



# CKC-EASTRAIL CROSSING STUDY CITY OF KIRKLAND

TRANSPORTATION COMMISSION

APRIL 27, 2022



STRUCTURAL  
DESIGN

**Parametrix**  
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

# PROJECT APPROACH

## Project Framework / Baseline Conditions

- Collect data and field reviews
- Draft the basis of conceptual design
- Begin to define draft project goals and criteria

## Alternatives Development and Screening

**Step 1** – Define Approach, identify goals and criteria

**\* Transportation Commission Update**

**Step 2** – Identify two at-grade solutions, bridge, and tunnel

- Complete preliminary analysis and screening

**Step 3** – Complete design and traffic analyses for recommended alternatives

- Conduct detailed traffic analysis
- Complete conceptual design

**\* Transportation Commission Update**

**\* City Council Update**



***We are here***

## Documentation

- Develop draft and final documentation

# CURRENT CONDITIONS



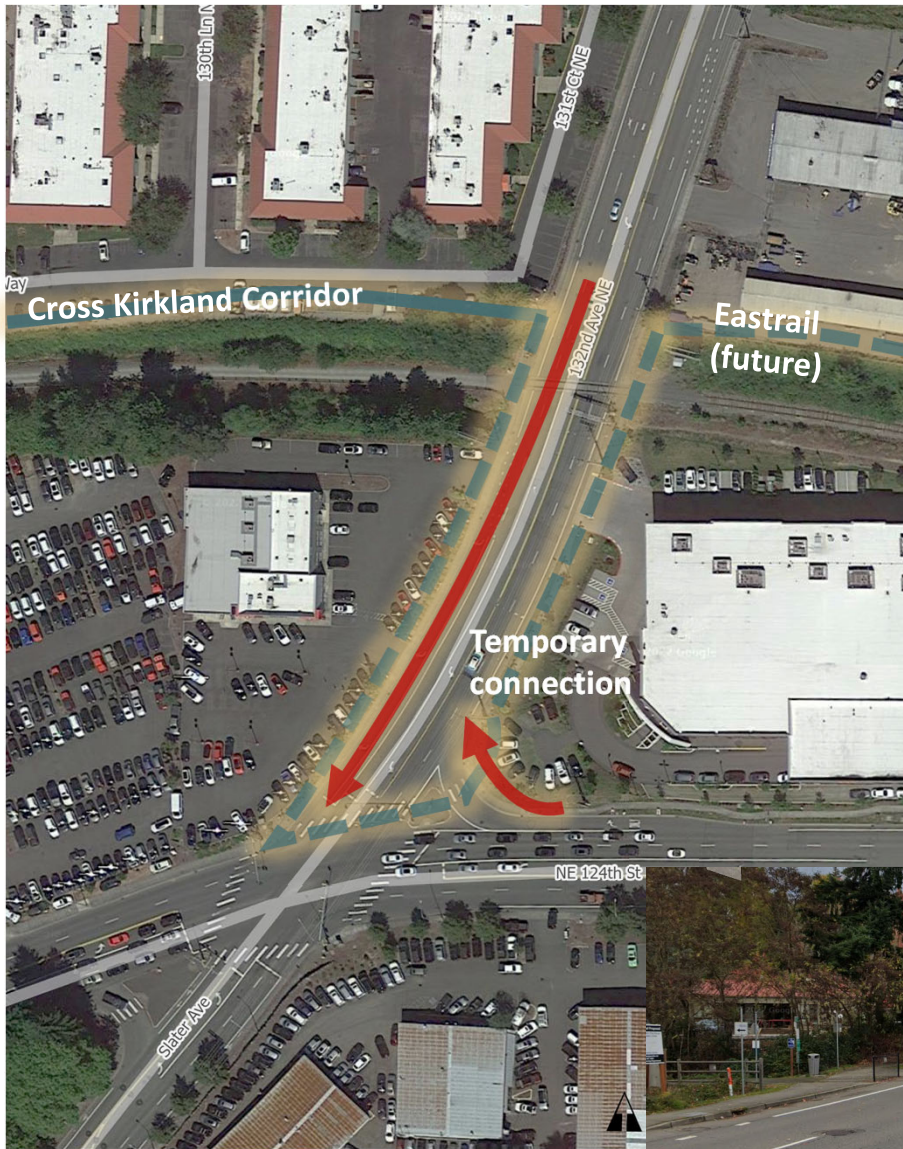
- Today the Cross Kirkland Corridor/Eastrail (CKC) terminates at Slater Ave NE-132nd Ave NE. In this vicinity, the trail carries up to about 300 users (bicycles and pedestrians) per day.<sup>1</sup>
- The King County portion east of Slater Ave NE-132nd Ave NE opens this year.
- When the trail extends to the east and this section is no longer a terminus, usage will increase. Future use of the trail at this location could be similar to other sections of the trail, such as at 108th Ave NE where the CKC carries 600 to 750 users per day.
- This portion of the trail is forecasted to eventually carry up to 2,000 to 3,000 users per day.<sup>2</sup>

1 Cross Kirkland Corridor trail use counter at 120th Ave NE

2 Eastside Rail Corridor Regional Trail Master Plan, February 2016



# CURRENT CONDITIONS



- When the Eastrail opens to the east, the temporary trail connection will occur via the NE 124th St/Slater Ave NE intersection.
- Crossing is +800 feet of travel for trail users.
- Trail users will also cross the westbound free right at NE 124th St/Slater Ave NE signal.
- Traffic queues on Slater Ave NE-132nd Ave NE in the southbound direction approaching the NE 124th St/Slater Ave NE signal. This queue extends through potential future trail crossing.





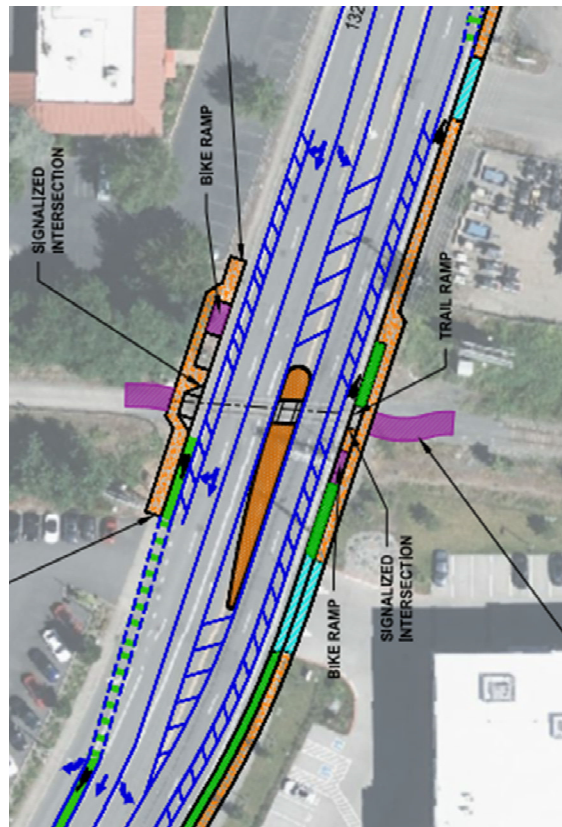
# APPROACH TO AT-GRADE SOLUTIONS (ALTERNATIVE 1)

Current 5 Lane Road (view north)



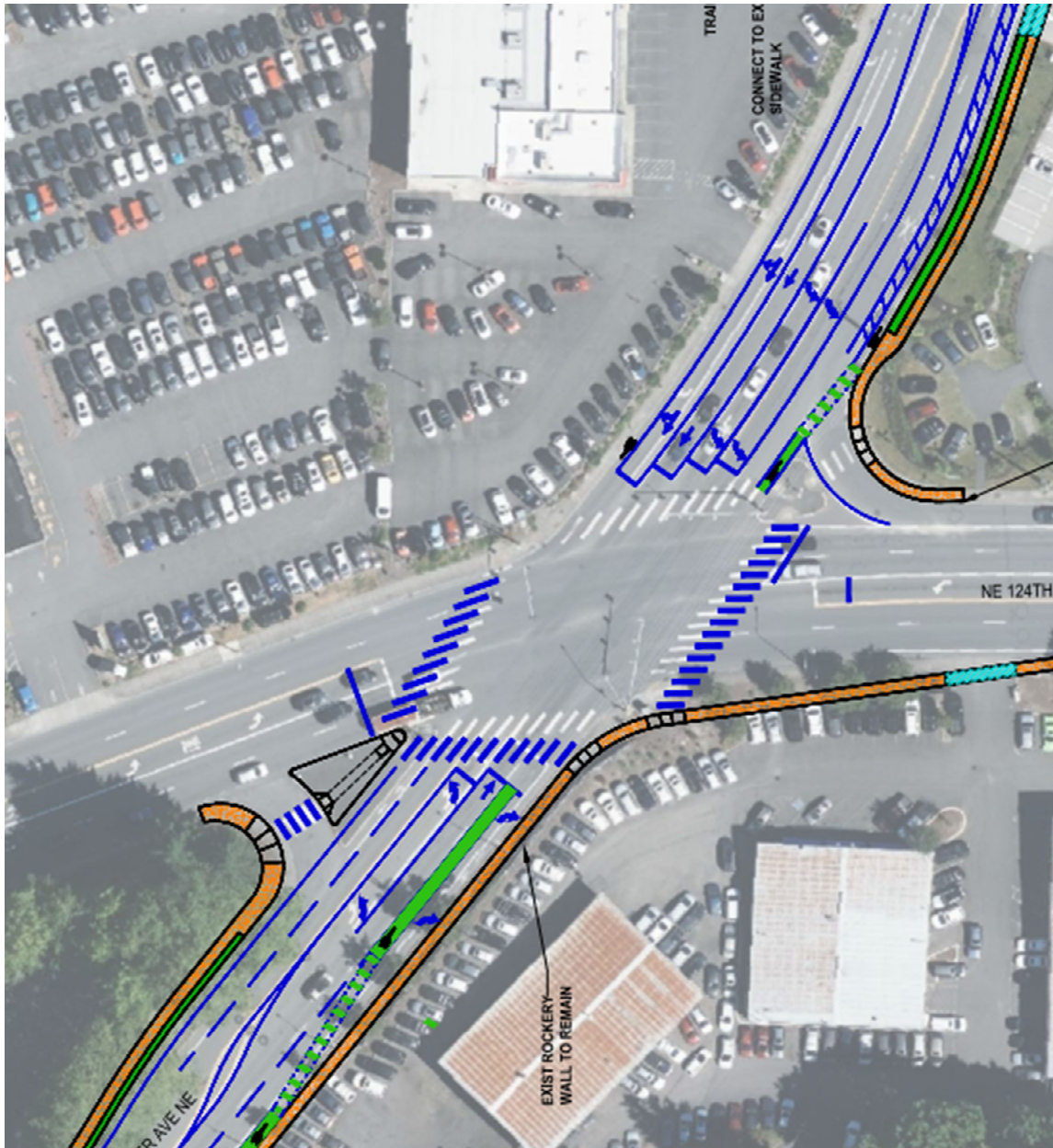
- Add a pedestrian signal with a narrowed crossing (Alternative 1)
- Signalize the free westbound right at the signal and reduce northbound to a single lane
- Add a buffer between bike lane and travel lanes

Alternative 1



- Considered:
  - With or without median
  - Various types of pedestrian signals
    - Rectangle rapid flashing beacon (RRFB)
    - High-Intensity Activated Crosswalk (HAWK)
    - Full pedestrian signal

# APPROACH TO AT-GRADE SOLUTIONS (ALTERNATIVE 2)

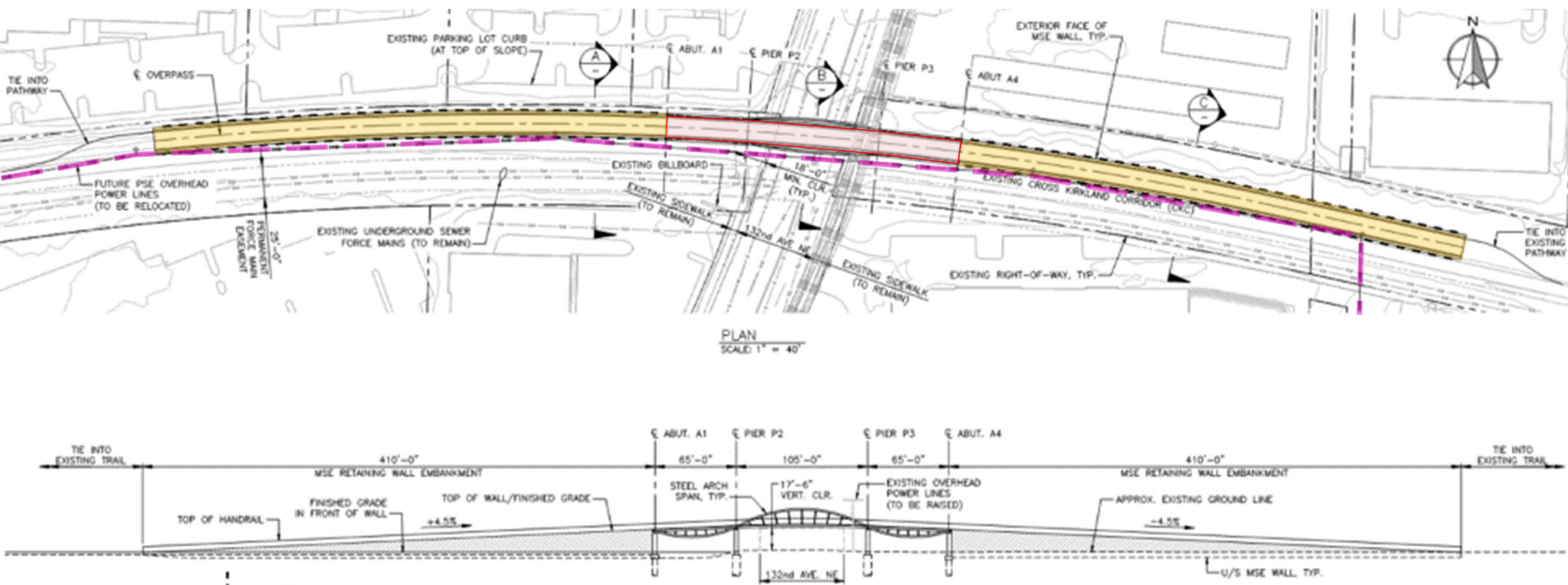


- Alternative 1 improvements plus reduce queue spillback from NE 124th St/Slater Ave NE
- Add second southbound left turn and second southbound through lane
- Extend northbound bike lane through intersection



# APPROACH TO GRADE-SEPARATED BRIDGE (ALTERNATIVE 3)

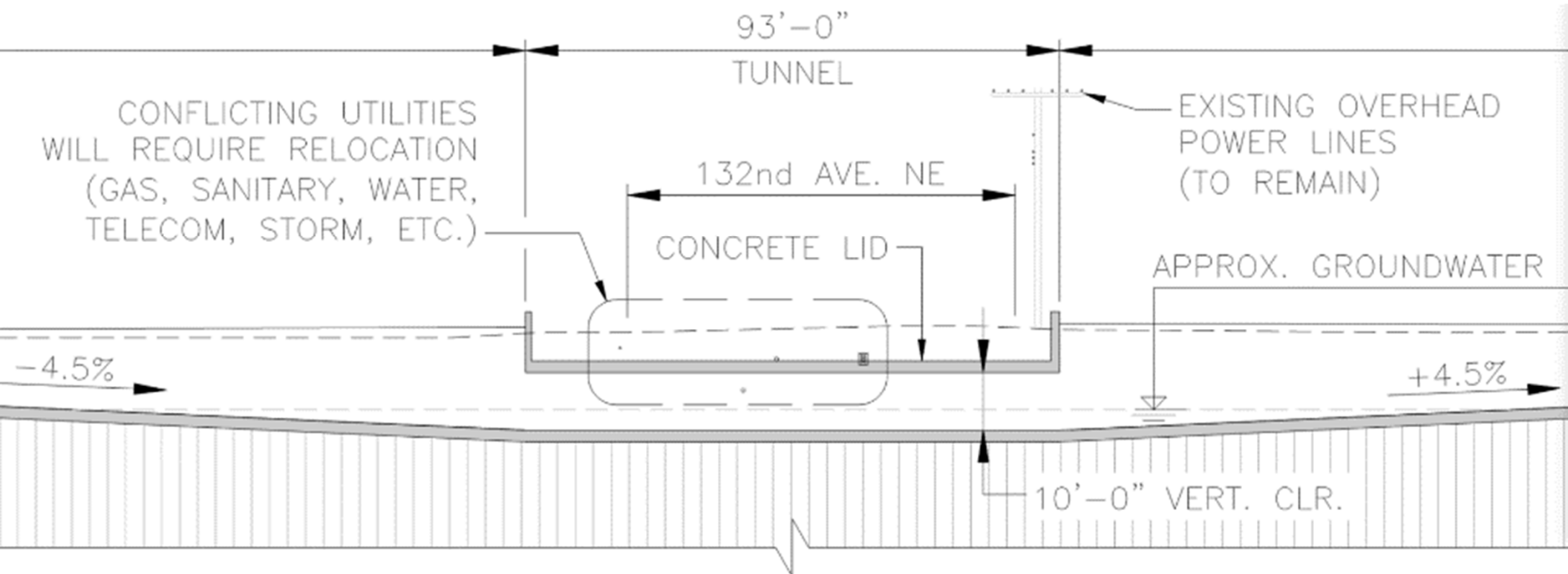
- Avoids York sanitary sewer line impacts and other underground utilities.
- Requires raising the PSE lines along the east side of 132nd Ave NE but could accommodate the proposed PSE through the corridor
- Fully ADA-compliant







# APPROACH TO GRADE-SEPARATED TUNNEL (ALTERNATIVE 4)



PROFILE ALONG CL BRIDGE

SCALE: 1" = 40'

# ALTERNATIVE SCREENING

- Identified 13 screening criteria or goals within the following categories
  - Improves nonmotorized connections (safety and intuitiveness for trail users and connecting bike lanes/sidewalks)
  - Fits context and minimizes impact (impacts to environment or vehicles)
  - Is feasible (cost, constructability)
- Criteria which were differentiators between alternatives
  - Safety and intuitiveness of crossing
  - Delay for trail users at crossing
  - Impacts to utilities
  - Cost
  - Maintenance
- Remaining criteria were used to help define alts



# ALTERNATIVE SCREENING

## LEGEND



Goals	As measured by	Existing / No Build	At-Grade		Grade-Separated
			Alt 1A 2 SB / 1 NB Median, HAWK	Alt 2 Add SB L, SB T	Alt 3 Bridge
Goal: Improves Nonmotorized Connections					
Safety of crossings, connections.	Consider queues and their impact to sight lines	<div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Intuitiveness of crossings, connections	Qualitative evaluation of directness of connections to intersecting sidewalks and existing bike lanes	<div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>
	Qualitative evaluation of consistency of crossing concept with other (nearby) crossings in the CKC and Eastrail corridors	<div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>
User comfort	Does the crossing feel safe, are there clear sight lines for the user, is it convenient?	<div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
	Quantitative comparison of delay between alternatives (for E-W travel)	<div><div></div></div> <div>5 min</div>	<div><div></div><div></div><div></div><div></div></div> <div>&lt;1 min</div>	<div><div></div><div></div><div></div><div></div></div> <div>&lt;1 min</div>	<div><div></div><div></div><div></div><div></div><div></div></div> <div>&lt;0.5 min</div>
	Quantitative comparison of crossing distance between alternatives (for E-W travel)	<div><div></div></div> <div>830'</div>	<div><div></div><div></div><div></div></div> <div>60'</div>	<div><div></div><div></div><div></div></div> <div>60'</div>	<div><div></div><div></div><div></div><div></div><div></div></div> <div>0'</div>

# ALTERNATIVE SCREENING

## LEGEND















<u>Goals</u>	<u>Existing / No Build</u>	<u>At-Grade</u>		<u>Grade-Separated</u>
		<u>Alt 1A 2 SB / 1 NB Median, HAWK</u>	<u>Alt 2 Add SB L, SB T</u>	<u>Alt 3 Bridge</u>
Goal: Fits Context				
Connections accommodate access to adjacent businesses and the trail	<div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div></div>
Goal: Minimized Impacts				
Traffic impacts on study intersections and driveways	<div><div></div><div></div><div></div></div>	<div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>
Traffic safety	<div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>
Right of way impacts	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div></div>	<div><div></div><div></div><div></div></div>
Impacts to critical areas	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>
Impacts to utilities	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div></div>
Impact to ST easement rights	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div><div></div><div></div></div>	<div><div></div><div></div><div></div></div>



# ALTERNATIVE SCREENING

## LEGEND



<u>Goals</u>	<u>Existing / No Build</u>	<u>At-Grade</u>		<u>Grade-Separated</u>
		<u>Alt 1A</u> <u>2 SB / 1 NB</u> <u>Median, HAWK</u>	<u>Alt 2</u> <u>Add SB L, SB T</u>	<u>Alt 3</u> <u>Bridge</u>
Goal: Feasible Solution				
Cost to construct				
Schedule to construct		 ~6 months	 ~9 months	 ~12 months
Long-term maintenance and life cycle costs				

# RECOMMENDATION

- There is an at-grade solution that performs well.
  - Build Alternative 1A (narrows crossing and installs a HAWK) in the immediate term
  - Monitor trail use and traffic congestion levels
- Fund/plan for:
  - Alternative 2 – Add capacity to NE 124th St/Slater Ave NE intersection, OR
  - Alternative 3 – Construct a pedestrian bridge
- Questions? Discussion?



# NEXT STEPS



- Share with City Council mid May
- Finalize documentation