17.6 M – \$18.3 M	<ul style="list-style-type: none"> <li>Roundabout dependent on center island treatment</li> <li>Average annual maintenance and operations of traffic signal \$5 K</li> </ul>	<ul style="list-style-type: none"> <li>4-lane segment B provides low environmental impact</li> </ul>	Area of Impact = 0.49 Acre	<ul style="list-style-type: none"> <li>Signal at 247th PI SE requires 5 lanes of width on the east approach for westbound left turn lane</li> <li>Roundabout eliminates left turn conflicts at Klahanie intersection</li> </ul>	<ul style="list-style-type: none"> <li>1 roundabout with center island</li> <li>5-lane segment may allow for intermittent planted median</li> <li>Moderate potential for rain gardens/LID</li> </ul>		
<b>Option 4</b> 242nd: None Road A: 5-lane 247th: RAB Road B: 5-lane Klahanie: SIG	<ul style="list-style-type: none"> <li>Signal operates at LOS D or better</li> <li>Roundabout operates at LOS A</li> <li>Signal can have queues ranging from 270 to 510 ft in PM peak hour</li> <li>Roundabout has queues of up to 115 ft in PM peak hour</li> </ul>	<ul style="list-style-type: none"> <li>Signal operates at LOS D or better</li> <li>Roundabout operates at LOS B</li> <li>Signal can have queues exceeding capacity in PM peak hour</li> <li>Roundabout has queues up to 320 ft in PM peak hour</li> </ul>	\$17.9 M – \$18.8 M	<ul style="list-style-type: none"> <li>Roundabout dependent on center island treatment</li> <li>Average annual maintenance and operations of traffic signal \$5 K</li> </ul>	<ul style="list-style-type: none"> <li>5-lane segments have greatest environmental impact</li> </ul>	Area of Impact = 0.87 Acre	<ul style="list-style-type: none"> <li>Signal at Klahanie requires up to 4 lanes of width eastbound (6 lanes total on west approach)</li> </ul>	<ul style="list-style-type: none"> <li>1 roundabouts center island</li> <li>5-lane segment may allow for intermittent planted median</li> <li>Low potential for rain gardens/LID</li> </ul>		
<b>Option 5</b> 242nd: None Road A: 5-lane 247th: SIG Road B: 5-lane Klahanie: SIG	<ul style="list-style-type: none"> <li>Signals operate at LOS D or better</li> <li>Signals can have queues up to 510 ft in PM peak hour</li> </ul>	<ul style="list-style-type: none"> <li>Signal operates at LOS D or better</li> <li>Roundabout operates at LOS B</li> <li>Signal can have queues exceeding capacity in PM peak hour</li> <li>Roundabout has queues up to 320 ft in PM peak hour</li> </ul>	\$17.4 M – \$18.3 M	<ul style="list-style-type: none"> <li>Average annual maintenance and operations of traffic signals \$10 K</li> </ul>	<ul style="list-style-type: none"> <li>5-lane segments have greatest environmental impact</li> </ul>	Area of Impact = 0.62 Acre	<ul style="list-style-type: none"> <li>Can accommodate left turns between intersections</li> <li>Left turns between intersections could be restricted if collision patterns increase</li> <li>U-turns at intersections require additional roadway widening</li> </ul>	<ul style="list-style-type: none"> <li>5-lane segment may allow for intermittent planted median</li> <li>Low potential for rain gardens/LID</li> </ul>		

# Factors Most Important to You

What factors do you think are most important for Council to consider when identifying a preferred design option?

**Please place a sticker-dot by the two factors that are most important to you.**

 <p><b>Operations: Opening year</b></p>	 <p><b>Operations: Future</b></p>	 <p><b>Cost</b></p>	 <p><b>Maintenance</b></p>
 <p><b>Environment</b></p>	 <p><b>Right-of-way (ROW) impacts</b></p>	 <p><b>Safety</b></p>	 <p><b>Aesthetics</b></p>

# Culvert Replacement Options

The culvert that supports Issaquah-Fall City Road where it crosses the North Fork Issaquah Creek will be replaced as part of the roadway improvements. The City is considering three options for replacement. City Council will choose a replacement option based on the factors outlined in the table below.

**PERFORMANCE KEY**



Structures Alternatives Analysis Options							Alternative Selection Factors		
		4-Lane Cost	5-Lane Cost	Cost to Maintain	Durability	Construction Impact (space and time to construct)			
Metal Arch Culvert 		\$168,000	\$184,000	Low	75 Years (controlled by metal coating requirements for design life)  The design life can be increased by adding additional galvanization	Lowest amount of space required, approximately 3-5 days to construct			
3-Sided Concrete Box Culvert 		\$228,000	\$249,000	Low	75 Years (controlled by predetermined design code minimum requirements)	Moderate amount of space required, approximately 3-5 days to construct			
Precast Concrete Slab Bridge 		\$828,000	\$905,000	Moderate	75 Years (controlled by predetermined design code minimum requirements)	Highest amount of space required, approximately 90-120 days to construct			





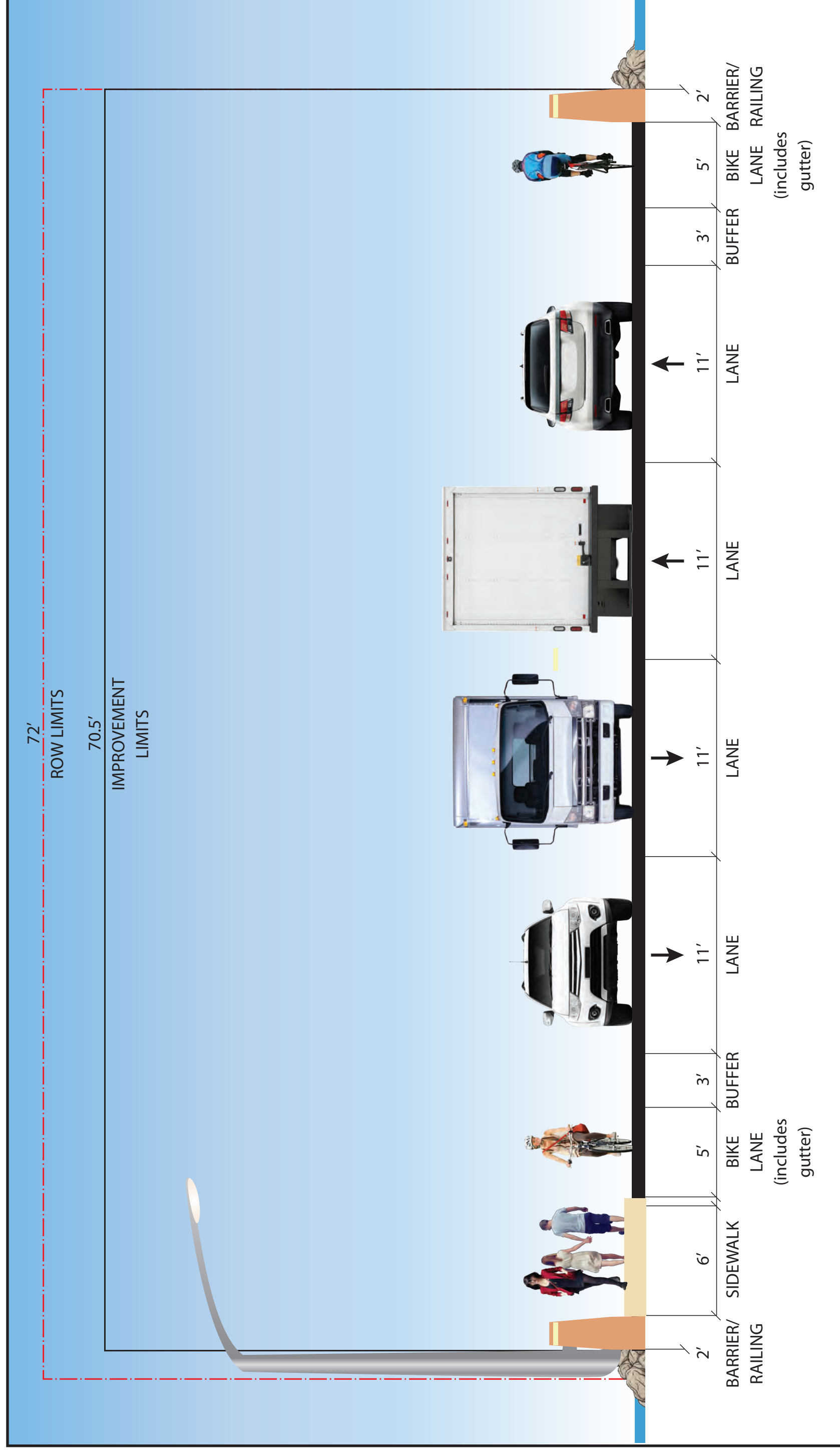
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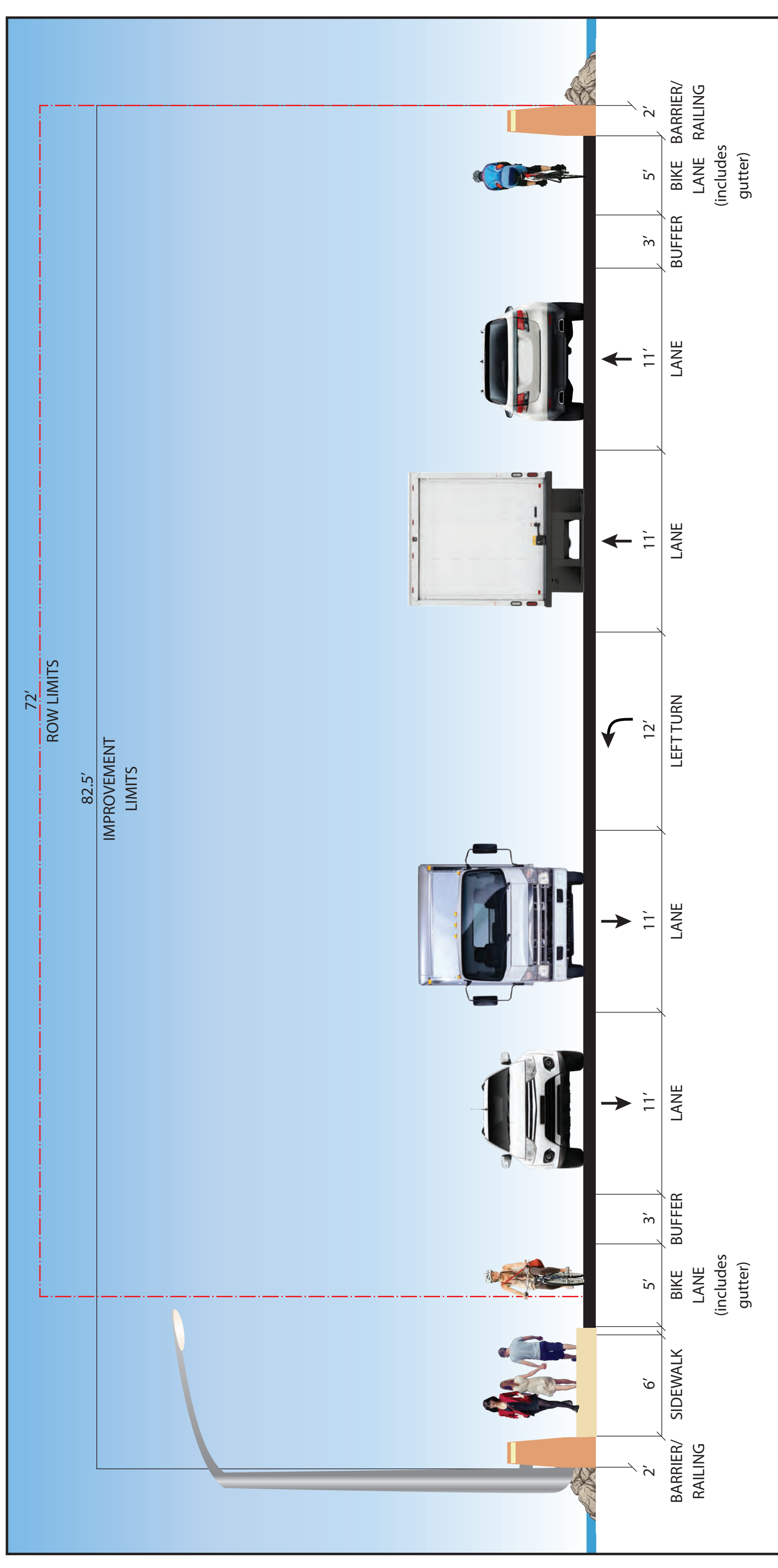
Phase I Design: 242nd Avenue SE to Klahanie Drive SE

# Stream Crossing

The configuration at the North Fork Issaquah Creek crossing will include the same common elements as the rest of the corridor, with a sidewalk on the north side of the road.



### 4-Lane Configuration



### 5-Lane Configuration