Baring Bridge is located on NE Index Creek Road over the South Fork of the Skykomish River near Baring, Skykomish and US Route 2.
Baring Bridge Information

- **King County-owned** and maintained single lane timber and cable suspension bridge

- Provides sole **access to about 170 properties**, including over 40 residences, in the unincorporated community of Baring, WA

- **Built in 1930** and designated a Historic Landmark by King County in 1999

- 340 feet long & 8.2 feet wide, has a **weight limit of 20,000 lbs**, and **speed limit of 5 mph**

- A portion of the existing bridge is **in the FEMA 100-year flood plain**
Current Baring Bridge Plan & Elevation
Bridge Element Terminology

- **SUSPENDER CABLE**
- **TOWER**
- **MAINLINE CABLES**
- **TRUSS**
- **RAILING**
- **CURB**
- **DECK PLANKS**
Bridge Element Terminology, cont.
Bridge Needs to be Replaced

- Timber towers continue to rot
- Repairs are difficult and expensive
Why is a replacement necessary for Baring Bridge?

**Sole Access for Residences**
- Provides sole access to about 170 properties, including more than 40 residences.
- Alternative route is a washed-out Forest Service road that remains closed due to unstable conditions.
- At risk of being closed due to age/condition - major impact to the Baring community

**Safety Concerns**
- The existing bridge is weight and speed restricted.
- Existing bridge is structurally deficient
- Many components of the bridge are continuing to age.
- The existing bridge scores a Sufficiency Rating of 10.43 out of 100 (National Bridge Inspection Standards)

**Extensive Maintenance Requirements**
- The existing bridge towers are 89-years-old.
- The timber and steel cable elements are continuing to age.
- Frequent and major repairs come at a high cost.
- Permanent solution is necessary.
- Key elements - towers - are worn out and it is not feasible to repair or refurbish – need to replace the bridge
Significant Repairs on Baring Bridge (1976 – Present)

- In **1976**, two new cables were added to the bridge, and the North Approach was replaced.

- In **1995**, new floor-beams, decking, concrete anchors, high strength hangers, and bridge rail system were added.

- In **2010**, a column and foundation sills were replaced on the North Tower of the bridge.

- In **2017**, new main span stringers and decking were added to the bridge. Retrofits were made to the floor-beams, South Tower, and timber at ground line.
2017 Emergency Repairs

- Suspended Work Platform
- Repaired railing elements
- Replaced Stringers
- New Deck
2017 Emergency Repairs Cont.

- Tower Strengthening Retrofit
- Steel Straps on Floor Beams
- Timber Repairs at Ground Line
2018 Repairs

- Timber repairs at ground line
Future repairs (2019 onward)

• A scour pocket is developing at the South Tower of the bridge that will be addressed between 2019 – 2020.

  ![Scour pocket](image1)
  ![Scour pocket](image2)
  ![Split beam](image3)
  ![Broken fence posts](image4)

• Future maintenance on the top of the deck is required to repair the bridge truss and railing.
Future repairs (2019 onward)

- Tighten cables to prevent the deck from sagging
- Clean and paint metal components
- Repair damaged anchor box
- Retrofit and/or replace aging timber members and other components of the bridge
Design Considerations for Baring Bridge

- Sole access
- King County Historic Landmark
- Community and Stakeholder Input
- Aesthetics, Architecture, and Art elements
- Potential cultural issues
- Posted weight limit of 20,000 lbs

- Challenging geotechnical and artesian aquifer conditions
- Hydraulic (floodplain) constraints
- Right-of-way and permitting
- Construction methodology
- Posted speed limit of 5mph
Once a Bridge Type is Selected, then Alternatives will be further studied:

Alternative 1: No Action

Alternative 2: Existing Bridge Rehabilitation

Alternative 3: New bridge – downstream location – potentially keep existing bridge structure

Alternative 4: New bridge – existing location
## Pros & Cons of Potential Bridge Types

<table>
<thead>
<tr>
<th>Bridge Type: Pros/Cons</th>
<th>Steel Truss</th>
<th>Suspension</th>
<th>Two Tower Cable Stayed</th>
<th>Steel Network Tied Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation footprint</td>
<td>Medium</td>
<td>Large</td>
<td>Large</td>
<td>Medium</td>
</tr>
<tr>
<td>Structure Height (existing 30 ft above bridge deck)</td>
<td>30-40 ft at center</td>
<td>30-35 feet at towers</td>
<td>70-80 feet at towers</td>
<td>40-70 feet at center</td>
</tr>
</tbody>
</table>

### Structural Performance

<table>
<thead>
<tr>
<th>Structural Performance</th>
<th>Steel Truss</th>
<th>Suspension</th>
<th>Two Tower Cable Stayed</th>
<th>Steel Network Tied Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seismic</td>
<td>Average</td>
<td>High</td>
<td>Good</td>
<td>Average</td>
</tr>
<tr>
<td>Redundancy</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Low</td>
</tr>
</tbody>
</table>

### Construction

<table>
<thead>
<tr>
<th>Construction</th>
<th>Steel Truss</th>
<th>Suspension</th>
<th>Two Tower Cable Stayed</th>
<th>Steel Network Tied Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Middle</td>
</tr>
<tr>
<td>Prefabrication</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Anchorage from piers</td>
<td>Not required</td>
<td>Yes</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>In water piers</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Falsework</td>
<td>Required</td>
<td>Not Required</td>
<td>Not Required</td>
<td>Required</td>
</tr>
</tbody>
</table>

### Maintenance

<table>
<thead>
<tr>
<th>Maintenance</th>
<th>Steel Truss</th>
<th>Suspension</th>
<th>Two Tower Cable Stayed</th>
<th>Steel Network Tied Arch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painting and Upkeep Costs</td>
<td>High</td>
<td>Low</td>
<td>Moderate</td>
<td>High</td>
</tr>
<tr>
<td>Inspection Cost</td>
<td>Moderate</td>
<td>Moderate</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
OPTION A: STEEL TRUSS
OPTION B: SUSPENSION
OPTION C: TWO TOWER CABLE STAYED
OPTION D: STEEL NETWORK TIED ARCH
NEXT STEPS…

- Incorporate Community input
- Recommend a preferred alternative
- Approve the preferred alternative
- Advance engineering design
Thank you for being here - Your Input is Very Important to Us!

Please consider:

1. Participating in an interview or filling out a survey today
2. Survey available online
3. Visiting the project website at [www.kingcounty.gov/BaringBridge](http://www.kingcounty.gov/BaringBridge)
QUESTIONS?
Project Representatives are here to help!

King County
Department of Local Services
Road Services Division