

# WARREN AVENUE BRIDGE MULTIMODAL PROJECT



# OPEN HOUSE

# PROJECT DESCRIPTION

The Warren Avenue Bridge Multimodal Project is a City of Bremerton-led effort to **improve pedestrian and bicycle facilities on the Warren Avenue Bridge (SR-303)**. This effort has leveraged existing and related plans to work with residents, user groups, agency leads and others to evaluate options and arrive at a preferred design.

## PROJECT NEED

- While the Warren Avenue Bridge is the major connection between east and west Bremerton, its pedestrian and bicycle facilities are substandard.
  - » At 3.5' wide, current walkways do not meet minimum ADA requirements and are too narrow for wheelchairs and pedestrians to safely pass
  - » With no bike lanes, cyclists are forced to contend with high-speed traffic or use walkways
- Improvements are also important because the bridge:
  - » Is a central link in Bremerton's Bridge-to-Bridge urban trail system (see map at right) .....
  - » Needs a pedestrian and bicycle connection to be consistent with the City's comprehensive and non-motorized transportation plans
  - » Provides access to facilities including Olympic College, healthcare and social services, Puget Sound Naval Shipyard (PSNS), and the ferry terminal

## PROJECT INTENT

- **To add ADA-accessible pedestrian and bicycle facilities where none currently exist.**
  - » Other improvements may include lighting and other features to enhance traffic safety and aesthetics.

## FUNDING

- The current available budget for design and construction is **\$26.5M**, which includes:
  - » A \$1.5M Washington State grant to design the project, including preliminary engineering and permitting, awarded to the City in 2020
  - » \$25M in construction funding, secured through the Moving Ahead Washington funding package approved during the 2022 legislative session

**BRIDGE-TO-BRIDGE TRAIL**

**JOSH FARLEY'S Sites to see**

The city's first urban bridge-to-bridge trail includes stunning mountain views, serene Puget Sound vistas, access to other trails and a delightful scavenger hunt of local lore.

- 1 All accessible Playground.** An agreement was entered into with the construction of the both areas at Longview-Highway Park in 2014.
- 2 The Face.** Artist Robert "Bob" Lamb's iconic sculpture includes — he just happened to be at the park to see it in 2002 when it was damaged in construction — and points upward from the north side of Great Cañon.
- 3 The gem of sea.** Almost 100 years ago, the USS West Virginia was Bremerton's World War I mascot. Along with other ships, it was being prepared for decommissioning when the fire broke out in the Great War.
- 4 B11 Memorial.** One of the first in the nation, Bremerton's version has its roots from the World War I era. It was built from the Puget Sound and land from the field in Bremerton's United Airlines Flight 93 crash.
- 5 The Bremerton water tower.** From the bridge, visitors can enjoy views of the tower, the Bremerton Harbor and the USS Turner Jay developer and manufacturer of the tower. It was built in the Gulf of Tonkin incident that precipitated the Vietnam War.
- 6 Whyday Downside Park.** The popular water tower park, named for a former mayor, offers sweeping views of the city, Bremerton Harbor and the Puget Sound. It was built in 1954 and is an approximately 100-year-old park that stands there today.
- 7 Art Walks.** The city's "Art Walk" offers art on a 1.5-mile route through the city's art district. The walk starts at the city's art district and ends at the city's art district.
- 8 Sailing Center.** The city's Sailing Center is a popular spot for sailing enthusiasts. It is located in the city's art district and is a popular spot for sailing enthusiasts.
- 9 Maritime Park.** A former home of Arthur M. Sponberg — a member of the city's first board of directors — Maritime Park is a popular spot for sailing enthusiasts. It is located in the city's art district and is a popular spot for sailing enthusiasts.
- 10 Commodore Park.** A former home of Commodore Park is a popular spot for sailing enthusiasts. It is located in the city's art district and is a popular spot for sailing enthusiasts.

**NEED TO KNOW**

- Public parking
- Public restrooms
- Water fountain
- Bridge to Bridge trail
- Other trail paths

**ALONG THE TRAIL**

**WALK TO BREWERY**

**WALK TO FERRIES**

**WARREN AVENUE BRIDGE MULTIMODAL PROJECT**

The Warren Avenue Bridge is a central link in Bremerton's Bridge-to-Bridge urban trail system.

# PREVIOUS PLANNING STUDIES

## SR 303 CORRIDOR STUDY (2021)

- 2-year study included a stakeholder advisory group and community outreach
- Warren Avenue Bridge identified as top priority project
  - » SR 303 Corridor Study Phase 1B – see project description from study in box at right

### RECOMMENDED IMPROVEMENTS INCLUDED:

- » 10' clear width both sides of bridge
- » wayfinding
- » center barrier
- » lighting

## EASTSIDE VILLAGE SUBAREA PLAN (2020)

- Examined alternatives for the future of the Eastside Village subarea (located immediately east of SR 303), with consideration and coordination of the SR 303 Corridor Study

### RECOMMENDED PEDESTRIAN AND BICYCLE INFRASTRUCTURE IMPROVEMENTS INCLUDED:

- » SR 303 Warren Avenue Bridge – new 8-foot shared use pathways on both sides of bridge
- » Lower Wheaton Way from Lebo Boulevard to Sheridan Road (alternative to Cherry Avenue) – new shared use lane
- » Callahan Drive from SR 303 to Wheaton Way – new bike lane connecting between priority bike routes
- » Clare Avenue – Bike route connecting from SR 303 to the Bridge to Bridge Trail at Lebo Boulevard
- » Sheridan Road – new shared use lane

## SR 303 Corridor Study Phase 1B

### PROJECT DESCRIPTION

Improve safety for vehicles crossing Warren Avenue Bridge by reducing lane width and installing center barrier. Improve active transportation connectivity across the Port Washington Narrows by improving active transportation facilities across the Warren Avenue Bridge and providing additional connections north and south of the bridge. Active transportation improvements on the bridge will enhance the bridge to bridge trail connection for the City of Bremerton.

<b>Jurisdiction</b>	City of Bremerton
<b>Corridor Need</b>	Improve corridor safety Improve pedestrian and bicycle connectivity
<b>Location</b>	Warren Avenue Bridge
<b>Project Length</b>	2,400 feet
<b>Mode</b>	Auto, transit, active transportation
<b>Facility Type</b>	Roadway, sidewalk, active transportation, bicycle

### PROJECT ATTRIBUTES

<b>Project Elements</b>	<ul style="list-style-type: none"> <li>▪ Widen Warren Avenue Bridge to include 10' sidewalks on both sides</li> <li>▪ Manage lane widths on Warren Avenue Bridge with a minimum of 10.5'</li> <li>▪ Center barrier on Warren Avenue Bridge</li> <li>▪ Construct a 3' wide low-maintenance landscape or hardscape buffer between curb and sidewalk and widen sidewalks to 10' on east side of SR 303 from north of 17th Street to the Warren Avenue Bridge</li> <li>▪ Update lighting on the structure for both roadway and active transportation users</li> <li>▪ Sidewalks at both north and south ends that are forward-compatible with long-term plan</li> <li>▪ Active transportation facility to connect to Lebo Boulevard on the north side of the bridge</li> <li>▪ Provide wayfinding for active transportation</li> <li>▪ Bicycle facilities south of the bridge between SR 303 and Park Avenue</li> </ul>
<b>Benefits</b>	<ul style="list-style-type: none"> <li>▪ Provides safe width for cyclists and pedestrians to cross Port Washington Narrows</li> <li>▪ All active transportation facilities provide a key link for a fully functional bridge to bridge trail connection</li> <li>▪ Improves accessibility across corridor</li> </ul>
<b>Issues and Risks</b>	<ul style="list-style-type: none"> <li>▪ Cost</li> <li>▪ Constructability of the cantilever section</li> <li>▪ Optimizing existing bridge widths</li> <li>▪ Maintenance</li> <li>▪ Efficient off bridge pedestrian and bicycle routes</li> </ul>
<b>Notes</b>	<ul style="list-style-type: none"> <li>▪ Warren Avenue Bridge improvements would include new decking material in response to recent potholes on the bridge that impacted traffic flow and reliability</li> <li>▪ Consider overlooks on either side of the bridge near the uphill end</li> <li>▪ The bicycle connection between SR 303 and Park Avenue needs to be constructed after the Warren Avenue Bridge improvements</li> <li>▪ Appropriate lighting will be provided for active transportation facilities</li> </ul>

Source: SR 303 Corridor Study, 2021

### PROJECT AREA



Note: Conceptual drawing only. Channelization and sidewalk improvements north of the Warren Avenue Bridge are not included in this phase.



Note: Conceptual drawing only. Bicycle facilities along 18th Street and tunnel undercrossing are not included in this phase.

# EXISTING BRIDGE CONDITIONS

- 1,700' long (1/3 mile)
- 67.5' overall width
- 4 lanes of vehicle travel
  - » 11' inside lane, 11.5' outside lane
- Non-ADA compliant pedestrian access route on each side
  - » Widths vary from 3'-2" to 3'-11"
  - » ADA compliance requires 5' each side
- **Structure is owned and maintained by WSDOT**
- Three different structure types
  - » Concrete T-Beam
  - » Concrete Box Girder
  - » Steel Plate Girder
- Eligible for National Register of Historic Places
  - » Bridge constructed in 1958

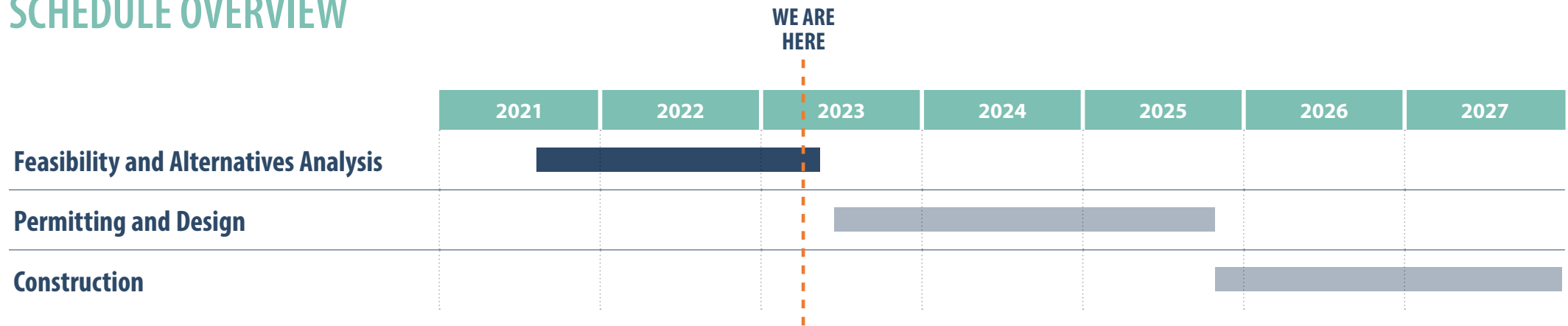


# EXISTING BRIDGE CONDITIONS



# PROJECT SCHEDULE

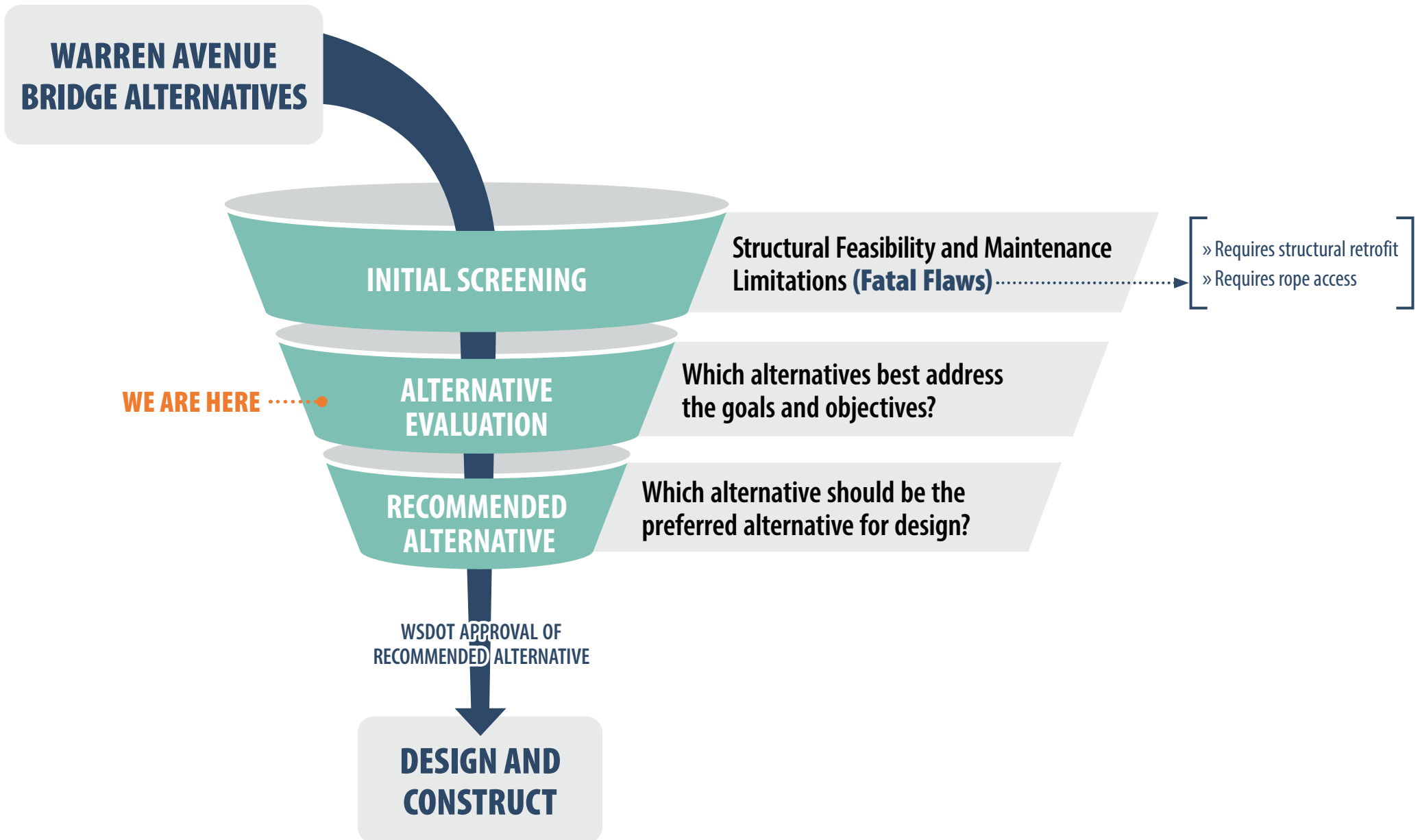
## SCHEDULE OVERVIEW



## FEASIBILITY AND ALTERNATIVES ANALYSIS



# ALTERNATIVES ANALYSIS



# INITIAL SCREENING – HELPFUL TERMS

## SEISMIC RETROFIT

Modification of existing structures to make them more resistant to seismic activity, ground motion, or soil failure due to earthquakes. This is required on existing bridges when a project adds extra weight beyond the structure's original safety factors.



## UNDER BRIDGE INSPECTION TRUCK (UBIT)

A specialized truck used by WSDOT to inspect and perform maintenance activities on the bridge. The truck provides access to all parts of the underside of the bridge within arms reach.



## WSDOT ROPE ACCESS TEAM

Certified bridge inspectors who also hold rope access certification and use rope rappelling techniques to access the under side of the bridge.





# INITIAL SCREENING—MAINTENANCE CONSIDERATIONS

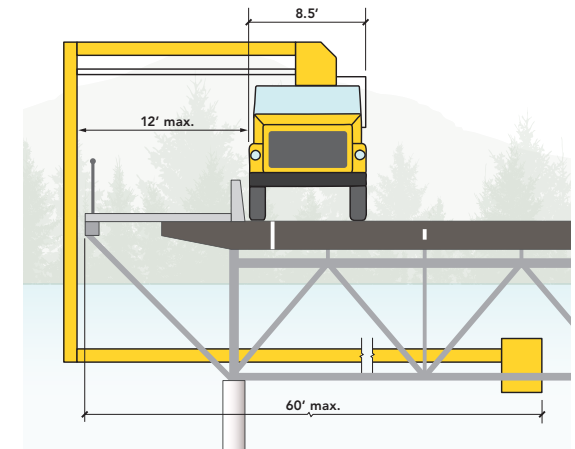
## ROPE ACCESS TEAMS

- The Warren Avenue bridge does not easily lend itself to rope access without extensive effort for rigging.
- The ability for rescue must also be provided in accordance with L&I.
  - » This would require a means to get workers back up, or down to standby rescue boats in the water.
- Using Rope Access Teams is time- and personnel-intensive, and also involves greater risk.
  - » To plan for a design that requires this is contrary to current practices of safety risk management.
  - » This is not considered a viable method for our project due to worker safety.



## LARGER UNDER BRIDGE INSPECTION TRUCK (UBIT) FEASIBILITY

- Some alternatives include the purchase of a larger UBIT to provide WSDOT with inspection/maintenance access.
- Response from WSDOT:
  - » WSDOT's existing fleet has been selected to serve the highest number of bridges.
  - » A larger UBIT will not be able to serve many of the existing bridges, therefore cannot replace an existing UBIT.
  - » City mitigation will be required if the purchase of a larger UBIT is necessitated.
    - WSDOT is open to the City purchasing a new, larger UBIT for their fleet, but this option needs to be evaluated and is considered mitigation for the project (cost to the City for purchase of a new UBIT has not been fully determined).



# ALTERNATIVE SCREENING

## INITIAL SCREENING MATRIX

	Alternative 1	Alternative 2	Alternative 3	Alternative 4a	Alternative 4b	Alternative 5	Alternative 6	Alternative 7	Alternative 7a	Alternative 8	Alternative 8a
Alternatives	8-foot clear width	10-foot clear width	12-foot clear width	16-foot clear width	16-foot clear width	14-foot clear width	At-grade 6-foot bike lane, 6-foot sidewalk	12-foot clear width on east side; 5-ft clear width on west side	12-foot clear width	14-foot clear width on east side; 5-ft clear width on west side	14-foot clear width
	Both sides	Both sides	Both sides	West side	East side	Both sides	Both sides	Both sides	East side	Both sides	East side
Origin	WSDOT recommendation	SR 303 Corridor Study preferred alternative	Larger 2-sided alternative assuming purchase of new UBIT	Combined WSCC one-sided alternative with WSDOT standard for shared use path	Alternate to 4a, not requiring an undercrossing of SR 303	WSDOT Traffic Office requested	Input from the stakeholder survey	WSCC requested one-sided alternative	Alternate to 7, keeping existing sidewalk on west side	WSCC requested one-sided alternative	Alternate to 8, keeping existing sidewalk on west side
Overlooks	8'x24', 4 total	6'x24', 4 total	No	No	No	N/A	N/A	No	No	No	No
Structural Feasibility	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Bridge Fully ADA Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Maintenance/Inspection Access	Existing UBIT	Existing UBIT	Larger UBIT	Rope access required	Rope access required	Larger UBIT	Existing UBIT	Larger UBIT	Larger UBIT	Larger UBIT	Larger UBIT
Planning Level Project Cost (Design and Construction)	\$23.1M	\$25.6M	\$29.1M	N/A	N/A	N/A	N/A	\$23.0M	\$17.8M	\$25.6M	\$20.2M

### Notes:

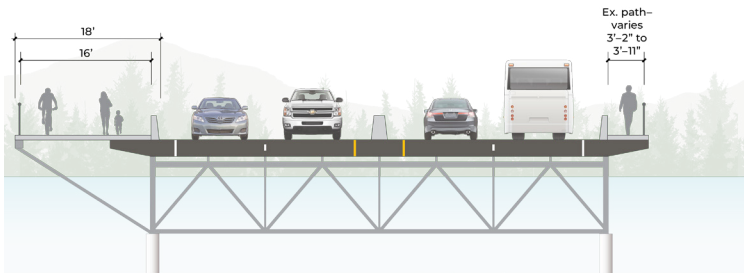
- Project scope includes on-structure improvements only (including minimal tie-in to the existing sidewalk).
- Budget available for Design and Construction is \$26.5M.
- "Clear width" is defined as the lateral distance of the path free from any obstructions, including barriers or railings. The minimum clear width for an ADA pedestrian accessible route is typically 5 feet.

<span style="display: inline-block; width: 20px; height: 10px; background-color: #c8e6c9; border: 1px solid #000;"></span>	Feasible Alternative
<span style="display: inline-block; width: 20px; height: 10px; background-color: #ffcdd2; border: 1px solid #000;"></span>	Eliminated Alternative <i>(not moving forward into the analysis or next phase)</i>
<span style="display: inline-block; width: 20px; height: 10px; background-color: #fff9c4; border: 1px solid #000;"></span>	Exceeds Project Budget

# ELIMINATED ALTERNATIVES

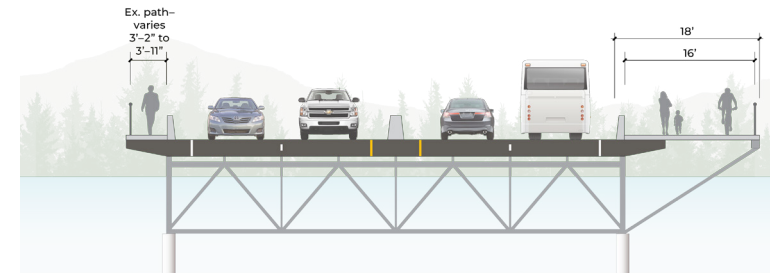
## ALTERNATIVE 4a

- Fatal flaw(s):**  
» Requires rope access



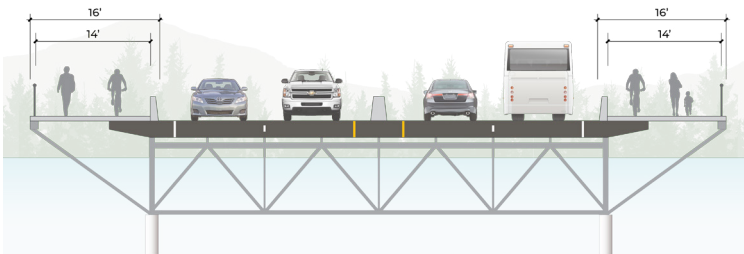
## ALTERNATIVE 4b

- Fatal flaw(s):**  
» Requires rope access



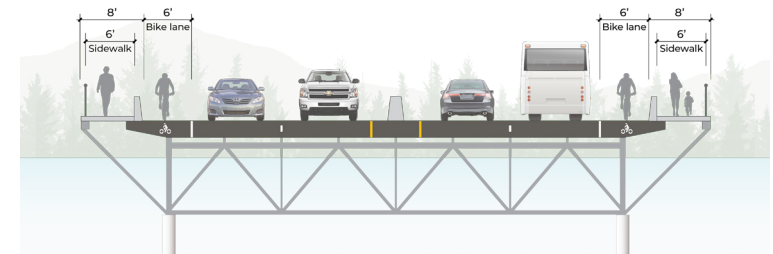
## ALTERNATIVE 5

- Fatal flaw(s):**  
» Requires structural retrofit



## ALTERNATIVE 6

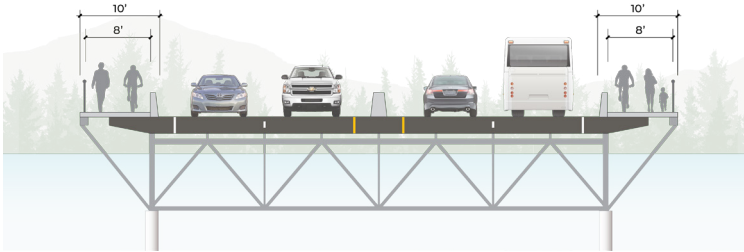
- Fatal flaw(s):**  
» Requires structural retrofit



# FEASIBLE ALTERNATIVES

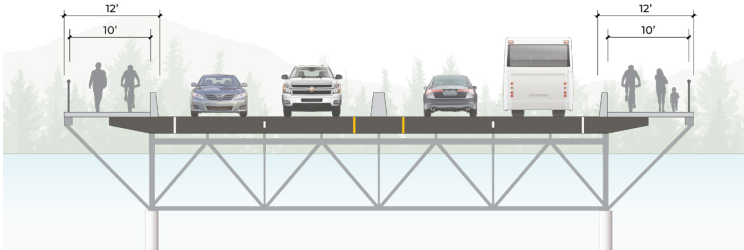
## ALTERNATIVE 1

Cost Estimate:  
\$23.1M



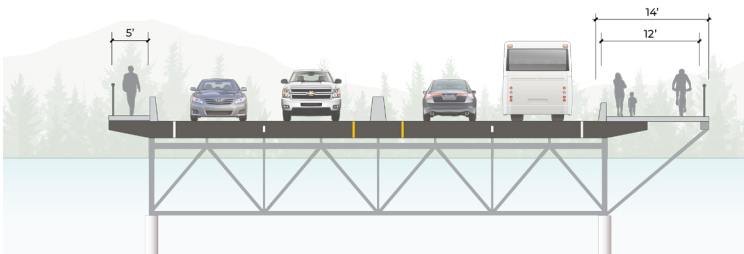
## ALTERNATIVE 2

Cost Estimate:  
\$25.6M



## ALTERNATIVE 7

Cost Estimate:  
\$23.0M



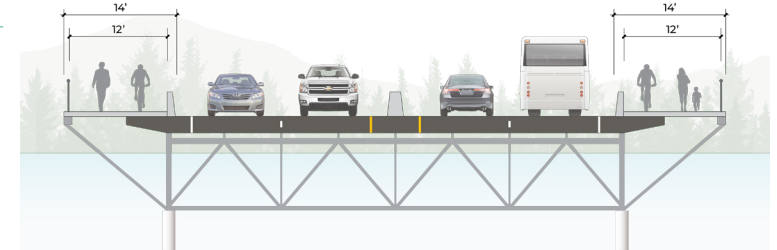
## ALTERNATIVE 8

Cost Estimate:  
\$25.6M



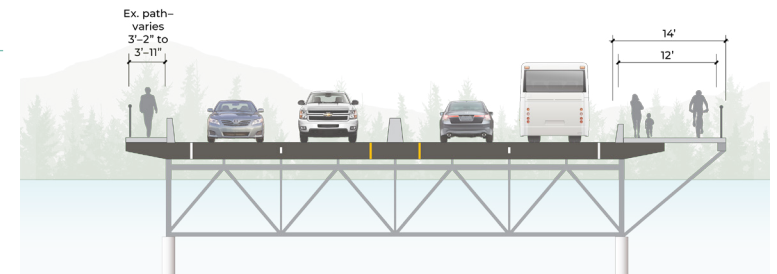
## ALTERNATIVE 3

Cost Estimate:  
\$29.1M  
*(exceeds project budget)*



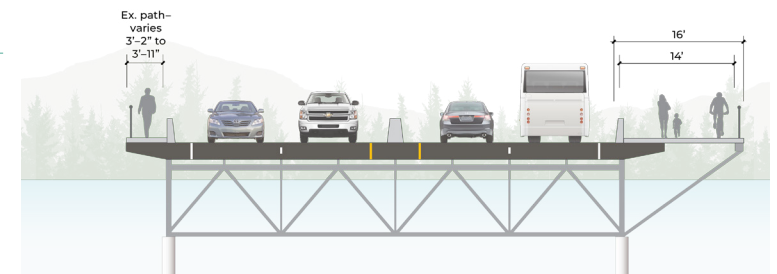
## ALTERNATIVE 7a

Cost Estimate:  
\$17.8M



## ALTERNATIVE 8a

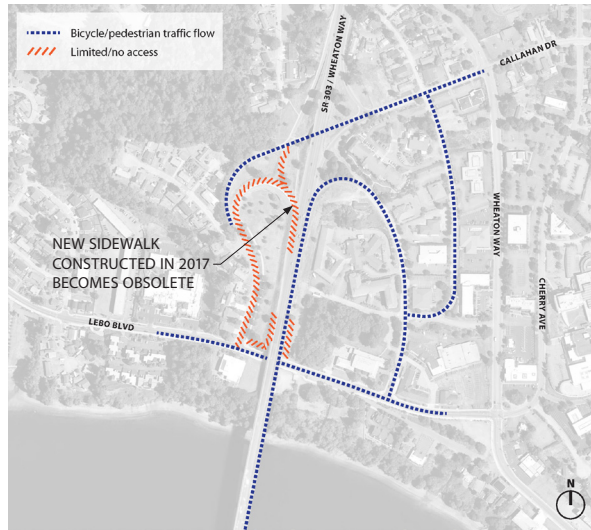
Cost Estimate:  
\$20.2M



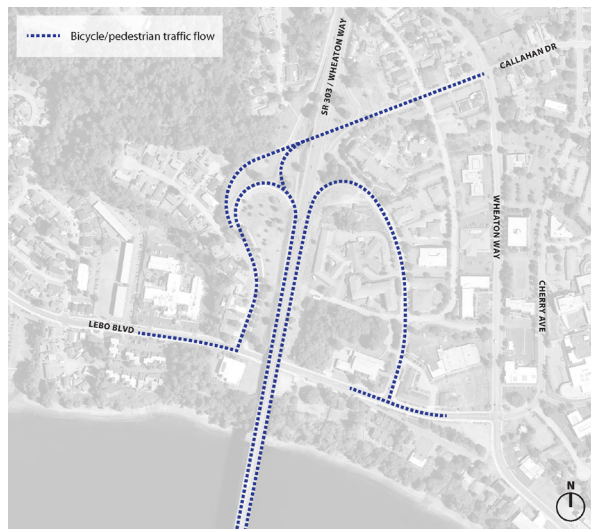
# OFF BRIDGE MULTIMODAL CONNECTIVITY

## ONE-SIDED VS. TWO-SIDED BRIDGE IMPROVEMENTS

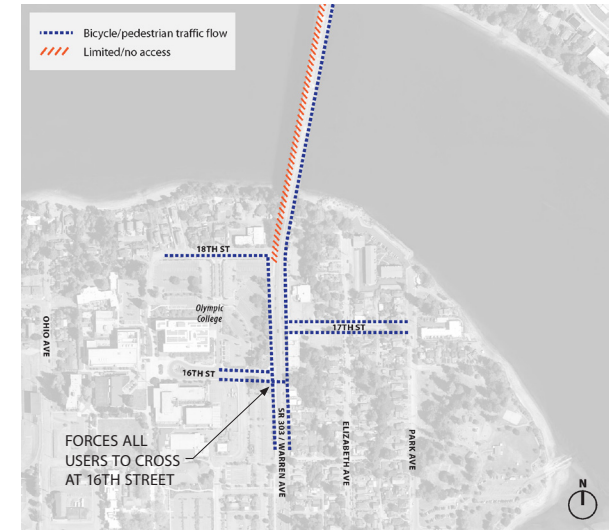
**NORTH END –**  
*wide walkway on  
the east side only*



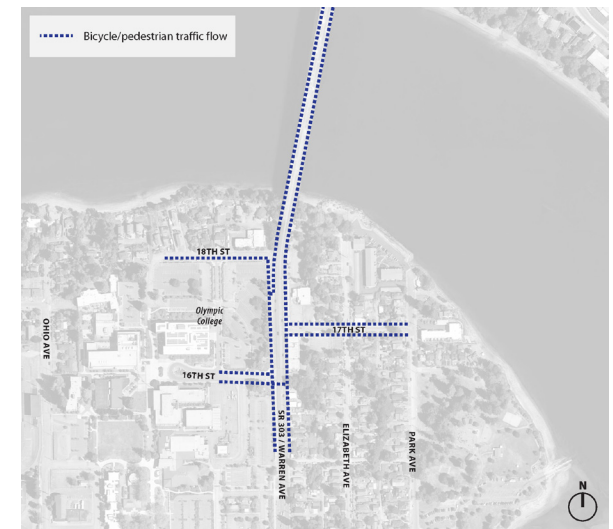
**NORTH END –**  
*wide walkway on  
both sides*



**SOUTH END –**  
*wide walkway on  
the east side only*



**SOUTH END –**  
*wide walkway on  
both sides*



# OFF BRIDGE CONNECTIVITY CONCEPTS

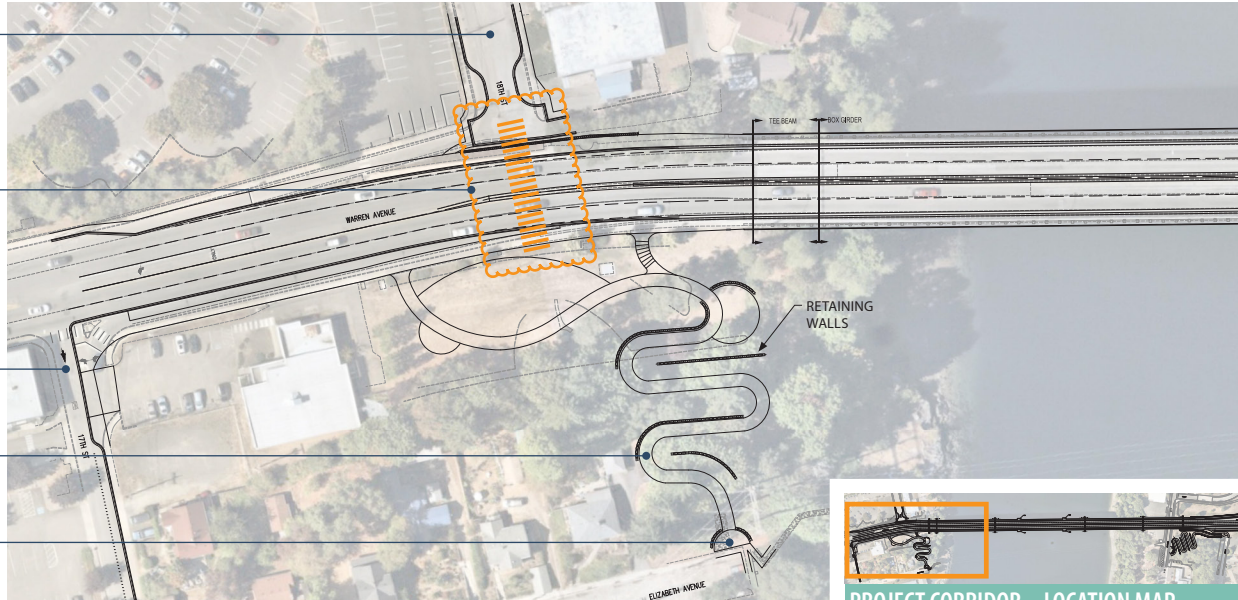
18TH STREET  
RAMP CLOSURE

POTENTIAL NON-  
MOTORIZED CONNECTION  
(TUNNEL)

17TH STREET ONE-WAY  
EASTBOUND CONVERSION

ROTO VISTA  
PARK PATHWAY

ELIZABETH AVENUE  
CONNECTION



TUNNEL.....\$10.0M

LEBO BOULEVARD  
PATHWAY.....\$2.6M

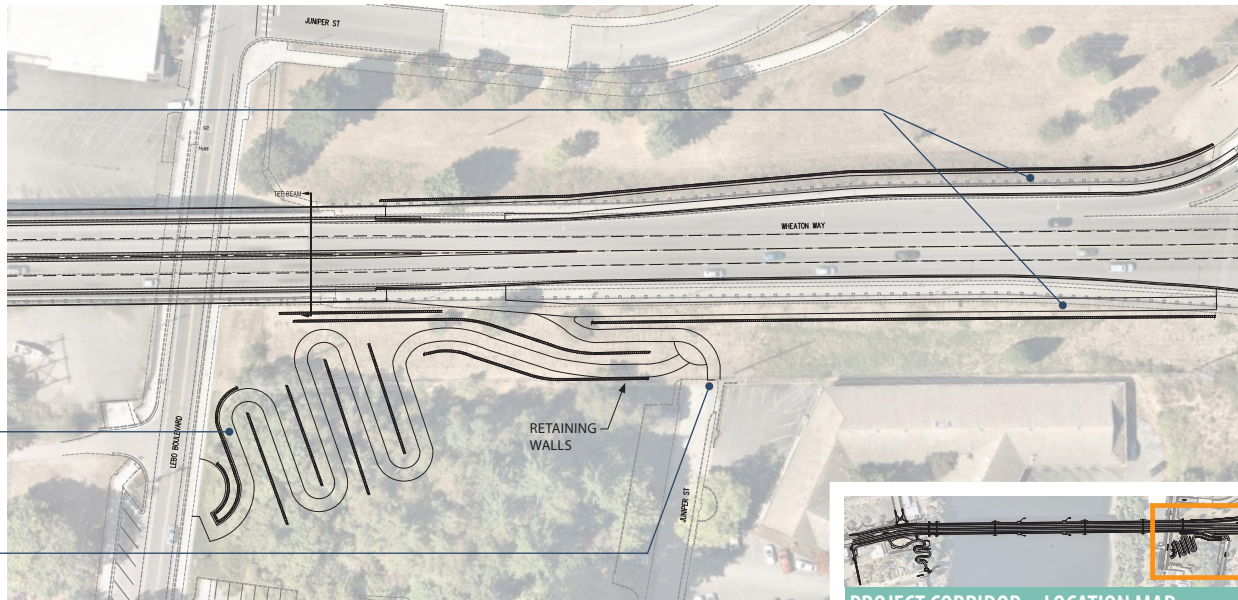
ROTO VISTA PARK  
PATHWAY.....\$2.2M

ROADWAY/SIDEWALK  
IMPROVEMENTS..... \$5.8M

SIDEWALK EXTENSION  
ALONG WHEATON WAY

LEBO BOULEVARD  
PATHWAY

JUNIPER STREET  
CONNECTION



*Note: The above listed projects are examples of potential off bridge improvements, and are conceptual designs only. Public outreach efforts will occur once additional funding is obtained to identify the community's preferred off bridge improvements.*