King County

Annual Bridge Report

Department of Local Services

Road Services Division

2023

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ANNUAL BRIDGE REPORT

Department of Local Services
Road Services Division
King Street Center, KSC-LS-0313
201 S. Jackson Street
Seattle, WA 98104-3856
206-477-3601 TTY Relay: 711
www.kingcounty.gov/roads

JoAnn Kosai-Eng, P.E.
County Road Engineer

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I. EXECUTIVE SUMMARY

King County Department of Local Services, Road Services Division owns and maintains 188 bridges in the unincorporated area of King County. Built over many generations, these bridges range from less than 10 years to over 100 years in age. These bridges are an integral part of a road system that supports more than one million vehicle trips every day, yet the inventory is old, with an average bridge age of 52 years. At the end of 2023, there were 75 bridges beyond their expected useful life. This issue is particularly pronounced with the timber bridges, which make up about one-third of the inventory. Although timber bridges have a typical useful life of 50 years, their average age is 69 years.

As bridges continue to age and deteriorate, they will need to be replaced or closed. Although the useful life has been extended through prior repairs, the overall condition of the bridge inventory is declining, and major structural repair is no longer viable as a long-term solution. There are currently two closed bridges: Miller River Bridge No. 999W which was closed in 2011, and SE 408th Street Bridge No. 3056A which was closed in 2012.

Currently, the County has ten load restricted bridges and two bridges with vertical clearance restrictions. Immediate impacts of the load restrictions on bridges include trucks detouring onto roads less appropriate for heavy truck traffic and the risk that emergency responders may be delayed if certain types of heavier fire apparatus are not allowed or unable to cross a bridge on the most direct route. Because these requirements are across the entire road network, restrictions are having an impact on travel in King County.

Given the impacts of the increasing number and sizes of heavy vehicles on the roadway, the aging inventory, and a decline in the overall condition of the bridges, the number of bridges which need to be replaced are increasing. Federal funds may be available for the National Bridge Inventory (NBI) structures which are over 20 feet in length, however, additional funding will be needed to continue to address the declining condition of the overall bridge inventory.

Federal funds are not available for short span structures, which are equal to or below 20 feet in length. Funding for rehabilitation or replacement of these short span structures comes from within the county. Thirteen out of the top thirty high priority bridges for replacement/rehab listed in Section VI are short span bridges.

II. INTRODUCTION

This bridge report is prepared by the King County Department of Local Services (DLS) Road Services Division (Roads) each year to fulfill the requirements of Washington Administrative Code (WAC) 136-20-060. This WAC requires the County Road Engineer's report of bridge inspections as follows:

"Each county engineer shall furnish the county legislative authority with a written report of the findings of the bridge inspection effort. This report shall be made available to said authority and shall be consulted during the preparation of the proposed six-year transportation program revision. The report shall include the county engineer's recommendations as to replacement, repair, or load restriction for each deficient bridge. The resolution of adoption of the six-year transportation program shall include assurances to the effect that the county engineer's report with respect to deficient bridges was available

to said authority during the preparation of the program. It is highly recommended that deficient short span bridges, drainage structures, and large culverts be included in said report."

This report summarizes King County Roads 2023 bridge inventory, programs, inspections, activities, and findings. These programs form an integrated and comprehensive strategy to maintain and preserve the county's bridges and the continuity of the roadway network. The three main bridge program goals are:

1. Keep the bridges open and safe for public use.
2. Preserve bridge infrastructure by maximizing its useful life through active maintenance, repair, load upgrades or rehabilitation.
3. When possible, replace existing bridges with reliable new structures when repair, load upgrades or rehabilitation is not feasible.

As bridges age beyond their expected useful life, Roads will continue to undertake bridge maintenance and preservation activities, and when bridges can no longer be maintained in a safe and serviceable condition, they will be restricted or closed.

This report incorporates the inspection results for 2023 and the current Federal Highway Administration (FHWA) load-rating method as part of the priority ranking for bridge replacements. It updates the current list of load-limited bridges and sets the immediate work plan for both the proposed bridge replacement and bridge preservation programs.

Throughout the report, several references are made to specific bridges, each of which is uniquely identified by name and number, e.g., **Mt. Si Bridge No. 2550A.** To assist the reader, the complete bridge inventory and location descriptions are included at the end of this report in Appendix One.

Status information regarding current and future bridge projects is addressed in Sections VI, VII and VIII of this report. Current projects and programs can be viewed on the King County website at http://www.kingcounty.gov/depts/local-services/roads/bridges.aspx

III. BRIDGE INVENTORY

Washington State is required by 23 CFR 650.315 to maintain an inventory of all bridges (structures) subject to the National Bridge Inspection Standards (NBIS), from which selected data is reported to FHWA as requested for entry into the National Bridge Inventory (NBI). NBI bridges are those bridges in the inventory that are greater than 20 feet in length. FHWA has a Stewardship Agreement with Washington State to submit NBI data on March 15 and October 1 each year. Washington State maintains an inventory (Washington State Bridge Inventory System (WSBIS)) to meet WAC 136-20-020, which requires that each Local Agency (Counties and Cities) maintain an inventory of bridges in the state inventory. As King County is a local agency in Washington State, WSDOT Local Programs coordinates with King County Road Services Division for the management of bridge inventory using WSBIS. All King County inventory data is entered into the Bridgeworks Program developed and maintained by WSDOT in a timely manner as outlined in the Washington State Bridge Inspection Manual.

In March 2022, FHWA published the 2022 Specifications for the National Bridge Inventory (SNBI). These new specifications will replace the existing 1995 Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges. WSDOT and local agencies will adapt to the new SNBI specifications in phases through years 2023 to 2026. All SNBI data for all SNBI reportable structures must be entered by January 2028. There will be a total of 174 item changes within Bridgeworks that will be implemented from 2023 to 2026 to comply with the new SNBI coding guidelines. Background information on these new specifications is available here: https://www.fhwa.dot.gov/bridge/nbis2022.cfm. Many inventory data fields including sufficiency rating, one of the performance measures that was used in the past, have been discontinued with the SNBI changes starting in 2023.

Roads engineers inspect and inventory 188 bridges located across King County consisting of:

- 137 vehicular National Bridge Inventory (NBI) bridges
- 44 vehicular short span bridges (non-NBI *20 feet or less in length*)
- 3 vehicular bridges (NBI) co-owned with other agencies
- 3 pedestrian bridges (non-NBI)
- 1 safety corridor bridge (NBI, non-vehicular)

The bridges owned and maintained by Roads are built with several types of materials in a variety of designs. Of the 184 vehicular bridges in the inventory, 57 are built with timber components, 21 are constructed with steel superstructure components and 106 are concrete structures.

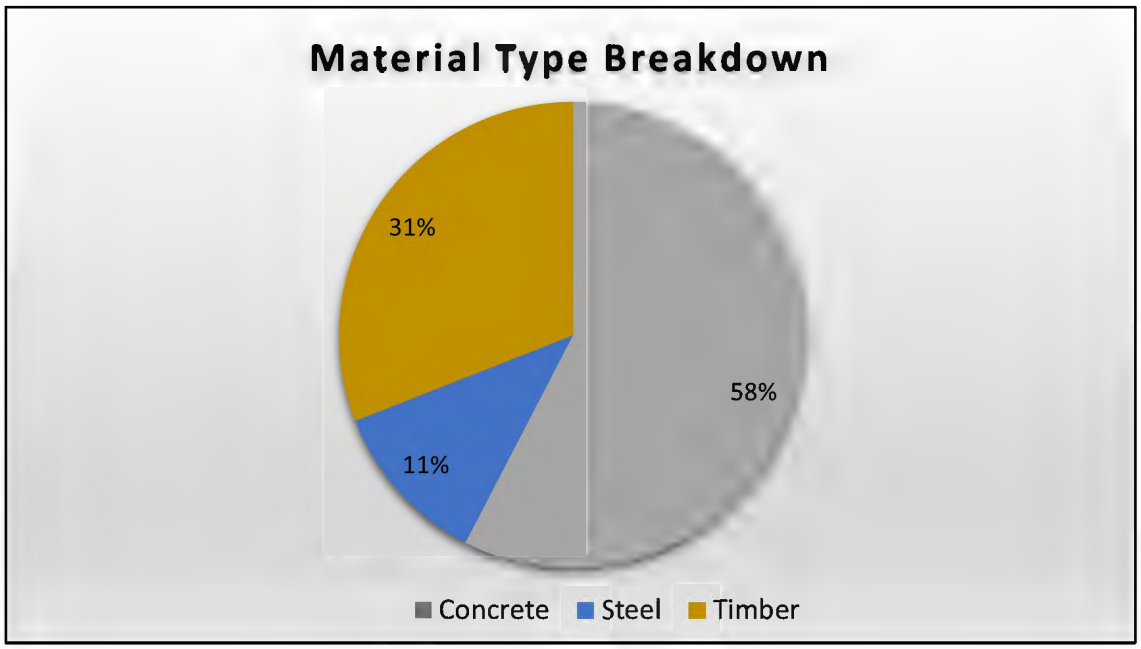

Figure 1: Vehicular Bridges by Material Types

Figure 1 shows the breakdown by material type of the King County Roads vehicular bridge inventory.

Many of the timber bridges were built during the 1950s. The average age of King County bridges with timber elements is 69 years. The expected service life of timber bridges is 50 years; therefore, a large majority of county timber bridges have aged beyond their service life. The county has been able to extend the service life of its timber bridges through thorough monitoring and bridge repairs that were funded in 1995-1997 and 2001-2003. Major structural repair of timber bridges is no longer viable as a long-term solution due to the condition of the bridge foundations and current environmental regulations.

Forty-four of the 184 vehicular bridges are short span bridges, which are spans equal to or less than 20 feet long and are categorized as non-NBI bridges. Bridges that are classified as short span bridges are not eligible for federal funds and would have to be replaced at the county's own expense. Of these short span bridges, 26 have timber elements.

Replacing these bridges would have many benefits such as eliminating the risk of closure or restriction for the safe use, improving traffic safety, minimizing maintenance costs, providing better hydraulic performance, and removing toxic creosote-treated timber piles from streams. In 2007, Roads began an aggressive short span bridge replacement program to address the large number of deficient timber bridges. Each year of the program, two to four bridges were replaced, but this program was halted in 2013 due to the significant decline in Roads revenues.

The remaining 140 bridges are considered NBI bridges, which are greater than 20 feet in length and are required to be reported to FHWA. This requirement excludes the three pedestrian bridges and the Safety Corridor bridge. Thirty-one of these NBI bridges have timber elements.

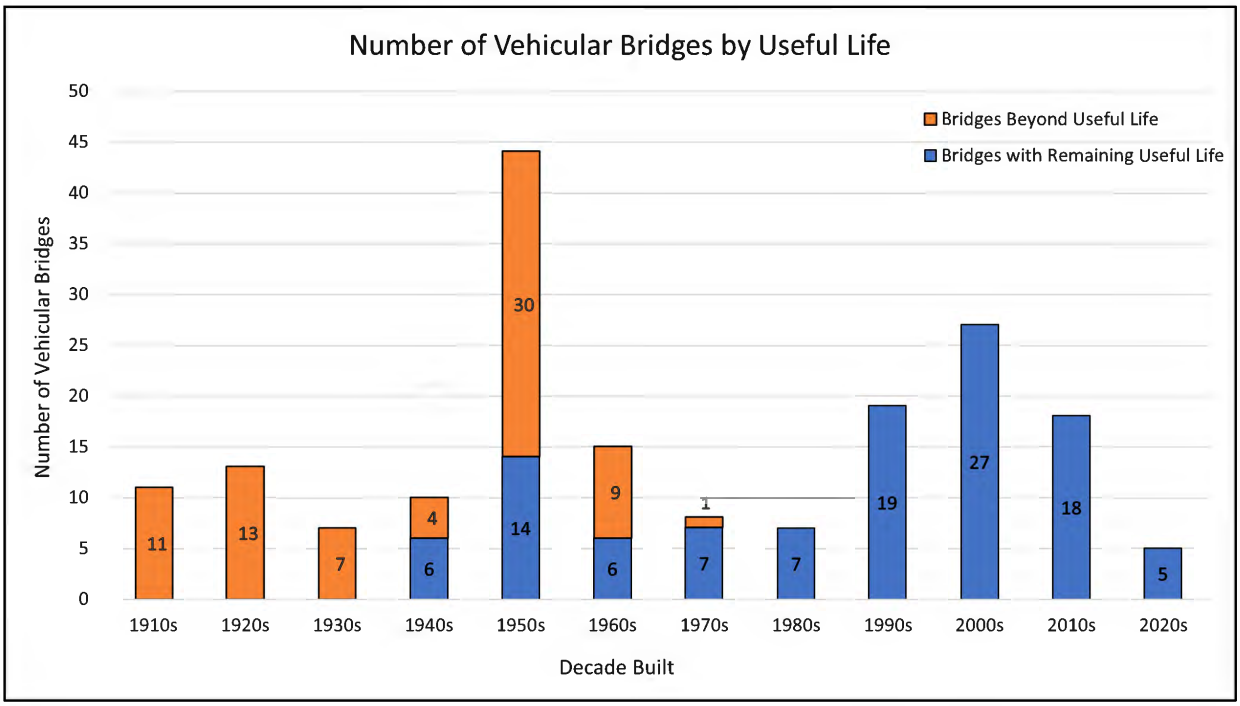

Figure 2: Vehicular Bridges by Useful Life

Figure 2 shows the number of vehicular bridges built by decade. It also shows the number of bridges (41% of vehicular bridge inventory) that are beyond their useful life. The anticipated useful life of bridges varies by material type with timber bridges at 50 years, and steel bridges and concrete bridges at 80 years. Most of the county bridges are comprised of multiple material types for the substructure, superstructure, and decking. Of the 184 vehicular bridges in the inventory, 75 are beyond their expected useful life. In addition, the average age of the vehicular bridge inventory is 52 years, and the entire inventory average age is 52 years old.

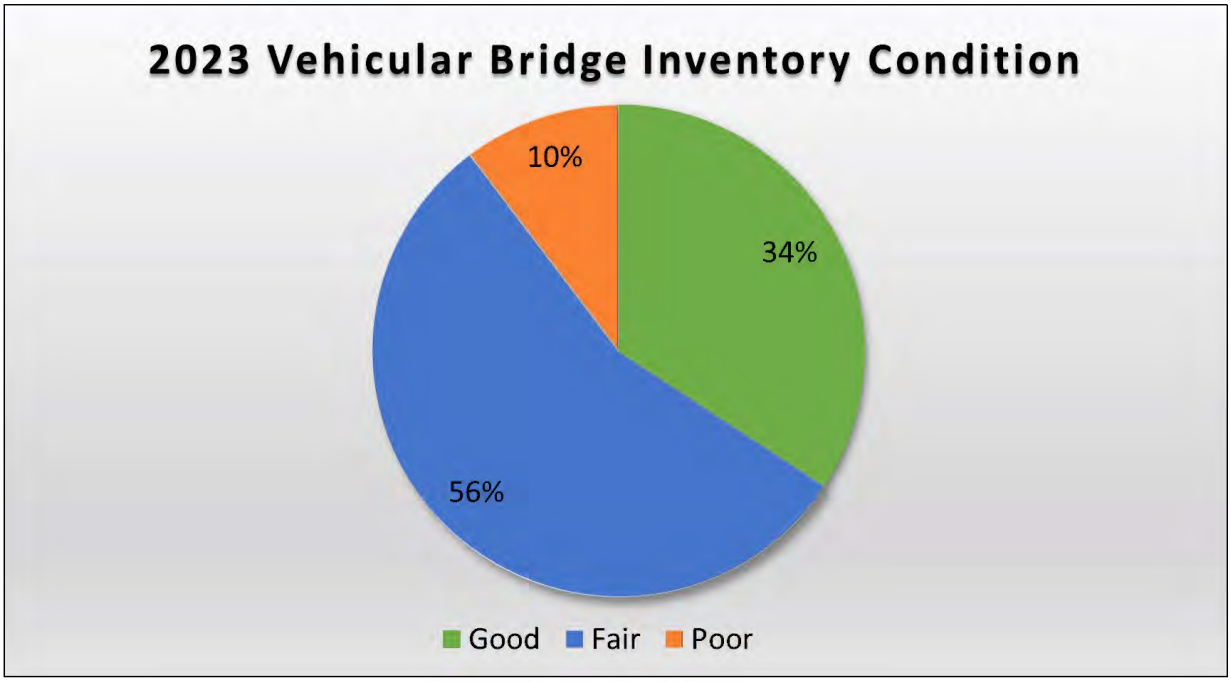

Figure 3: Vehicular Bridge Condition Classification

The bridge inventory condition was previously assessed using a rating factor known as the Sufficiency Rating. With the implementation of the new 2022 Specifications for the National Bridge Inventory (SNBI), the sufficiency rating will no longer be used. Starting in 2023, bridge inventory condition will be assessed based on condition. For each bridge, the deck, substructure, and superstructure condition states are rated on a scale from one to eight. If any of these elements are rated less than or equal to four, the bridge is classified as "Poor", elements rated five or six are classified as "Fair" and elements greater than or equal to seven are classified as "Good".

Figure 3 shows the number of vehicular bridges in each classification. In year 2023, there are 19 bridges (10%) categorized in the state of "Poor", 102 bridges (56%) in Fair and 63 bridges (34%) are in "Good." A bridge in poor condition has advanced deficiencies such as: section loss, deterioration, scour, or a structural component(s) with a serious defect. Due to these deficiencies, these structures may have weight restrictions. Because damage and deterioration tend to compound when left unchecked, it is likely that the bridges in the "fair" category may fall into the poor category if the assets are not managed with proper maintenance.

Condition state classification percentage for vehicular timber bridges only are, 77% in "fair", 23% in "poor" and none in condition state "good".

Figure 4 illustrates the distribution of bridges inspected by King County Roads with council district boundaries shown. In addition to the unincorporated county bridges, the county is contracted to inspect bridges for 22 local cities.

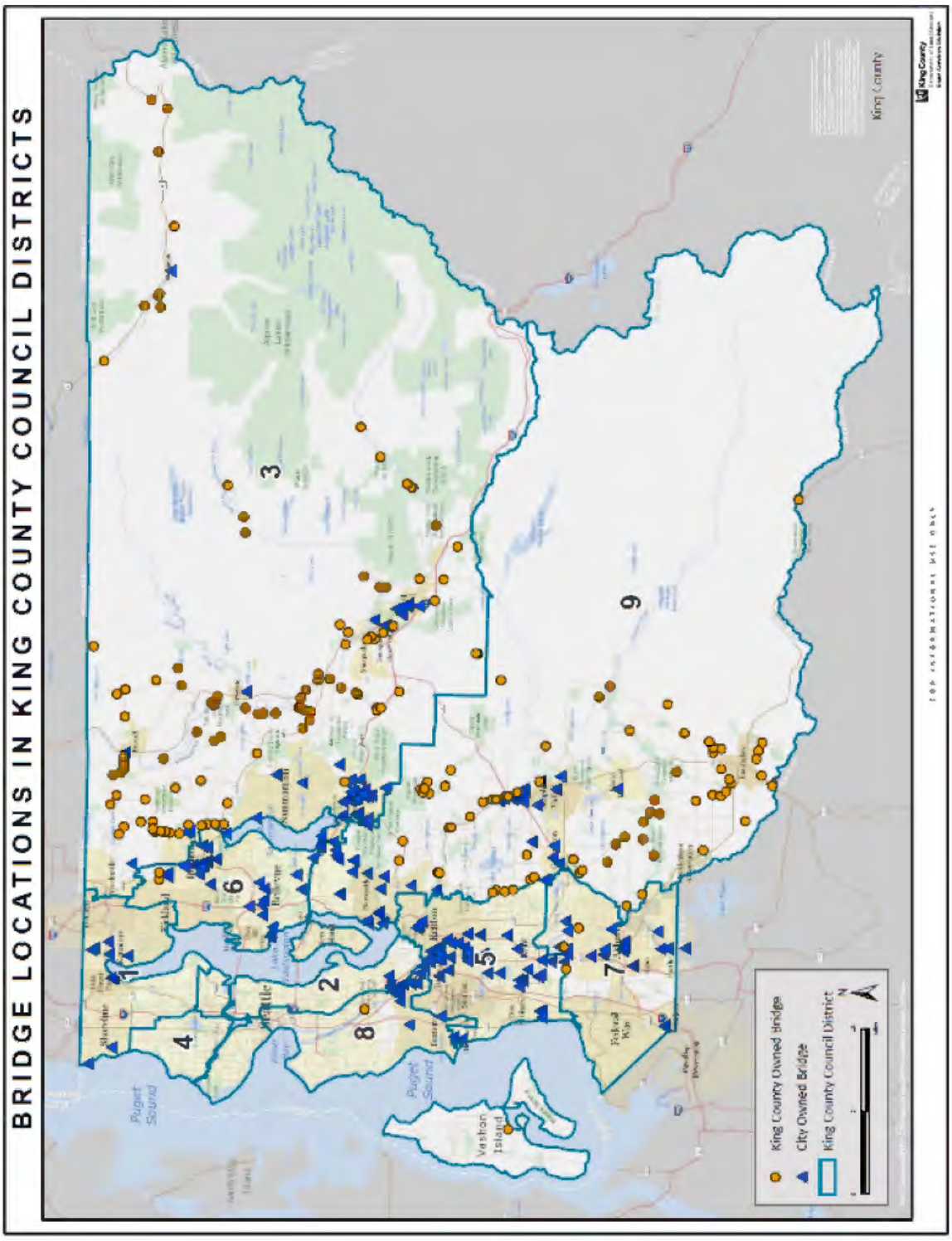

Figure 4: Map of bridges inspected by County.

IV. BRIDGE INSPECTION

The National Bridge Inspection Standards (NBIS), in conformance with the Code of Federal Regulations (CFR) 23 Part 650 Subpart C, mandate that public agencies routinely inspect and report on all publicly owned bridges at least once every two years. Under these standards, the county is required to document condition codes for bridge elements and report the current condition of each bridge to FHWA. Bridges with deficient conditions may require inspection more frequently than the standard 24-month cycle.

A. COMPLETED BRIDGE INSPECTIONS

In 2023, county engineers conducted inspections on 109 of the 188 bridges that Roads owns. Many bridges in the King County inventory span rivers, ravines, railroads, trails, or other roadways. Some of these bridge inspections require special equipment such as an Under Bridge Inspection Truck (UBIT) to access all the bridge features. King County has 40 bridges that require a UBIT for inspection. In 2023, a UBIT was used for inspection on 15 bridges. The county rents UBIT vehicles from Washington State Department of Transportation (WSDOT) and Seattle Department of Transportation (SDOT) on a contract basis.

During bridge inspections, inspectors make in-depth evaluations of the condition of the bridge structure and document all observable defects. When the inspection reveals a deficiency, a maintenance work order is generated and assigned a priority. Urgent structural or safety concerns are promptly addressed, while lower-priority defects are placed in the work order backlog. Bridge inspection reports are reported in a timely manner to WSDOT Local Programs, which in turn verifies compliance with the SNBI; WSDOT, in turn, reports the results to FHWA.

Steel bridges that have two or less load paths require a special inspection titled Non-Redundant Steel Tension Members (NSTM) inspection which is an in-depth inspection of the steel components checking for cracking, tears, buckling, excessive rust, and other steel related defects. Roads owns 15 bridges that require a NSTM inspection and 7 NSTM inspections were conducted in 2023.

Inspectors also conduct Special Feature Inspections which are required for bridges with special features such as the cables or strands on a cable stayed or suspension bridge. Roads owns 3 bridges that require a Special Feature Inspection. In 2023, Special Feature Inspections were conducted on Baring Bridge No. 509A and Flaming Geyser Bridge No. 3024. South Park Bridge No. 3179 and Baring Bridge No. 509A require Special Feature Inspections in 2024.

Roads owns 4 bridges that necessitate an Underwater Inspection. These bridges have foundations in deeper waterways that are not accessible during routine inspections. An underwater inspection is conducted every five years by WSDOT's dive team on these bridges Underwater inspections are not due until 2025.

Table 1 shows the inspection type of and completed inspections in 2023.

Inspection Types	Total of Each Inspection Type	Total Inspected in 2023
Routine	188	109
UBIT	40	15
NSTM	15	7
Special	3	2
Underwater	4	0

Table 1: Inspections Completed in 2023 by Type of Inspection

B. CRITICAL FINDINGS

A Critical Finding is defined as a structural or safety related deficiency that requires immediate action. Engineering judgment by field inspectors is used in determining whether to categorize a finding as critical. This condition necessitates closing, posting, or restriction of a portion of the structure or access under a structure.

In 2023, there were three Critical Findings. All findings followed and met reporting requirements and timelines:

- Fifteen Mile Creek Bridge No. 493C– advanced rot in timber cap
- Issaquah Creek Bridge No. 83B– advanced rot in timber cap
- Tolt Bridge No. 1834A– approach undermining and gabion wall failure

The timber caps for Fifteen Mile Creek Bridge No. 493C and Issaquah Creek Bridge No. 83B were replaced. Soil movement monitoring devices were installed at Tolt Bridge No. 1834A until repairs can be completed. Estimated project completion is in 2024.

V. LOAD-LIMITED OR RESTRICTED BRIDGES

A. LOAD RATING REQUIREMENTS

In November 2013, FHWA sent a memorandum to all government agencies regarding additional requirements for Bridge Load Rating. The memorandum requires agencies to add analysis of four legal Specialized Hauling Vehicles (SHVs) as defined in the American Association of Highway and Transportation Officials (AASHTO) Manual for Bridge Evaluation (MBE) as part of each bridge load rating report. These trucks can carry more concentrated loads than previously authorized. They are four single-unit (SU4, SU5, SU6 and SU7) vehicles with closely spaced moveable axles that raise and lower as needed for weight carrying which results in higher loads distributed over a shorter distance. Each bridge load posting now requires an additional review of these four SU vehicles in addition to the prior 3-AASHTO vehicles.

Another set of requirements were added in November 2016, when FHWA issued a memo that provided guidance on compliance with Section 1410 of the "Fixing America's Surface Transportation Act" (FAST Act) law signed in 2015. Section 1410 includes bridge load rating and posting requirements for

Emergency Vehicles (EV) on the Interstate System and within reasonable access to the Interstate System. FHWA has established two emergency vehicles (EV2 and EV3) to be included in the bridge load rating reports and posting requirements. These vehicles can create higher load effects compared to AASHTO legal loads (i.e. Types 3, 3S2, 3-3, and SU4, SU5, SU6 and SU7).

Reasonable access is defined as at least one road mile from access to and from the National Network of Highways, and Roads has five vehicular bridges that meet this criterion. These bridges are Brissack Bridge No. 1116A, Edgewick Bridge No. 617B, Fire Station Bridge No. 186J, Preston Bridge No. 682A, and Preston Frontage Road Bridge No. 5046.

King County completed the inclusions of four SHVs and two EVs in each vehicular bridge load rating report by the December 31, 2022 deadline established by FHWA & WSDOT.

B. BRIDGE LOAD POSTING

The intent of the load rating and posting provisions of the NBIS is to ensure that all bridges are appropriately evaluated to determine their safe, live-load-carrying capacity considering all unrestricted legal loads and existing bridge conditions. Bridge load posting decision is based on load rating results from each of seven legal trucks and two emergency vehicles per AASHTO MBE and WSDOT BDM.

Many of King County's older structures were designed and constructed based on older design vehicles which are lighter than current HL-93 design vehicles. HL-93 is the design vehicle specified in the current AASHTO design code. The use of these heavier, more concentrated SU and EV vehicle loads, compounded by continued aging and deterioration of the bridge inventory, creates an expectation that the number of load-restricted bridges will continue to grow. The load restrictions on bridges could cause system wide impacts to freight mobility, service delivery to communities, and types and flexibility of fire apparatus that can respond at certain locations unless bridges can be load upgraded or replaced.

At the end of 2023, ten bridges were load posted. Two out of the ten are currently under replacement design. The current load-restricted bridges are listed in Appendix Two – Load Limited or Restricted Bridges and posted at the following website:
https://kingcounty.gov/en/dept/local-services/transit-transportation-roads/roads-and-bridges/bridges

VI. BRIDGE PRIORITY RANKING FOR REPLACEMENT OR REHABILITATION

A successful bridge program is based on a systematic and balanced approach to managing bridge preservation and replacement needs. Having a well-documented inspection program coupled with a robust bridge preservation program is essential to maximize the useful life of the bridge inventory. Once preservation is no longer an option, it becomes necessary to close or replace bridges.

Management challenges for the bridge inventory include:

- Bridges aging beyond their useful life and the continued deterioration of them
- Traffic volume continues to grow
- Type and size of highway trucks are changing, resulting in more concentrated loading on bridges
- Environmental permitting restrictions

- Hydraulic capacities and climate change
- Increasing costs to replace bridges

Using the bridge priority analysis adopted by the King County Council in 1994 (Ordinance 11693), priority rating scores for the entire bridge inventory were developed. The analysis incorporates the current mandated FHWA load-rating method into the criteria for calculating the bridge priority ranking. The process prioritizes bridges most in need of replacement or rehabilitation to correct structural or functional deficiencies. The bridges with the highest scores are reviewed in-depth for consideration in the Capital Improvement Program (CIP) for the six-year CIP budget planning effort.

The top 30 high-priority bridges are listed below in the Replacement/Rehab Bridge Ranking and CIP Project Status Table. This list is developed based on the results of the bridge inspections and load-rating updates at the end of 2023 and is subject to change with findings of bridge inspections and load rating updates during the current 2024 year. Of the 30 high-priority bridges, only 17 are NBI bridges and potentially eligible for federal bridge replacement grants. King County is actively looking for various Grant Funding opportunities such as the Federal Local Bridge Program (FLBP), Federal Bridge Investment Program (BIP), Federal Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program, Puget Sound Regional Council (PSRC) Surface Transportation Program (STP), State Rural Arterial Program (RAP) and King County Flood Control District (FCD) to address the need to fund various types of bridge projects.

The key factors influencing the ranking include the load-rating, the bridge condition state, and the traffic volume. Updates to these findings change the priority scores. Specific events, such as a flood, winds or earthquakes can have significant impact as well, and require a change in ranking and work priorities between these reports.

Highest Priority Replacement/Rehab Bridge Ranking and CIP Project Status Table

- Italicized type and blue font indicates a short span bridge (20 feet or less in length)
- Load Posted: P=load posted
- Main Material Type: T = Timber, C = Concrete, S = Steel
- Landmark Bridges: See Appendix Four for a list of all King County Landmark Bridges.

No.	Bridge Number	Bridge Name	Load Posted	Remarks/Scope	Main Material Type
1	3055A	BOISE X CONNECTION	P	Replacement: CIP Project Federal Grant	S/T
2	509A	BARING BRIDGE	P	Replacement: CIP Project Federal Grant	T
3	1320A	AMES LAKE TRESTLE	P	Replacement: CIP Project RAP funding	T
4	122I	NORTH FORK	P	Replacement: CIP Project Federal Grant	S/C
5	493C	FIFTEEN MILE CREEK		Replacement: CIP Project Federal Grant	T
6	1741A	ISSAQUAH CREEK	P	Replacement: Recommend Concept Development Report Study	T
7	3086OX	BERRYDALE OX		Replacement: CIP Project Design funded - PSRC STP grant	T
8	364A	DEEP CREEK	P	Replacement: Recommend Concept Development Report Study	S/T
9	*333A*	*BEAR CREEK*		Replacement: Recommend Future Short Span bridge	C/T
10	*180A*	*EVANS CREEK*	P	Closed to Non-Local Traffic -Short Span Bridge	T
11	*240A*	*COTTAGE LAKE CR*		Replacement: Short Span Bridge, Concept Development Report Planned to start in 2025	C/T
12	*3202*	*MAXWELL ROAD*		Replacement: Recommend Future Short Span bridge	C/T
13	2133A	SIKES LAKE TRESTLE		Recommend Closure, Repair, Rehab or Replacement (C3R) Study	C/T
14	1239A	UPPER PRESTON		Replacement: Recommend Concept Development Report Study	C/T
15	*3020*	*GREEN VALLEY ROAD*		Replacement: Recommend Future Short Span bridge	C/T
16	83B	ISSAQUAH CREEK		Replacement: Recommend Concept Development Report Study	C/T
17	*3109B*	*LAKE YOUNG'S WAY*		Replacement: Recommend Future Short Span bridge	C/T
18	83D	ISSAQUAH CREEK		Replacement: Recommend Concept Development Report Study	C/T
19	3108	SOOS CREEK		Replacement: Recommend Concept Development Report Study	C/T
20	*916A*	*W SNOQUALMIE RIVER ROAD*		Replacement: Recommend Future Short Span bridge	C/T

No.	Bridge Number	Bridge Name	Load Posted	Remarks/Scope	Main Material Type
21	*3022*	*GREEN VALLEY ROAD*		Replacement: Recommend Future Short Span bridge	C/T
22	*249B*	*C.W. NEAL ROAD*		Replacement: Recommend Future Short Span bridge	C/T
23	*249C*	*C.W. NEAL ROAD*		Replacement: Recommend Future Short Span bridge	C/T
24	1384A	FIFTEEN MILE CREEK		Replacement: Recommend Concept Development Report Study	C
25	*122N*	*TATE CREEK*		Replacement, Short Span bridge, Concept Development Report Study started in 2023 Flood Control District funding	C/T
26	*480A*	*BEAR CREEK*		Replacement: Recommend Future Short Span bridge	C/T
27	3085	COVINGTON		Replacement: Recommend Concept Development Report Study	C
28	*257Z*	*HORSESHOE LAKE CREEK*		Replacement: Recommend Future Short Span bridge	C/T
29	5011	WALTER SHULTS		Replacement: Recommend Concept Development Report Study	T
30	3087	BIG SOOS CREEK		Replacement: Recommend Concept Development Report Study	C

Table 2: Bridge Replacement/Rehabilitation Priority

VII. BRIDGE PRESERVATION

The intent of a bridge preservation program, a major asset management tool, is to perform cost-effective projects to extend the useful life of the bridge. The bridge preservation program includes the following work categories:

- Load Upgrades
- Bridge Re-decks
- Bridge Painting
- Scour/Hydraulic Projects
- Bridge Seismic Retrofits
- Bridge Maintenance Repairs

A. LOAD UPGRADES

When feasible, projects that address load-carrying capacity deficiencies will be performed to alleviate the need for any load restrictions on bridges.

King County Roads has a bridge load upgrade safety program approved by the King County Council to study feasibility and costs of removing bridge posted load restrictions. Removing load postings for

bridges can provide better mobility to trucking industries and fire apparatuses. Load upgrades will not extend the useful life of the bridge or correct any substandard features such as alignments, bridge railing, hydraulic opening, scour, or aging or deteriorated substructures. These sub-standard conditions still need to be addressed by other means and funding.

At the end of 2021, a total of 22 bridges were load posted. A study conducted in 2022, reviewed 12 of these bridges for possible load upgrades. Due to being under replacement design or having plans for near future replacement, 9 of the 22 bridges were excluded, while one additional bridge had been studied in 2020.

While performing feasibility studies on 12 bridges in 2021 and 2022, Roads found a unique opportunity to conduct proof load testing of several precast channel beams that were decommissioned from Fish Hatchery and S. 277th Street bridges. Six out of the 12 studied bridges have similar spans and structure details as the removed precast channel beams. These bridges were built about the same time in 1950 or 1951. AASHTO allows proof test results to supplement the load rating method or procedure described in the MBE due to testing on actual materials installed and its strength and some reserved capacity may be realized in addition to the Code/Manual guided approach.

After the study report and proof load testing, this program recommended load upgrade construction on three bridges, removing load posting signs on seven bridges without load upgrades and maintaining load posting on three bridges. The load posting signs were removed on seven bridges after each bridge load rating report was re-certified. This included six precast channel beam bridges that re-certified each bridge report based on the reserved capacity found from proof load testing, and one glue-laminated beam bridge that needed a correction of stringer counts due to finding more stringers at the bridge than the number indicated on the bridge plans. Load postings on three other bridges were maintained due to limited budget.

In 2022, Roads successfully load upgraded and removed load posting for two bridges (Soos Creek Bridge 3109A and Horseshoe Lake Bridge 257Z). Load upgrade construction for the third bridge (Clough Creek Bridge 909B) was completed and the load posting was removed in 2023.

B. BRIDGE RE-DECKS

Vehicular traffic will generate wear and rutting on a concrete bridge deck over the life of a bridge. Bridge decks are comprised of various materials including bare concrete, bare timber, asphalt overlays atop concrete, timber, or steel bridge structure. Deck deterioration occurs over time as age, traffic, and severe weather take their toll. Once a deck begins to deteriorate, its destructive pattern quickens as vehicle impact increases, compounding deck deterioration and if not maintained, the whole deck may need to be replaced.

Depending on the deck driving surface material, a re-deck can take different forms. For deteriorated timber or steel, the failed portions will be removed, replaced, and refastened. For deteriorated asphalt, the asphalt is mechanically ground away and repaved. For deteriorated concrete, there are two major options. One option to correct excessive wear is to add a two-coat epoxy overlay. This type of overlay requires less construction time and is less expensive compared to the other option which is to remove a portion of the deck and add a modified concrete structural overlay. In both cases, delaminated areas are removed and patched prior to the overlay. An epoxy overlay will typically last 12 to 15 years, depending

on the traffic usage and the extent of the deck delamination in the underlying concrete. A modified concrete structural overlay typically will last 40 to 50 years.

In 2023, three overlay projects were completed:

- Tokul Creek Park Bridge No. 61G – Epoxy overlay
- Green River Bridge No. 3216 – Epoxy deck seal
- Patterson Creek Bridge No. 228E – HMA overlay

Design continued in 2023 for Duvall Slough Bridge No. 1136B, and construction is scheduled for 2024. The project's design and construction will be funded by a federal grant and includes scarifying the existing deck surface and overlaying with modified structural concrete. In addition, a federal grant for 100% funding was awarded for Judd Creek Bridge No. 3184 for a structural overlay and this project is scheduled for construction in 2025.

C. BRIDGE PAINTING

Roads owns and maintains a total of 28 bridges with steel components which are listed in Appendix Three. Painting is required on 22 of these bridges; the six that do not require paint include four culverts, one temporary bridge, and one permanently closed bridge. Steel bridge components require paint to prevent premature corrosion which can significantly reduce the strength and service life of the bridge. Maintaining a painting program will help to preserve the bridges and will extend its useful life before a major rehabilitation or replacement is warranted. The condition of the paint is assessed and recorded during the routine bridge inspections. Painting is restricted to summer months due to weather conditions and the permitting process.

No bridges were painted in 2023. High priority bridges to be painted include:

- Smith Parker Bridge No. 615A
- Neely Bridge No. 3014
- Novelty Bridge No. 404B
- Tolt Bridge No.1834A
- Green River Gorge Bridge No. 3032

D. SCOUR AND HYDRAULIC PROJECTS

Ninety-five percent of Roads bridges are located over water. All bridges spanning waterways are required to have a scour evaluation to identify the stability of their foundations, the bridge's susceptibility to erosion of streambed materials, and current scour issues. Furthermore, all bridges that are evaluated to be scour critical are required to have a scour Plan of Action that dictates a scour risk event and the procedures for monitoring and resolution following that event. All Roads bridges spanning waterways have a completed scour evaluation; and those with elevated risk also have a completed scour Plan of Action.

There are 59 bridges in the inventory with an elevated scour risk; of these, 22 are scour critical and 37 have unknown foundations.

All bridges are monitored for scour during the routine inspection. Bridges that are subjected to flooding events are inspected after the flood waters recede enough to safely evaluate the structure for possible scour.

In 2012, SE 408th Street Bridge No. 3056A was permanently closed to all traffic due to severe scour under the shallow foundation.

The following project is underway on a bridge with active scour/hydraulic issues:

Figure 5: Tate Creek Bridge No. 122N

Tate Creek Bridge No. 122N
Year Built: 1952
Span Length: 16 feet
Superstructure: Concrete Multi-web Girders
Substructure: Timber Piles
Average Daily Traffic: 1,299 vehicles (2017 count)

Located north of the city of North Bend, this short span sole-access bridge with creosote treated timber substructure carries SE 73rd Street over Tate Creek. The hydraulic opening under the bridge is very limited due to sediment accumulation and causes overtopping of the approach roadway and results in the isolation of 200-plus residents in this neighborhood during flood events.

A Concept Development Report (CDR) study has begun in 2023 to study the alignment and structure type of the replacement bridge. The bridge is located on a substandard horizontal alignment with additional sight distance and private property owner impact challenges. Funding for the CDR phase has been authorized with Flood Control District funds. As short span bridges are not eligible for federal funding, other funding sources need to be considered for design, right-of-way, and construction.

E. BRIDGE SEISMIC RETROFITS

Between 1994 and 2008, Roads completed a seismic retrofit program and completed retrofit of 115 vehicular bridges. These bridges were found to have various degrees of seismic vulnerabilities and they were retrofitted to a standard that will result in repairable damage following a major earthquake. Roads concluded this program by completing construction in 2008.

F. BRIDGE PRIORITY MAINTENANCE PROGRAM

Bridges are in a continuous state of deterioration as they age. The county's maintenance program to repair and replace worn or broken components extends the life of the bridge inventory and may correct immediate safety deficiencies. The goal of the repairs is to improve safety and provide for preservation of infrastructure in a cost-efficient manner. Common repairs include repairing/replacing cracked or spalled concrete, rotted timber, or corroded steel, deck overlay, guardrail repairs, spot cleaning and painting; or otherwise repairing/replacing deteriorated components of the bridge. Preventative maintenance extends the life of bridge components by warding off problems before they occur. Examples of preventative maintenance are bridge washing, crack sealing of decks, and cleaning out joints. Maintenance repairs are key to bridge preservation in that they can substantially extend the amount of time the bridge is in service before rehabilitation (extensive repair) or replacement is needed.

Deficiencies needing repairs are identified and detailed by the inspecting engineers and tracked in the repair list database. Detailed repair plans and specifications are prepared by Bridge Unit personnel to guide Roads maintenance crews in scheduling and implementing repairs. Bridge Engineers also provide engineering support during construction.

A priority level is assigned when a work order is issued by a bridge inspector. Table 3 shows the priority ratings and their descriptions.

Priority	Action	Description
1	Emergency	Clear and present danger! Close all/portion of bridge and begin work immediately!
1.5	ASAP	Work as soon as possible! (Within a few weeks)
2	Urgent	Problem may become a danger if left unattended (work within a few months)
2.5	High priority	Add work to schedule in next 1-2 years
3	Attention	Work within next 2-3 years; if left unattended, situation may worsen considerably
3.5	Note	Work is priority maintenance need
4	Routine	Work is priority long-term maintenance need (painting, washing, cleaning, re-decking)
5	Monitor	Monitor condition of deficiency; do not schedule work

Table 3 Work Order Priority Assignment

This assignment of priority includes factors such as public safety, importance of the route, risk involved in delaying repairs, structural preservation and load-capacity value, and cost effectiveness of repairs. When prioritizing these repairs for the year, the backlog work orders are downloaded and prioritized based on individual priorities first. The work orders are then further analyzed by type and location, to identify opportunities to group work orders by type or geographical area. Bundling of work orders allows the maintenance crews to coordinate and sequence their work efficiently considering travel time,

material procurement, and equipment mobilization. Scheduling will also consider coordination with other road system programmed major repairs or replacements.

At the beginning of 2023, there was a total of 323 work orders on file. By the close of 2023, 32 more work orders were created, and 36 work orders had been completed and closed, bringing the backlog down to 319 work orders on file.

A few major projects constructed under this program in 2023 are as follows:

Patterson Creek Bridge No. 228E
Year Built: 1967
Span Length: 50 feet
Superstructure: Concrete T Girders
Substructure: Timber
Average Daily Traffic: 798 vehicles
Located near Fall City

Figure 6: Patterson Creek Bridge No. 228E - Replacing timber abutment and approach roadway.

The timber abutment and wingwalls on Patterson Creek Bridge No. 228E were in poor condition and had begun to rot out. Bank sloughing at Patterson Creek had also begun to expose to bottom of the timber backwall and cause settlement in the approach roadways.

Repairs consisted of excavating 13 feet deep on the approach roadways and extending the timber abutment backwalls deeper to prevent erosion underneath the backwall from bank sloughing, replacing all the timber in the abutment backwalls and wingwalls, rebuilding the approach roadways with geo-engineered backfill that resists settlement, and repaving the bridge and approaches with new asphalt.

This project required a 17-day bridge closure and was completed in July 2023.

Issaquah Creek No. 83B
Year Built: 1950
Span Length: 40 feet
Superstructure: Concrete Multi-web Girders
Substructure: Timber
Average Daily Traffic: 230 vehicles
Located south of the City of Issaquah

Figure 7: Issaquah Creek No. 83B - Hydraulic jacking up bridge to replace timber cap.

During the routine inspection in early September 2023, inspectors found advanced rot in a timber pier cap which resulted in closure of the bridge until repairs could be implemented. This was a “critical finding” per 23 CFR 650.31.3(h), which required filing a Critical Finding Damage Report (CFDR) to WSDOT and FHWA in a timely manner.

Repairs consisted of lifting the bridge up with temporary cribbing and jacks, pulling out the rotten timber cap and sliding in a new one, then lowering the bridge down onto the new cap. The permits on

this project were expedited and the project began eleven days after the emergency bridge closure and was completed five days later.

Green River Bridge No. 3216
Year Built: 1990
Span Length: 245 feet
Superstructure: Concrete Prestressed Girders
Substructure: Concrete Footings on Concrete Piles
Average Daily Traffic: 18,758 vehicles (2020 count)
Located near Kent.

Figure 8: Green River Bridge No. 3216 - Shotblasting bridge deck prior to deck sealant application.

The concrete deck on this bridge had developed hairline transverse cracks with aggregate pop-outs that can lead to more significant deck deterioration if left untreated. Since the wearing surface was still intact, a full two-coat epoxy overlay that adds a new wearing surface was not merited. Instead, a one-coat epoxy deck sealant was applied for approximately 1/3rd the cost. The deck sealant required a light shotblast to open up the deck cracks and remove contaminants from the deck surface for a proper bond. The deck sealant filled the hairline cracks and pop-out voids to stop water intrusion and concrete spall development.

Green River Bridge No. 3216 has shared ownership between King County and the City of Kent. The project was managed and performed by King County staff, but the final cost was split 50/50 with Kent. The project was completed in September 2023 and was able to be completed using partial lane closures.

Berrydale Overcrossing Bridge No. 3086OX
Year Built: 1931
Span Length: 103 feet
Superstructure: Timber Deck and Timber Stringers
Substructure: Timber Piles
Average Daily Traffic: 7700 vehicles
Located south of Covington

Figure 9: Berrydale No. 3086OX - Removing asphalt overlay to replace timber decking.

This timber deck defect was first discovered by the Division 4 maintenance crew in March 2023. A section of timber decking had failed due to advanced rot resulting in a 14-inch diameter hole through the deck. Further investigation found rot in the adjacent deck timbers and the decision was made to replace approximately 40% of the timber decking on the bridge.

A temporary steel plate was placed over the section of bad decking and the bridge was able to remain open until the material could be procured and the repair scheduled. The project was completed in July-August 2023 with a full bridge closure of 17 days.

G. BRIDGE WASHING

Bridge washing is an annual program to pressure wash steel truss bridges and other structures. The intent of the program is to extend the life of the paint and the steel and to remove dirt and debris which would obscure inspection of the bridge. Most of the steel bridges are classified as NSTM bridges (containing non-redundant steel tension members), which must be inspected at close range due to their susceptibility to sudden collapse if fractures in the steel develop at certain locations. A clean surface allows for a thorough inspection of the NSTM elements. Cracks on other concrete structures are also not detectable if covered with moss and dirt.

Five bridges were washed in 2023

- Green River Gorge Bridge No. 3032
- Skykomish River Bridge No. 999Z
- Patton Bridge No. 3015
- Carnation Farm Rd Bridge No. 5024
- Carnation Farm Rd Bridge No. 5028

Figure 10: Green River Gorge Bridge No. 3032 - Washing lower truss members in January 2023

The Green River Gorge bridge is one of the county's oldest and most difficult bridges to keep clean. The truss is underneath the bridge deck and only reachable with a UBIT bucket, requiring a full closure of the one-lane bridge to stage both the UBIT and water truck during washing. The 2023 bridge cleaning operation took four full days and is done every six years.

VIII. BRIDGE REPLACEMENT PROJECTS

A. BRIDGE REPLACEMENTS

Within the county's vehicular bridge inventory, 41% percent of the bridges are past their useful life and 10% of the inventory are in the "poor" condition state. Therefore, replacement of these bridges is essential and necessary, and reduces the risk of urgent/emergency closures, reduces extensive maintenance needs, and removes load limited bridges. Replacing the high priority bridges in the county's bridge inventory will provide new structures that are reliable and safe for the public traveling across them. The new bridges are constructed to current engineering standards. The list of the bridge replacement projects which were approved in the 2019-2020 CIP Six Year Plan included:

- Coal Creek Bridge No. 3035A
- Upper Tokul Creek Bridge No. 271B
- Baring Bridge No. 509A
- Ames Lake Trestle Bridge No. 1320A
- S 277th Street Bridge No. 3126

The S 277th Street Bridge No. 3126 replacement project was completed in 2021.

In 2019, two additional bridges received federal funding approval for replacement and were added to the bridge replacement list. They were:

- Boise X Connection Bridge No. 3055A
- Fifteen Mile Creek Bridge No. 493C

In addition, the Flood Control District and Roads operating budget funded the feasibility study for the following two bridges:

- North Fork Bridge No. 122I
- Berrydale Overcrossing Bridge No. 3086OX

In November 2020, the County Council approved the 2021-2022 CIP Six Year Plan that included partial funding programmed in the out-years for preliminary design in 2025 for:

- Berrydale Overcrossing Bridge No. 3086OX

Two other high priority bridges also received partial funding programmed in the out-years for feasibility studies in 2025:

- Issaquah Creek Bridge No. 1741A
- Deep Creek Bridge No. 364A

The 2023-2024 CIP Six Year Plan was adopted by the County Council in November 2022 that approved preliminary design to start in 2023 for the following:

- North Fork Bridge No. 122I

The 2023 1st Omnibus adopted by the County Council in June 2023 approved construction funding for the following:

- Ames Lake Trestle Bridge No. 1320A

It also approved design funding for the following:

- Berrydale Overcrossing Bridge No. 3086OX

Bridge replacement projects undergo a Concept Development Report (CDR) during the preliminary design phase. The CDR is a technical document that provides information and logic for determining a recommended alternative. The Flood Control District (FCD) approved funding to start a CDR study for:

- Tate Creek Bridge No. 122N – FCD funding

Detailed information for this project is listed under Section VII D.

Updates on the replacement projects are as follows:

Coal Creek Bridge No. 3035A

	Previous structure	**New replacement structure**
Year Built	1958	2023
Span Length	41 feet	57 feet
Superstructure	Steel Girders	Precast Prestressed Concrete Slab Girders
Substructure	Timber Piles	Concrete Footings
Average Daily Traffic	343 vehicles (2019 count)	

Figure 11: Coal Creek Bridge No. 3035A – Deteriorated structure before replacement

Figure 12: Coal Creek Bridge No. 3035A – New replacement bridge

Coal Creek Bridge is located near the city of Black Diamond along SE Lake Walker Road at Coal Creek, approximately 1.5 miles southeast of Veazie-Cumberland Road SE. The bridge provides sole access to approximately 70 homes in the Walker Lake neighborhood and a Department of Fish and Wildlife public boat launch at the lake. SE Lake Walker Road is a county-designated snow/ice route.

The old bridge was 18 feet wide. The steel girders and floor beams of the past bridge were over 100 years old; they were originally in place at another bridge location in 1912 and moved to this site in 1958. In addition to the severely corroded steel and limited load capacity, other deficiencies included deteriorated creosote timber piles, rotten timber backwall planks, substandard rails, and downstream bank erosion.

Roads was awarded federal funding in November 2017 and funding was obligated and authorized in May 2018 to proceed with design for the project. The project design was completed in early 2021, and the construction contract was executed in summer 2021. However, due to Covid restrictions and the extended time to procure materials for the project, the primary construction did not start until March 2022 and construction was completed in May 2023.

Upper Tokul Creek Bridge No. 271B

	Previous structure	New replacement structure
Year Built	1965	2023
Span Length	107 feet	104 feet
Superstructure	Concrete Girders	Precast Prestressed Concrete Girders
Substructure	Timber Posts/Concrete Footings	Concrete Footings
Average Daily Traffic	415 vehicles (2018 count)	

Figure 13: Upper Tokul Creek Bridge No. 271B – Deteriorated structure before replacement

Figure 14: Upper Tokul Creek Bridge No. 271B – New replacement bridge

The Upper Tokul Creek Bridge carries Tokul Road SE over Tokul Creek just north of the City of Snoqualmie, providing the sole access for approximately 50 homes, and one access point for logging operations. The bridge was 22.5 feet wide with minimal to no shoulders. It also had a constricted hydraulic opening and seasonal high flows on Tokul Creek caused scour under the footings at the intermediate piers.

The bridge was load restricted and unable to support certain types of fire engines used by the adjacent fire districts, including water tenders used to transport water to areas without hydrants. Typical full-size garbage trucks, dump trucks, and concrete mixers were also too heavy to use the bridge.

The project team completed the design of the bridge in early 2022 and the construction contract was advertised in April 2022. The awarded contractor started the project construction in September 2022 by installing a temporary detour roadway and bridge downstream of the existing bridge. The primary construction of the new bridge was completed in December 2023.

Baring Bridge No. 509A
Year Built: 1930
Span Length: 340 feet
Superstructure: Timber Tower and Steel Cable Suspension
Substructure: Timber Sills
Average Daily Traffic: 80 vehicles (2018 count)

Figure 15: Baring Bridge No. 509A – South tower and timber truss of suspension bridge spanning the Skykomish River

The Baring Bridge carries Index Creek Road, a sole access road, over the South Fork Skykomish River. It was designated as a King County Landmark Bridge by the Landmarks Commission in 1999, a state and national landmark in 2019, and is currently the only timber and cable suspension bridge in Washington State that still carries load-limited traffic.

Baring Bridge is a one-lane two-direction, timber suspension bridge with a width less than nine feet. It is posted for a weight limit of 10 tons and a speed limit of five miles per hour. The bridge provides the only public access to a community of approximately 170 properties including more than 40 developed sites south of the South Fork Skykomish River. This bridge is considered in "poor" condition due advanced deterioration in its superstructure and substructure. The bridge is past its useful life and requires frequent, major, and costly repairs during which it is removed from service, cutting off access to the community on the south end of the bridge.

The bridge does not have adequate capacity to support fire engines used by the adjacent fire district as well as their water tenders used to transport water to areas without hydrants. In addition, most three-axle

single-unit trucks are too heavy to use the structure. The replacement of the bridge will ensure unrestricted access for firefighting equipment as well as other types of common service and delivery vehicles.

In addition to the limited load capacity, other deficiencies include the narrow deck width, one-lane two-direction traffic, substandard rails, rotted timber caps, and scour issues. Given the extent of the deficiencies, a replacement project is warranted. In October 2022, the Federal Local Bridge Program awarded $22M for the construction phase of the Baring Bridge Replacement project.

The consultant's project team is currently advancing 90% design and working with the county's project team on construction aspects to minimize impacts to environmental and surrounding properties. Due to complexity of the project site, the design is required to address and minimize impacts to the various sensitive site conditions, including construction of the project within a floodplain, channel migration zone, geotechnical materials susceptible to scour, a high-pressure artesian aquifer located deep below the site, and a community sole access road.

The published in-water work window from the permit agency was identified as 15 calendar days, which was an unexpected change and is a severe constraint to the construction of the project. The project team had to analyze flow rates of the river and assess the specific construction activities during three separate in-water work windows before requesting additional in-water work window time. This extended the design timeline of the project. In addition, the National Environmental Policy Act/State Environmental Policy Act (NEPA/SEPA) permitting process and right-of-way (ROW) acquisition timelines are expected to be lengthy. Therefore, construction is scheduled to start in 2027.

Ames Lake Trestle Bridge No. 1320A
Year Built: 1924
Span Length: 168 feet
Superstructure: Timber Stringers
Substructure: Timber Piles
Average Daily Traffic: 2,016 vehicles (2018 count)

Figure 16: Ames Lake Trestle No. 1320A – Deteriorating timber stringers, caps, and piles.

Located west of rural Carnation, the Ames Lake Trestle bridge carries Ames Lake Carnation Road NE over Ames Creek. This timber trestle has a width less than 25 feet. It is posted with load restrictions and has a reduced advisory speed limit of 25 miles per hour. In addition to the limited load carrying capacity, the width, bridge rail system, and roadway approach horizontal alignment were designed and built to standards that are outdated and inadequate for current needs. The 99-year-old timber substructure is beyond its useful life and there are no cost-effective solutions for repairing or rehabilitating that could provide the necessary additional load capacity.

A consultant design contract was executed in June 2019 to perform a Type, Size & Location (TS&L) analysis and preliminary design. This work was completed in July 2020 resulting in a selection of a preferred alternative for advancement to final design phase. An amendment for the final design phase was executed in October 2020. The 60 percent design was completed in May 2021, and the 90 percent design was completed in February 2022. The 100 percent design was completed in October 2023. All permit approvals and ROW acquisitions are complete. Utility relocation is underway to relocate utilities prior to the start of construction. The project is planned to advertise in January 2024 following with construction beginning summer 2024.

Boise X Connection Bridge No. 3055A
Year Built: 1956
Span Length: 38 feet
Superstructure: Steel Girders
Substructure: Timber Piles
Average Daily Traffic: 947 vehicles (2020 count)

Figure 17: Boise X Connection Bridge No. 3035A - Deteriorating steel girders and timber piles

Located about two miles south of the City of Enumclaw, the Boise X Connection Bridge carries SE Mud Mountain Road over Boise Creek. It is a vital link for an alternate route used for SR-410. It is load restricted and functionally obsolete.

The bridge deck carries two lanes of traffic with no shoulders or sidewalks. The bridge structure is comprised of lead painted steel and creosote treated timber. Deficiencies of the main structural members include corrosion of the corrugated metal decking, corrosion of the steel superstructure system, and extensive deterioration in the timber foundations. The bridge is considered scour critical, and the creek has undercut approximately two feet below the concrete encased timber pile repairs. Foundation repairs and scour countermeasures have been installed but are deteriorated and failing.

In December 2019, the bridge was awarded federal funding for design and construction of a bridge replacement. Federal funding for the design phase was obligated and authorized to proceed in May of 2020. Construction is planned for 2025.

Fifteen Mile Creek Bridge No. 493C
Year Built: 1932
Span Length: 40 feet
Superstructure: Timber Stringers
Substructure: Timber Piles
Average Daily Traffic: 5,202 vehicles (2017 count)

Figure 18: Fifteen Mile Creek Bridge No. 493C - Deteriorating timber superstructure and substructure.

The Fifteen Mile Creek Bridge carries SE May Valley Road, a high-volume arterial, over Fifteen Mile Creek. In 1973, the bridge was rehabilitated which consisted of replacing the timber deck, stringers, and caps. The replaced timber members have developed weather checks and areas of rot. The deck is narrow, with a width of 26 feet from curb to curb; it also has substandard rails, curbs, and a timber sidewalk that has been covered with steel grating. The hydraulic opening is restricted at the bridge causing the channel and bridge supports to experience scour during flooding events. Channel-bank erosion is also present.

The bridge superstructure is shored with helper stringers to keep it serviceable and to avoid posting the bridge with load restrictions. The bridge is structurally deficient and is well past its useful life and requires frequent, major, and costly repairs, as well as frequent monitoring, to keep it in service. Other deficiencies of this bridge include the constricted hydraulic opening and creosote treated timber piles that are in the creek and collecting flood debris.

A federal grant for the design and construction was awarded in December 2019. Federal funding for the design phase was obligated and authorized to proceed in May of 2020. Design and permitting is 99% complete with remaining effort being concentrated on right-of-way agreements. Replacement construction is planned for summer 2025 and involves a full road closure for the duration.

North Fork Bridge No. 122I
Year Built: 1951
Span Length: 252 feet
Superstructure: Steel Girders and Concrete Box Girder
Substructure: Concrete Piers on Timber Piles
Average Daily Traffic: 1,200 vehicles (2020 count)

Figure 19: North Fork Bridge No. 122I - Looking south

The North Fork Bridge is located north of the city of North Bend. It carries 428th Avenue SE over the North Fork of the Snoqualmie River. This road serves about 240 homes as well as a variety of commercial and recreational activities including access to Alpine Lakes Wilderness trailheads in the Upper Snoqualmie Valley. During a flood event with a two-year recurrence interval, North Fork Bridge becomes the sole access road for communities north of the bridge.

The North Fork of the Snoqualmie River is a dynamic and active river as it transitions from the mountains to the valley floor. The Shake Mill Left Bank Revetment started to deteriorate around 2008 and the upstream channel started to migrate south.

Scour issues at the North Fork Bridge became a great concern in 2013, due to exposed substructure elements. County forces conducted urgent repairs that year. This initial repair was followed up in 2017 with Flood Control District provided early action funding which was used to provide additional scour mitigation around the intermediate piers of the bridge.

King County Department of Natural Resources and Parks, Water and Land Resources Division, completed construction of a buried revetment along the left (southern) bank of North Fork Snoqualmie River, immediately upstream of the bridge to prevent further lateral migration in 2019. This buried revetment replaced the levee, originally built in the 1960s. The Flood Control District contributed funds to complete this project.

The Flood Control District also approved funding in 2019 to conduct a feasibility study to mitigate the risk of scour and neighborhood isolation due to roadway overtopping in the North Fork Bridge vicinity. This study was completed in April 2022. The alternatives analysis determined that the preferred alternative at this site is to replace the existing bridge with a new 375-foot-long structure. Additionally, to address the geomorphic and hydrologic features of the site, a new revetment along the right (north) bank of the river is proposed to protect the new abutments as well as raising the roadway north of the bridge to decrease the frequency of roadway flooding and neighborhood isolation.

In October 2023, the Federal Local Bridge Program awarded $25M for all phases of the North Fork Bridge No. 122I Replacement project.

A design consultant's request for proposal package is in development. Advertisement, selection of a consultant, and execution of a design engineering services contract is expected in 2024.

Berrydale Overcrossing Bridge No. 3086OX
Year Built: 1931
Span Length: 105 feet
Superstructure: Timber Stringers
Substructure: Timber Posts on Concrete Plinths
Average Daily Traffic: 7,293 vehicles (2018 count)

Figure 20: Berrydale Overcrossing Bridge No. 3086OX – Looking south over the BNSF rail line.

The Berrydale Overcrossing Bridge carries Kent-Black Diamond Road, a high-volume arterial, over the Burlington Northern Sante Fe (BNSF) Railroad corridor. The road has a posted speed limit of 40 miles per hour. The bridge deck is very narrow with a width of 22 feet from curb to curb, with no shoulders or sidewalk. It also has substandard rails and substandard sight distances due to the vertical curve of the roadway. The bridge has multiple structural deficiencies and is past its useful service life, and requires frequent, major, and costly repairs. It is built completely with timber components.

Although full funding for replacement of the bridge and its approach roadway is uncertain, due to the criticality of this corridor, initial preliminary feasibility study work was funded in the 2017-2018 Roads Operating Budget. The project is complex as it involves coordination with BNSF Railway, a challenging vertical curve sight distance issue, and high construction impact to the traveling public. A planning level Concept Feasibility Study report for a replacement structure was completed in 2022. A grant request was subsequently made to the Puget Sound Regional Council (PSRC) Surface Transportation Program (STP) in 2022 for the Design phase, which was awarded. The Preliminary Engineering (PE) phase was obligated in July 2023. The recommended scope includes construction of roundabouts at each road approach to the bridge, replacement of Jenkins Creek fish passage culvert and replacement of Berrydale overcrossing structure over BNSF railroad.

GLOSSARY OF BRIDGE TERMINOLOGY

Abutment – a substructure supporting the end of a single span or the extreme end of a multi-span superstructure and, in general, retaining or supporting the approach fill.

Bascule – a moveable bridge with a counterweight that continuously balances the span, or "leaf," throughout the entire upward swing, providing clearance for boat traffic.

Backwall – topmost portion of an abutment functioning primarily as a retaining wall to contain approach roadway fill.

Bent – a supporting unit of the beams of a span made up of one or more columns or column-like members connected at their topmost ends by a cap, strut, or other horizontal member.

Bracing – a system of tension or compression members, or a combination of these, connected to the parts to be supported or strengthened by a truss or frame. It transfers wind, dynamic, impact, and vibratory stresses to the substructure and gives rigidity throughout the complete assemblage. Can also refer to diagonal members that tie two or more columns of a bent together.

Cap – the horizontally oriented, topmost piece or member of a bent serving to distribute the beam loads upon the columns and to hold the beams in their proper relative positions.

Chord – in a truss, the uppermost and lowermost longitudinal members extending the full length of the truss.

Copper naphthenate – a green salt, soluble in benzene, it is used as an insecticide and a wood preservative, but harmless to plants.

Compression – a type of stress involving pressing together; tends to shorten a member; opposite of tension.

Critical Finding – a structural or safety related deficiency that requires immediate action.

Creosote – oil distilled from coal-tar used as a wood preservative. Because it is harmful to fish, Washington Department of Fish and Wildlife (WDFW) has banned the use of creosote-treated wood in or near shoreline areas.

Concrete Pop-outs – typically porous, absorptive, moisture-susceptible aggregates within the concrete mix. If these aggregates become saturated by water ingress, they can expand and pop-out the cement matrix covering.

Corbel – a bracket of brick or concrete that juts out of a wall to support a structure above it.

Deck – portion of a bridge that provides direct support for vehicular and pedestrian traffic.

Dywidag – bar anchor system used for a variety of applications which include slope stabilization and counteraction of uplift forces.

Elastomeric pads – rectangular pads made of neoprene, found between the sub- and superstructure that bear the entire weight of the superstructure.

Floor beam – a component that is oriented laterally to the roadway that supports the deck and transfers load to girders.

Functionally obsolete –a descriptor meaning that the bridge has aged beyond the traffic expectations it was originally designed for; the current traffic is greater than it was designed to handle.

Gabion basket – a cage filled with rocks used to retain fill behind it.

Girder – the main horizontal support component of a bridge, orientated parallel to the roadway. Bridges may have 1 or multiple girders, and floor beams may connect in between girders. Girders often have an I-beam cross section for strength, but may also have a box shape, Z shape, or other form.

NBI – National Bridge Inventory; a database compiled by the FHWA with information on all bridges in the United States greater than 20.00 feet in length that have roads passing above or below.

NBIS – National Bridge Inspection Standards; the standards established by the FHWA for the safety inspections of highway bridges on public roads throughout the United States.

NSTM – Non-redundant Steel Tension Member, a primary steel member fully or partially in tension and without load path redundancy. Failure may cause a portion of or the entire bridge to collapse.

Pier – a structure comprised of stone, concrete, brick, steel, or wood that supports the spans of a multi-span superstructure at an intermediate location between abutments. A pier is usually a structure with a singular load bearing component, as opposed to a bent, which is usually made of multiple piles or columns.

Pile – a rod or shaft-like vertical linear member of timber, steel, concrete, or composite materials driven into the earth to carry structure loads into the soil.

Pin-pile – a series of small diameter pipes, typically less than 6 inches, driven in a line into the ground to support the timber planks of a small retaining wall, typically used as a countermeasure against erosion under a bridge abutment.

Post or column – a member resisting compressive stresses, in a vertical or near-vertical position.

Reoccurrence Interval – is an average or estimated average time between events such as floods, landslides, or high river discharge flows that are expected to occur.

Riprap – rock or other material used to armor shorelines, streambeds, bridge abutments, pilings and other shoreline structures against scour, water, or ice erosion.

Rutting – a depression or groove worn into a road or path by the travel of wheels.

Scour – erosive action of removing streambed material around bridge substructure due to waterway flow. Scour is of particular concern during high-water events.

Short span bridge – bridges that have a span of 20 feet or less and are typically supported by timber piles or shallow concrete footings.

SNBI – Specifications for the National Bridge Inventory; a coding guide for bridges phasing in from 2023 to 2026 and replacing the 1995 Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges.

Soffit – the underside of the bridge deck or sidewalk.

Spall – a concrete defect wherein a portion of the concrete surface is popped off from the main structure due to the expansive forces of corroding steel rebar underneath. This is especially common on older concrete bridges.

Stringer – a longitudinal beam (less than 30 feet long) supporting the bridge deck and, in large bridges, framed into or upon the floor beams.

Structurally deficient – bridges are considered structurally deficient if significant load-carrying elements are found to be in poor or worse condition due to deterioration and/or damage, or the adequacy of the waterway opening provided by the bridge creates flooding over the bridge deck and adjacent roadway, causing significant traffic interruptions.

Substructure – the abutment, piers, grillage, or other structure built to support the span or spans of a bridge superstructure. Includes abutments, piers, bents, and bearings.

Superstructure – the entire portion of a bridge structure that primarily receives and supports traffic loads and, in turn, transfers the reactions to the bridge substructure; usually consists of the deck and beams or, in the case of a truss bridge, the entire truss.

Tension – type of stress involving an action that pulls apart.

Trestle – a bridge structure consisting of beam spans supported upon bents. Trestles are usually made of timber and have numerous diagonal braces, both within each bent and from bent to bent.

Wheel rail – a timber curb fastened directly to the deck, commonly found on timber bridges.

Wingwall – walls that slant outward from the corners of the overall bridge that support the roadway fill of the approach.

APPENDICES TO THE 2023 ANNUAL BRIDGE REPORT

Appendix One – Bridge Inventory

Appendix Two – Load-Limited or Restricted Bridges

Appendix Three – Bridges with Painted Steel Components

Appendix Four – Landmark Bridges

Appendix One - Bridge Inventory

No.	Structure ID	Bridge Number	Bridge Name	County Council District	Sufficiency Rating	FO/SD	Width	Length	Year Built	Year Rebuilt	NBI	Facilities Carried	Feature Intersected	Location	Jurisdiction
1	08856700	1384B	15 MILE CREEK	9	93.97		28	66	2013	0	Y	240TH AVE SE	15 MILE CREEK	0.3 MI S OF SR-202	
2	08394200	3060	208TH AVE SE	9	80.73		26.8	16	1951	0	N	208TH AVE SE	DRAINAGE DITCH	JCT SE 448TH ST	
3	08410300	3049	284 AVE SE BRIDGE	9	50.88		23.4	20	1950	0	N	284TH AVE SE	BOISE CREEK	0.5 MI S OF SE 456TH ST	
4	08779800	344B	308TH AVE SE	3	87.45		23.5	33	2008	0	Y	308TH AVE SE	PATTERSON CREEK	0.2 MI N OF SR-202	
5	08020100	228F	312 AVE SE	3	53.92		23	16	1924	1950	N	SNOQUALMIE RIVER RD	DRAINAGE DITCH	0.2 MI N OF SE 24TH ST	
6	07962700	5044	4 CK RANCH	9	68.64		29.1	42	1983	0	Y	229TH DRIVE SE	ISSAQUAH CREEK	0.5 MI S OF SE MAY VLY RD	
7	08066000	1320A	AMES LAKE TRESTLE	3	32.52	SD	23	168	1924	1970	Y	AMES LK-CARNATION	AMES CREEK	0.2 MI S OF W SNOQ RV RD	
8	08813500	493B	BANDARET	9	95.79		40	101	2009	0	Y	SE MAY VALLEY RD	ISSAQUAH CREEK	0.4 MI W OF ISSQ-HOBART RD	
9	07979400	509A	BARING BRIDGE	3	12.94	SD	8.3	340	1930	1952	Y	NE INDEX CK RD	S FORK SKYKOMISH RIVER	0.1 MI S OF SR-202	
10	08082900	1056B	BEAR CREEK	3	83.85		37	20	1915	0	N	WOODINVILLE-DUVALL	BEAR CREEK	0.2 MI S BOTHELL WAY	
11	08263100	333A	BEAR CREEK	3	52.6		22.8	20	1950	0	N	NE 133RD ST	BEAR CREEK	0.2 MI E BEAR CRK	
12	08403400	52D	BEAR CREEK	3	73.6		26	45	1950	0	Y	AVONDALE PL NE	BEAR CREEK	3.0 MI N REDMOND	
13	08407400	480A	BEAR CREEK	3	45.4		22.8	20	1951	0	N	NE 116TH ST	BEAR CREEK	0.1 MI E AVONDALE	
14	08623800	52C	BEAR CREEK	3	83		66	123	1995	0	Y	AVONDALE RD	BEAR CREEK	0.3 MI N OF NE 116TH ST	
15	08618600	52E	BEAR CREEK BRIDGE	3	95.62		66	67	1995	0	Y	AVONDALE RD	BEAR CREEK	0.5 MI N OF NE 116TH	
16	08644500	55	BEAR CREEK RANCHETTE PED	3	Ped		6	52	1979	0	N	PED PATH AT 194TH	COTTAGE LAKE CREEK	0.2 MI E AVONDALE RD	
17	08481100	3086OX	BERRYDALE OX	7	20.09	SD	22	103	1931	1968	Y	KENT-BLK DIAMOND	BNSF RR	AT SE 291ST	
18	08879500	359D	BIG BLOWOUT CREEK	3	88.25		24	90	2015	0	Y	SE MIDDLE FORK RD	BIG BLOWOUT CREEK	9.1 MI N OF I-90	
19	08481400	3087	BIG SOOS CREEK	7	54.4	FO	24	36	1931	0	Y	KENT-BLK DIAM RD	BIG SOOS CREEK	AT SE 288TH ST	
20	08608600	3220	BLACK NUGGET BRIDGE	3	78.83		38	32	1992	0	Y	BLACK NUGGET RD	N FORK ISSAQUAH CREEK	0.2 MI N ISSQ-FALL RD	
21	08336800	3052	BOISE CREEK	9	69.32		24	19	1927	1959	N	268TH AVE SE	BOISE CREEK	0.3 MI S WARNER AVE	
22	08403200	3051	BOISE CREEK	9	50.75		18	16	1927	0	N	276TH AVE SE	BOISE CREEK	0.2 MI S WARNER AVE	
23	08464400	3055A	BOISE X CONNECTION	9	14.02	SD	21	38	1956	0	Y	SE MUD MT RD	BOISE CREEK	0.1 MI SE OF SR-410	
24	08297200	1116A	BRISSACK BRIDGE	3	54.77	FO	26	267	1971	0	Y	436TH AVE SE	S FORK SNOQUALMIE RIVER	0.8 MI S OF I-90	
25	08018300	249C	C.W. NEAL ROAD	3	58.92		22.8	20	1951	0	N	NEAL RD SE	DRAINAGE DITCH	0.3 MI S OF SR-203	
26	08111000	249B	C.W. NEAL ROAD	3	57.28		22.8	16	1951	0	N	NEAL RD SE	DRAINAGE DITCH	1.5 MI S OF SR-203	
27	08638200	5028	CARNATION FARM RD SLOUGH	3	98.82		34	40	1998	0	Y	NE CARN FARM RD	SLOUGH	0.2 MI W OF SR-203	
28	08633200	5024	CARNATION FARM ROAD	3	97.82		34	60	1997	0	Y	NE CARN FARM RD	SLOUGH	0.6 MI W OF SR-203	
29	08378200	999X	CASCADE SCENIC HWY	3	70.78		22.8	22	1950	0	N	CASCADE SCENIC HWY	MILLER RIVER SLOUGH	1.3 MI SE OF SR-2	
30	08430800	3164	CEDAR GROVE	9	75.12	FO	26	189	1962	0	Y	CEDAR GROVE RD	CEDAR RIVER	0.2 MI NE OF SR-169	
31	08712200	3165	CEDAR MOUNTAIN	9	97.65		50	291	2003	0	Y	SE JONES RD	CEDAR RIVER & TRAIL	0.1 MI E OF SR-169	
32	08712300	3165A	CEDAR MT RAMP	9	67.31		29.3	19	2003	0	N	CEDAR MT PLACE SE	CEDAR RIVER TRAIL	0.1 MI E OF SR-169	
33	08222700	427I	CHERRY CREEK BRIDGE	3	59.07	FO	26	101	1960	0	Y	NE CHERRY VLY RD	CHERRY CREEK	2.6 MI E OF SR-203	
34	08088100	267X	CHERRY VALLEY TRESTLE	3	63.24		24	181	1951	0	Y	MT VIEW RD NE	CHERRY CREEK	0.5 MI N OF CHERRY RD	
35	08340400	3017	CIRCLE WATER BR	7	67.64	FO	26	48	1926	1965	Y	SE GREEN VALLEY RD	BURNS CREEK	4.1 MI E OF SR-18	
36	08205800	909B	CLOUGH CREEK	3	75.06		22.8	16	1951	0	N	415TH AVE SE	CLOUGH CREEK	1.6 MI S OF JCT I-90	
37	08420000	1086B	COAL CREEK	3	56.09		22.8	16	1950	0	N	378TH AVE SE	COAL CREEK	W SNOQ VALLEY RD AT W-D RD	
38	08938600	3035A	COAL CREEK	9	91.74		31	57	2023	0	Y	SE LAKE WALKER RD	COAL CREEK	1.5 MI SE VEAZIE-CUMBLND RD	
39	08244400	240A	COTTAGE LAKE CR	3	53.03		23	18	1951	0	N	NE 132ND ST	COTTAGE LAKE CREEK	0.1 MI E AVONDALE RD	
40	08234200	52F	COTTAGE LAKE CREEK	3	67.9	SD	40	21	1987	0	Y	NE 159TH ST	COTTAGE LAKE CREEK	0.1 MI W OF AVONDALE RD	
41	08412100	5042	COTTAGE LAKE CREEK	3	96.58		0	35	1975	0	Y	NE 128TH WAY	COTTAGE LAKE CREEK	0.1 MI W AVONDALE RD	
42	08633300	52H	COTTAGE LAKE CREEK	3	90.92		66	61	1994	0	Y	AVONDALE RD NE	COTTAGE LAKE CREEK	0.1 MI S OF NE 132ND	
43	08826900	52B	COTTAGE LAKE CREEK	3	81.49		28	42	2010	0	Y	NE 165TH ST	COTTAGE LAKE CREEK	0.5 MI W OF AVONDALE	
44	08483400	3085	COVINGTON	9	58.42	FO	22.5	49	1929	0	Y	COVINGTON-SWYR RD	JENKINS CREEK	0.7 MI SE OF SR-516	
45	08234700	3082	COVINGTON CREEK	7	52.53		24	19	1915	0	N	AUBURN-BLK DIAMOND RD	COVINGTON CREEK	0.3 MI N OF SE LK HOLM	
46	08240200	3084	COVINGTON CREEK	7	41.11		24	23	1915	1934	N	AUBURN-BLK DIAMOND RD	COVINGTON CREEK	JCT SE 322ND ST	
47	08638100	3085P	COVINGTON WAY PED BRIDGE	9	Ped		8	67	1998	0	N	PEDESTRIAN PATHWAY	JENKINS CREEK	350' SE OF WAX RD	
48	08259200	364A	DEEP CREEK	3	38.55	SD	18	109	1965	0	Y	FURY LAKE RD	DEEP CREEK	13.7 MI N OF I-90	
49	08182000	3097	DORRE DON WAY	9	61.59		22.8	20	1945	1959	N	DORRE DON WAY	UN-NAMED TRIBUTARY	1.0 MI SE OF SR-169	
50	08164300	1136A	DUVALL BRIDGE	3	54.57	FO	24	1182	1951	2002	Y	WOODINVILLE-DUVALL	SNOQUALMIE RIVER	0.4 MI W OF SR-203	1/2 DUVALL
51	08180300	1136B	DUVALL SLOUGH	3	64.46	SD	24	639	1948	0	Y	WOODINVILLE DUVALL	DUVALL SLOUGH	0.6 MI W OF SR-203	
52	08059300	952C	E REDMOND	3	55.34		21.7	23	1913	0	Y	196TH AVE NE	EVANS CREEK	0.5 MI N OF SR-202	
53	08718800	617B	EDGEWICK	3	62.29		34	213	2004	0	Y	468TH AVE SE	S FORK SNOQUALMIE RIVER	1.0 MI S OF I-90	
54	08729400	3166A	ELLIOT BIKE/PED XING	9	57.59		47	18	2005	0	N	154TH AVE SE	PEDESTRIAN TRAIL	0.6 MI N OF SR-169	
55	08729300	3166	ELLIOTT BRIDGE	9	89.23		38	406	2005	0	Y	154TH PLACE SE	CEDAR RIVER	0.1 MI N OF SR-169	
56	08060600	952B	EVANS CREEK	3	63.34	FO	21.7	33	1913	0	Y	196TH AVE NE	EVANS CREEK	0.9 MI N OF SR-202	
57	08205300	180A	EVANS CREEK	3	48.77		19	20	1917	1953	N	NE 50TH ST	EVANS CREEK	0.1 MI SW OF SR-202	
58	08213200	578A	EVANS CREEK	3	66.36		22.8	20	1950	0	N	196TH AVE NE	EVANS CREEK	0.5 MI W 204TH PL NE	
59	08856500	952A	EVANS CREEK	3	96.57		65	69	2013	0	Y	NE UNION HILL RD	EVANS CREEK	2.5 MI E OF SR-202	
60	08194100	493C	FIFTEEN MILE CREEK	9	9	SD	28	40	1932	1973	Y	SE MAY VALLEY RD	FIFTEEN MILE CREEK	0.2 MI W ISSQ- HOBART RD	
61	08194700	1384A	FIFTEEN MILE CREEK	9	39.79	SD	24	64	1949	0	Y	ISSQ-HOBART RD SE	FIFTEEN MILE CREEK	0.2 MI N TIGER MT RD	
62	08446900	186J	FIRE STATION	3	67.49		28.4	19	1915	0	N	PRESTON FALL CITY	DEPRESSION	0.5 MI SE OF I-90	
63	08598200	3024	FLAMING GEYSER	9	85.74		34.5	371	1991	0	Y	228 PLACE SE	GREEN RIVER	0.2 MI E OF GREEN VAL RD	
64	08434900	2605A	FOSS RIVER	3	38.38	FO	14.5	122	1951	0	Y	FOSS RIVER RD	FOSS RIVER	0.8 MI SE SR-2 MP 50.6	

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65	08596600	359A	GRANITE CREEK	3	55.47		14	30	1967	0	Y	PRIVATE ROAD	GRANITE CREEK	6.0 MI E OF I-90	
66	08585100	3216	GREEN RIVER	7	52.01	FO	48	250	1990	0	Y	83RD AVE S	GREEN RIVER	0.5 MI E OF SR-167	1/2 KENT
67	08224700	3032	GREEN RIVER GORGE	9	36.41	FO	14	447	1914	1991	Y	FRANKLIN RD	GREEN RIVER	4.0 MI E OF SR-169	
68	*08256500*	*3020*	*GREEN VALLEY ROAD*	*7*	*34.41*		*22.8*	*20*	*1950*	*0*	*N*	*SE GREEN VALLEY RD*	*BURNS CREEK TRIBUTARY*	*5.5 MI E OF SR-18*	
69	*08274300*	*3022*	*GREEN VALLEY ROAD*	*7*	*38.43*		*22.8*	*20*	*1954*	*0*	*N*	*SE GREEN VALLEY RD*	*CRISP CREEK*	*6.7 MI E OF SR-18*	
70	*08623500*	*3050A*	*GREENWATER*	*9*	*85.32*		*19*	*18*	*1964*	*1996*	*N*	*SE 496TH PL*	*PACKARD CREEK*	*0.3 MI NE OF SR-410*	
71	08105200	3050B	GREENWATER RIVER BRIDGE	9	57.6	FO	11	105	1973	0	Y	UHLMAN RD E	GREENWATER RIVER	0.2 MI NE OF SR-410	
72	08729200	5003	HARRIS CREEK BRIDGE	3	95.61		34	80	2005	0	Y	KELLY RD NE	HARRIS CREEK	2.0 MI NE SR-203	
73	*08092700*	*257Z*	*HORSESHOE LAKE CREEK*	*3*	*57.04*		*16.8*	*19*	*1930*	*1969*	*N*	*310TH AVE NE*	*HORSESHOE LAKE CREEK*	*1.0 MI W OF SR-203*	
74	08300200	83D	ISSAQUAH CREEK	9	67.31	FO	26	42	1962	0	Y	CEDAR GROVE RD	ISSAQUAH CREEK	1.4 MI E OF SR-169	
75	08302300	83B	ISSAQUAH CREEK	9	36.43	SD	22.8	40	1952	0	Y	SE 156TH ST	ISSAQUAH CREEK	1.5 MI E OF SR-169	
76	08330500	1741A	ISSAQUAH CREEK	9	47.44	SD	22.8	54	1951	1974	Y	252 AVE SE ISSAQUAH	ISSAQUAH CREEK	0.5 MI W SR-203	
77	*08612200*	*3099A*	*JEM CREEK*	*9*	*63.17*	*FO*	*23.9*	*20*	*1989*	*0*	*N*	*SE 206TH ST*	*TAYLOR CREEK*	*0.5 MI E OF SR-169*	
78	08240700	3184	JUDD CREEK	8	43.07	FO	24	370	1953	0	Y	VASHON HWY SW	JUDD CREEK	0.1 MI S OF SW QTRMSTR DR	
79	08116300	3036	KANASKAT ARCH	9	76.71	FO	24	220	1918	1955	Y	CUMBERLAND-KANASKAT	GREEN RIVER	5.1 MI E OF SR-169	
80	08116600	3037OX	KANASKAT OXING	9	57.56	FO	22.5	158	1959	0	Y	CUMBERLAND-KANASKAT	BNSF RR	4.8 MI E OF SR-169	
81	08209800	5008	KELLY RD CHERRY CREEK	3	74.39		27	72	1947	2004	Y	KELLY RD NE	CHERRY CREEK	4.2 MI E OF SR-203	
82	*08302400*	*5007*	*KELLY ROAD*	*3*	*49.06*		*27*	*16*	*1959*	*0*	*N*	*KELLY RD NE*	*DRAINAGE DITCH*	*1.0 MI N OF NE LK JOY RD*	
83	08623600	896B	KERRISTON BRIDGE	9	63.75	FO	14	22	1996	0	Y	364TH AVE SE	RAGING RIVER	6.8 MI E OF ISSQ-HOBART RD	
84	08623700	896C	KERRISTON BRIDGE	9	71.08	FO	14	32	1996	0	Y	364TH AVE SE	RAGING RIVER	6.9 MI E OF ISSA-HOBART RD	
85	08883100	896D	KERRISTON BRIDGE	9	93.6		0	28	2014	0	Y	364TH AVE SE	RAGING RIVER	5.0 MI E OF ISSQ-HOBART RD	
86	08402300	1086A	KIMBALL CREEK	3	78.54		24.8	44	1929	1965	Y	SE 80TH ST	KIMBALL CREEK	0.2 MI S SE 80TH ST	
87	08414800	99L	KIMBALL CREEK	3	48.55	FO	10.6	47	1960	1973	Y	SE 76TH ST	KIMBALL CREEK	0.5 MI W OF SR-202	
88	08418400	891A	KIMBALL SUPER SPAN.	3	99.31		0	27	1971	0	Y	384TH AVE SE	KIMBALL CREEK	0.4 MI N SE N0.BEND WY	
89	08596700	359B	LAKE DOROTHY BRIDGE	3	76.44		26	290	1963	0	Y	SE MIDDLE FORK RD	M FORK SNOQUALMIE RIVER	5.1 MI E 468 AVE	
90	08912100	359E	LAKE DOROTHY E	3	92.82		27.4	80	2014	0	Y	SE MIDDLE FORK RD	UNNAMED TRIBUTARY	9.81 MI N OF I-90	
91	08879400	359C	LAKE DOROTHY OVERFLOW BR	3	90.83		33	22	2015	0	Y	SE MIDDLE FORK RD	UNNAMED TRIBUTARY	5.7 MI N OF I-90	
92	08839400	359U	LAKE DOROTHY SLIDE	3	83.48	FO	14.8	41	2011	0	Y	SE LAKE DOROTHY RD	SLIDE DEPRESSION	2.0 MI E OF NORTH BEND	
93	*08478800*	*5034A*	*LAKE JOY BRIDGE*	*3*	*49.09*		*23*	*16*	*1950*	*0*	*N*	*W LAKE JOY DRIVE NE*	*LAKE JOY CREEK*	*2.3 MI E OF SR-203*	
94	*08007200*	*3109B*	*LAKE YOUNG'S WAY*	*9*	*29.55*		*34.8*	*16*	*1969*	*0*	*N*	*SE LK YOUNGS WAY*	*BIG SOOS CREEK*	*0.3 MI NE OF SE 208TH*	
95	08256100	3075	LANDSBURG BR.	9	94.95		38	132	1982	0	Y	LANDSBURG RD	CEDAR RIVER	1.5 MI N KENT KANGLY RD	
96	08608700	3096OX	MAPLEVALLEY OVERCROSSING	9	97.15		0	24	1994	0	Y	SE 216TH WAY	CEDAR RIVER TRAIL	0.5 MI E OF SR-169	
97	08874600	999L	MARTIN CREEK	3	80.76		14	95	1959	0	Y	OLD CASCADE HWY	MARTIN CEEK	0.2 MI S OF SR-2	
98	*08014000*	*3202*	*MAXWELL ROAD*	*9*	*30.12*		*22.8*	*16*	*1952*	*0*	*N*	*MAXWELL RD SE*	*UN-NAMED CREEK*	*0.6 MI N OF SR-169*	
99	*08016200*	*3099*	*MAXWELL ROAD*	*9*	*70.64*		*22.8*	*20*	*1939*	*1951*	*N*	*225TH AVE SE*	*TAYLOR CREEK*	*0.5 MI NE OF SR-169*	
100	*08124200*	*593C*	*MAY CREEK*	*9*	*51.89*		*22.6*	*16*	*1951*	*0*	*N*	*164TH AVE SE*	*MAY CREEK*	*0.5 MI N OF SR-900*	
101	08823400	5005	MAY CREEK	9	96.15		40	36	2010	0	Y	SE MAY VALLEY RD	MAY CREEK	0.1 MI E OF SR-900	
102	*08378400*	*999W*	*MILLER RIVER BR*	*3*	*17.5*	*SD*	*16.5*	*228*	*1922*	*0*	*N*	*OLD STVNS PASS HWY*	*MILLER RIVER*	*1.5 MI SE OF SR-2*	
103	08604000	506A	MONEY CREEK BRIDGE	3	76.66		14	220	1958	0	Y	NE MONEY CREEK RD	MONEY CREEK	2.0 MI S OF SR-2	
104	08779200	2550A	MT. SI BRIDGE	3	66.69		34	366	2008	0	Y	SE MT SI RD	M FORK SNOQUALMIE RIVER	0.4 MI N OF SE N BEND	
105	08718900	124C	NE 124 ST	3	92.83		62	128	2004	0	Y	NE 124TH ST	SAMMAMISH RIVER	2.3 MI E OF I-405	
106	*08644400*	*124B*	*NE 124TH ST BRIDGE*	*3*	*90.83*		*65*	*21*	*1999*	*0*	*N*	*NE 124TH St*	*DRAINAGE DITCH*	*0.8 MI E OF 132ND PL*	
107	08756400	249A	NEAL ROAD	3	82.44		24.5	32	2007	0	Y	CW NEAL RD	DRAINAGE DITCH	1.0 MI S OF SR-203	
108	08199300	3014	NEELY BRIDGE	7	72.56		28	243	1970	0	Y	SE AUBURN-BLK DIAMOND RD	GREEN RIVER	0.2 MI NE OF SR-18	
109	08019600	3188	NEWAUKUM CREEK	9	96.95		0	24	1927	0	Y	SE 400TH ST	NEWAUKUM CREEK	1.0 MI E 212TH AVE SE	
110	08113600	3063	NEWAUKUM CREEK	9	43.49	FO	22.8	40	1950	0	Y	SE 416TH ST	NEWAUKUM CREEK	0.6 MI W SE 416TH ST	
111	08169400	3071	NEWAUKUM CREEK	9	43.71		24	40	1950	0	Y	SE 424TH ST	NEWAUKUM CREEK	0.5 MI W OF SR-169	
112	08172400	3069	NEWAUKUM CREEK	9	86.9		26	25	1939	1957	Y	248 TH AVE SE	NEWAUKUM CREEK	JCT SE 433RD ST	
113	08188900	3064	NEWAUKUM CREEK	9	87.71		28	47	1928	1997	Y	SE 424TH ST	NEWAUKUM CREEK	0.8 MI W OF 244TH SE	
114	08190200	3066	NEWAUKUM CREEK	9	83.26		28	49	1927	1955	Y	236TH AVE SE	NEWAUKUM CREEK	0.5 MI N OF SR-164	
115	08235300	3041	NEWAUKUM CREEK	9	76.51		24	70	1958	0	Y	SE 416TH ST	NEWAUKUM CREEK	0.9 MI E OF SR-169	
116	08299200	3068	NEWAUKUM CREEK	9	56.48	FO	21.6	32	1928	0	Y	244TH AVE SE	NEWAUKUM CREEK	0.2 MI N OF SE 436TH	
117	08813800	3043	NEWAUKUM CREEK	9	98.56		32	41	2009	0	Y	SE 416TH ST	NEWAUKUM CREEK	0.6 MI E of SR-169	
118	08839300	3042	NEWAUKUM CREEK	9	99.56		38	42	2011	0	Y	SE 416TH ST	NEWAUKUM CREEK	0.8 MI E SR-169	
119	08853800	3040A	NEWAUKUM CREEK	9	98.32		38	35	2012	0	Y	284TH AVE SE	NEWAUKUM CREEK	0.3 MI N OF SE 416TH	
120	08460200	122K	NORMAN BRIDGE	3	89.6		30	393	1984	0	Y	428TH AVE SE	M FORK SNOQUALMIE RIVER	0.6 MI S OF S REINIG	
121	08461200	122I	NORTH FORK	3	13.03	SD	22	252	1951	0	Y	428TH AVE SE	N FORK SNOQUALMIE RIVER	0.1 MI S SE REINIG	
122	08651300	404B	NOVELTY	3	86.06		39.4	624	2000	0	Y	NE 124TH ST	SNOQUALMIE RIVER	0.5 MI W OF SR-203	
123	08865200	902	NOVELTY HILL CROSSING	3	Wildlife		40	122	2013	0	Y	WILDLIFE CORRIDOR	NOVELTY HILL RD	2.5 MI N OF SR-202	
124	07962900	5043	OLD NORTH BEND WAY	3	79.56		52	92	1941	0	Y	SE NORTH BEND WAY	KIMBALL CREEK	1.2 MI N OF I-90	
125	*08924900*	*1050A*	*OLSEN CREEK*	*7*	*79.77*		*23*	*20*	*2020*	*0*	*N*	*GREEN RIVER RD*	*OLSEN CREEK*	*1.0 MI S OF S 277TH ST*	
126	08585000	3217	OVERFLOW CHANNEL	7	71.94	FO	48	62	1990	0	Y	83RD AVE S	CATTLE CROSSING	0.5 MI E OF SR-167	
127	08020000	228E	PATTERSON CREEK	3	67.12	FO	26	52	1969	0	Y	SNOQUALMIE RIVER RD	PATTERSON CREEK	0.4 MI N OF SE 24TH	
128	08071400	927B	PATTERSON CREEK	3	72.86		19	21	1951	1973	Y	300TH AVE SE	PATTERSON CREEK	0.1 MI S OF SR-202	

Appendix One - Bridge Inventory

No.	Structure ID	Bridge Number	Bridge Name	County Council District	Sufficiency Rating	FO/SD	Width	Length	Year Built	Year Rebuilt	NBI	Facilities Carried	Feature Intersected	Location	Jurisdiction
129	08779300	5024A	PATTERSON CREEK	3	73.49		20	33	2008	0	Y	264TH AVE SE	PATTERSON CREEK	0.1 MI S OF SR-202	
130	08779500	344A	PATTERSON CREEK	3	85.39		23.5	37	2008	0	Y	310TH AVE SE	PATTERSON CREEK	0.8 MI NE OF SR-202	
131	08852100	180L	PATTERSON CREEK	3	95.55		38	67	2012	0	Y	292ND AVE SE	PATTERSON CREEK	0.3 MI S OF SR-202	
132	08298300	3015	PATTON BRIDGE	7	12.67	SD	24	430	1950	0	Y	SE GREEN VALLEY RD	GREEN RIVER	1.5 MI SE OF SR-18	
133	08712500	682A	PRESTON BRIDGE	3	71.03		28	243	2003	0	Y	SE 86TH ST	RAGING RIVER	0.1 MI E OF PREST-FALL CITY RD	
134	08366500	1008G	RAGING RIVER	3	42.57	SD	28	170	1962	0	Y	PRESTON FALL CITY	RAGING RIVER	0.6 MI E JCT 84TH AVE	
135	08371300	1008E	RAGING RIVER	3	68.59		24	50	1915	0	Y	SE 68TH ST	RAGING RIVER	2.0 MI NE OF I-90	
136	08644200	234A	RAGING RIVER BRIDGE	3	67.62		40	199	1998	0	Y	PRESTON FALL CITY	RAGING RIVER	0.2 MI S OF SR-202	
137	08712400	901	REDMOND RIDGE UPD	3	89.63		32	195	2001	0	Y	REDMOND RIDGE NE	WETLAND	300' NW OF NE 80TH ST	
138	08610400	896A	ROCK CREEK BRIDGE	9	80.06	FO	17	62	1994	0	Y	SE 208TH ST	ROCK CREEK	4.2 MI E ISSQ-HOBART RD	
139	08719600	4400	ROCK CREEK CULVERT	9	80.22	FO	22	62	2003	0	Y	SE 248TH ST	ROCK CREEK	1.0 MI E OF SR-169	
140	08756500	920A	RUTHERFORD SLOUGH	3	87.06		24.4	31	2007	0	Y	SE 39TH PL	RUTHERFORD SLOUGH	0.4 MI NE OF SR-203	
141	*08928400*	*3126*	*S 277TH STREET CULVERT*	*7*	*93.61*		*64*	*20*	*2021*	*0*	*N*	*SE 277TH ST*	*IRRIGATION DITCH*	*1.5 MI E OF I-5*	
142	08933600	1056C	SAYBROOK CULVERT	3	80		40	22	1992	0	Y	SAYBROOK DRIVE	DRAINAGE POND	0.1 MI S JCT NE W-DUVALL	
143	08388600	999K2	SCENIC BRIDGE	3	57.52		19	61	1960	0	Y	NE OLD CASCADE HWY	TYE RIVER	0.1 MI S OF SR-2	
144	*08478900*	*3030*	*SE 380 ST*	*9*	*71.04*		*22.8*	*16*	*1950*	*0*	*N*	*SE 380 TH ST*	*SLOUGH*	*1.0 MI W OF SR-169*	
145	*08057200*	*3056A*	*SE 408TH ST*	*9*	*32*		*24*	*18*	*1915*	*0*	*N*	*SE 408TH ST*	*UNNAMED CREEK*	*0.2 MI E OF SR-164*	
146	08839200	3201	SE 424TH ST	9	99.99		31.1	31	2011	0	Y	SE 424TH ST	WATERCRESS CREEK	0.6 MI W 284TH AVE SE	
147	08349300	3198	SEMANSKI	9	95.85		28	43	1963	0	Y	252ND AVE SE	BOISE CREEK	0.1 MI S OF SR-410	
148	08046900	2133A	SIKES LAKE TRESTLE	3	24.55	SD	22	260	1978	0	Y	284TH AVE NE	SIKES LAKE	0.5 MI E OF SR-202	
149	08278600	999Z	SKYKOMISH RIVER	3	58.83		24	255	1957	0	Y	NE OLD CASCADE HWY	S FORK SKYKOMISH RIVER	0.1 MI SE OF SR-2	
150	08638000	615A	SMITH PARKER BRIDGE	3	72.46		34	125	1998	0	Y	328 WAY SE	RAGING RIVER	0.1 MI W OF FALL CITY RD	
151	*07997400*	*3110*	*SOOS CREEK*	*9*	*59.78*		*19.8*	*18*	*1928*	*0*	*N*	*SE 208TH ST*	*BIG SOOS CREEK*	*0.3 MI E OF SE 204TH*	
152	*08106100*	*3109A*	*SOOS CREEK*	*9*	*71.92*		*19*	*17*	*1959*	*0*	*N*	*SE 216TH ST*	*BIG SOOS CREEK*	*0.3 MI E OF 132ND AVE SE*	
153	*08106900*	*3109*	*SOOS CREEK*	*9*	*53.32*		*22.8*	*16*	*1949*	*0*	*N*	*SE 224TH ST*	*SOOS CREEK*	*0.3 MI E OF 132ND AVE*	
154	08167200	3108	SOOS CREEK	9	69.14		31.5	32	1971	0	Y	148TH AVE SE	SOOS CREEK	0.2 MI N OF SE 240TH ST	
155	08813700	3205	SOOS CREEK	9	88.88		27.5	37	2009	0	Y	172ND AVE SE	SOOS CREEK	0.2 MI N SE 240TH ST	
156	08813900	3106	SOOS CREEK	9	97.61		36	44	2009	0	Y	SE 244 ST	SOOS CREEK	0.1 MI E OF 148TH AVE SE	
157	08870100	3179	SOUTH PARK BRIDGE	8	68.87		55	921	2014	0	Y	14/16TH AVE SE	DUWAMISH RIVER	0.8 MI N OF SR-99	
158	08097200	1023A	STOSSEL BRIDGE	3	27.78	SD	24	330	1951	0	Y	NE CARNATION FARM	SNOQUALMIE RIVER	0.7 MI S OF SW 160TH ST	
159	07974800	5032	STOSSEL CREEK	3	59.59	SD	15	25	1947	1967	Y	STOSSEL CREEK RD	CHERRY CREEK	6.2 MI NE OF KELLY RD	
160	08823300	364C	SUNDAY CREEK	3	81.14		18	105	2010	0	Y	NORTH FORK RD SE	SUNDAY CREEK	17.4 MI N OF I-90	
161	*08353200*	*122N*	*TATE CREEK*	*3*	*19.23*		*22.8*	*16*	*1952*	*0*	*N*	*SE 73RD ST*	*TATE CREEK*	*0.1 N OF FORK RD SE*	
162	0016611E	3095A	TAYLOR CREEK	9	95.76	FO	36.8	105	2005	0	Y	NORVYDAN RD	TAYLOR CREEK	0.1 MI N OF SR-18	
163	08246300	61G	TOKUL CR PARK	3	46.63		22	85	1950	0	Y	FISH HATCHERY RD	TOKUL CREEK	0.8 MI S OF SR-202	
164	*08255400*	*271AOX*	*TOKUL CREEK OX*	*3*	*99.84*		*0*	*19*	*1988*	*0*	*N*	*TOKUL RD*	*OLD MILWAUKEE RR BED*	*0.7 MI NE OF SR-202*	
165	08779100	1834A	TOLT BRIDGE	3	70.06		40	962	2008	0	Y	NE TOLT HILL RD	SNOQUALMIE RIVER	0.1 MI N OF AMES LAKE RD	
166	08644300	1105	TUCK CREEK TEMP BRIDGE	3	92.67	FO	13	30	1999	0	Y	W SNOQUALMIE VALLEY RD	TUCK CREEK	0.1 MI E OF FALL CITY RD	
167	*08633000*	*1000*	*TYE RIVER PED BRIDGE*	*3*	*Ped*		*6*	*80*	*1996*	*0*	*N*	*OLD CASCADE HWY*	*TYE RIVER*	*4.0 MI N OF SR-2*	
168	08002400	1239A	UPPER PRESTON	3	42.29	FO	22.8	60	1950	0	Y	UPPER PRESTON RD	LAKE CREEK	0.2 MI S OF W SNOQ RD	
169	08446000	5046	UPPER PRESTON FRONTAGE RD BR	3	78.67		28	316	1974	0	Y	UPPER PRESTON RD	RAGING RIVER	0.1 MI SE OF I-90	
170	08938500	271B	UPPER TOKUL CR	3	90.08		28	104	2023	0	Y	TOKUL RD SE	TOKUL CREEK	1.5 MI NE OF SR-202	
171	08049600	3038	VEAZIE BRIDGE	9	52.86	FO	26	57	1950	0	Y	VEAZIE-CUMBERLAND	COAL CREEK	0.3 MI N SE 392 ST	
172	08393500	228A	W SNOQUALMIE RIVER RD NE	3	73.18		26	36	1965	0	Y	NE 18TH ST	DRAINAGE DITCH	0.2 MI W SNOQ R RD NE	
173	08779400	228D	W SNOQUALMIE RIVER RD NE	3	78.45	FO	23.5	33	2008	0	Y	W SNOQUALMIE RV RD NE	DRAINAGE DITCH	2.0 MI S TOLT HILL RD	
174	*08391900*	*916A*	*W SNOQUALMIE RIVER ROAD*	*3*	*54.78*		*22.8*	*20*	*1951*	*0*	*N*	*W SNOQUALMIE RV RD*	*SLOUGH*	*0.8 MI S NE TOLT RD*	
175	08886800	5009B	W SNOQUALMIE VALLEY RD	3	98.84		28	31	2016	0	Y	W SNO VALLEY RD	DRAINAGE DITCH	0.5 MI N OF AMES LK RD	
176	08779700	364B	WAGNERS BRIDGE	3	92.43		18	175	2008	0	Y	NORTH FORK RD SE	N FORK SNOQUALMIE RIVER	13.5 MI N OF I-90	
177	08415800	5011	WALTER SHULTS	3	64.84	FO	16.9	26	1953	2009	Y	NE 106TH ST	BEAR CREEK	0.1 MI E OF AVONDALE RD	
178	08946300	1136G	W-D CULV AT NE 172 ST	3	89.93		34	33	2023	0	Y	WOODINVILLE DUVALL	TUCK CREEK	1.9 MI W OF SR-203	
179	08946200	1136F	W-D CULV AT TUCK CK	3	92.12		23	23	2017	0	Y	WOODINVILLE DUVALL	TUCK CREEK	1.4 MI W of SR-203	
180	08633100	63	WELCOME LAKE BRIDGE	3	87.08		28.7	32	1984	0	Y	218TH AVE NE	COLIN CREEK	1.0 MI E OF AVONDALE RD	
181	08598300	3025	WHITNEY BRIDGE	7	58.97		38	257	1991	0	Y	212TH WAY SE	GREEN RIVER	0.1 MI S GREEN VALLEY RD	
182	08651200	3027	WHITNEY HILL	9	97.46		34.3	64	2000	0	Y	212TH WAY SE	NEWAUKUM CREEK	0.8 MI S GREEN VALLEY RD	
183	08856600	952D	WILDLIFE CROSSING	3	98.88		49	46	2012	0	Y	195TH AVE NE	TRIBUTARY	2.7 MI E OF SR-202	
184	08180000	1136E	WOODINVILLE-DUVALL	3	57.75	SD	24	50	1948	0	Y	WOODINVILLE DUVALL	TUCK CREEK	1.8 MI SE OF I-90	
185	08180100	1136D	WOODINVILLE-DUVALL RD	3	56.58	SD	24	70	1948	0	Y	WOODINVILLE DUVALL	DUVALL SLOUGH	0.9 MI W OF SR-203	
186	08180200	1136C	WOODINVILLE-DUVALL RD.	3	56.58	SD	24	90	1948	0	Y	WOODINVILLE DUVALL	DUVALL SLOUGH	0.8 MI W OF SR-203	
187	08138900	3194	WYNACO	7	60.79		26	195	1964	2004	Y	168TH WAY SE	COVINGTON CREEK	2.7 MI E OF SR-18	
188	08752300	225C	YORK BRIDGE	3	96.81		33	220	2006	0	Y	NE 116TH ST	SAMMAMISH RIVER	0.5 MI W OF SR-202	1/2 REDMOND

**Italic text indicates short span bridge (20 feet or less in length) and pedestrian structures*

Appendix Two - Load-Limited or Restricted Bridges

The following are King County owned bridges with restricted load capacity or restricted vertical clearances.
For closed bridges, go to http://gismaps.kingcounty.gov/mycommute.

LOAD-LIMITED BRIDGES

Bridge Number	Bridge Name	Type 3 3 Axle Truck	Type 3-S2 5 Axle Truck	Type 3-3 6 Axle Truck	SHV - SU4 4 Axle Truck	SHV - SU5 5 Axle Truck	SHV - SU6 6 Axle Truck	SHV - SU7 7 Axle Truck
		Legal Tonnage						
		25T	36T	40T	27T	31T	34.75T	38.75T
1320A	Ames Lake Trestle Bridge	21 T	34 T	-	19 T	22 T	25 T	28 T
509A	Baring Bridge	10 T	10 T	10 T	10 T	10 T	10 T	10 T
3055A	Boise X Connection Bridge	18 T	29 T	39 T	15 T	15 T	14 T	14 T
364A	Deep Creek Bridge	-	-	-	25 T	28 T	31 T	34 T
180A	Evans Creek Bridge	24 T	-	-	21 T	23 T	24 T	27 T
3032	Green River Gorge Bridge	-	-	-	22 T	23 T	22 T	25 T
1741A	Issaquah Creek Bridge	-	-	-	-	-	34 T	37 T
122I	North Fork Bridge	-	-	-	-	27 T	25 T	22T
3015	Patton Bridge	-	33 T	35 T	-	30 T	30 T	29 T
999K2	Scenic Bridge	-	-	-	23 T	23 T	21 T	21 T

RESTRICTED FOR VERTICAL CLEARANCE

Bridge Number	Bridge Name	Vertical Height Restriction
4400	Rock Creek Culvert	10'-8"
1023A	Stossel Bridge	14'-9"

Appendix Three - Bridges with Painted Steel Components

	Bridge No.	Bridge Name	Fracture Critical Y/N	Bridge Type	Year Last Painted	Steel Tonnage	Area of Steel Sq. Ft.
1	3055A	BOISE X CONNECTION	N	Girder	1995	25	2,750
2	364A	DEEP CREEK	Y	Plate Girder	1995	15	1,650
3	3014	NEELY	N	Girder	1996	76	8,360
4	122I	NORTH FORK	N	Girder	1996	18	1,980
5	3015	PATTON	Y	Box Girder	1996	40	4,400
6	3050B	GREENWATER	Y	Plate Girder	1997	25	2,750
7	999K2	SCENIC	N	Girder	1997	20	2,200
8	615A	SMITH PARKER	Y	Truss	1998	45.7	7,312
9	404B	NOVELTY	Y	Truss	2000	517	82,720
10	3032	GREEN RIVER GORGE	Y	Truss	2001	225	59,000
11	617B	EDGEWICK	Y	Truss	2004	216	23,760
12	3166	ELLIOTT	N	Girder	2005	252	27,720
13	3216	GREEN RIVER	N	Girder	2006	72	7,920
14	2550A	MT. SI	Y	Truss	2008	162.5	26,000
15	1834A	TOLT	Y	Truss	2008	860	137,600
16	364C	SUNDAY CREEK	Y	Truss	2010	50	7,965
17	359U	LK DOROTHY SLIDE	N	Girder	2011	3	330
18	3179	SOUTH PARK	Y	Truss	2014	1485	208,000
19	1023A	STOSSEL	Y	Truss	2014	141	22,560
20	999Z	SKYKOMISH RIVER	N	Girder	2017	144	15,840
21	2605A	FOSS RIVER	Y	Truss	2019	20	3,200
22	3024	FLAMING GEYSER	Y	Box Girder	2020	140	13,790

Structures with steel components that do not require painting:
Culverts: Cottage Lake Creek Bridge No. 5042, Kimball Superspan No. 891A, Tokul Creek OX No. 271AOX, Saybrook Culvert Bo. 1056C
Temporary Bridge: Tuck Creek Temp Bridge No. 1105
Closed Bridge: Miller River Bridge No. 999W

Appendix Four - Landmark Bridges

The 9-member Landmarks Commission was established in 1980 by Ordinance 10474 (KCC 20.62) to ensure that the historic places, material culture, and traditions which best reflect the region's 13,000 years of human history are preserved for future generations. This is a list of King County bridges designated by the King County Landmarks Commission as Landmark Bridges.

Baring Bridge No. 509A

Built in 1930, this timber suspension bridge spans the South Fork Skykomish River at Northeast Index Creek Road, near the community of Baring.
Baring Bridge was added to the National Historic Registry and received Washington State Landmark status in 2019.
Designated in 1999

Foss River Bridge No. 2605A

Built in 1951, spanning a tributary to the Skykomish River in northeast King County. This warren pony truss was added to the National Historic Registry in 2002.
Designated in 2004.

Green River Gorge Bridge No. 3032

Built in 1914, spanning the Green River Gorge in southeast King County. This is a rare and intact example of the Baltimore Petit deck truss structural design. The Green River Gorge Bridge is the only Baltimore Petit deck truss bridge owned and maintained by King County. Designated in 2004.

Judd Creek Bridge No. 3184

Built in 1953 on Vashon Island, it carries SW Vashon Hwy over Judd Creek. It is a concrete hollow-box (box girder) bridge designed by Homer M. Hadley. Designated in 2004.

Appendix Four - Landmark Bridges

Miller River Bridge No. 999W
Built in 1922, it carries the Old Cascade Scenic Highway over Miller River. This riveted Pratt truss is located near the community of Skykomish. Designated in 1999.

Patton Bridge No. 3015
Built in 1950, spanning the Green River in the vicinity of Auburn. A rare and early example of innovative structural design associated with Homer M. Hadley. In 1995, the Patton Bridge was listed in the National Register of Historic Places and the Washington Heritage Registry.

Raging River Bridge No. 1008E
Built in 1915, this bridge spans the Raging River between the communities of Fall City and Preston. It is a concrete earthen-filled arch structure, originally built to carry the Sunset Highway across the Raging River. Designated in 1997.

Stossel Bridge No. 1023A
Built in 1951, spanning the Snoqualmie River, this riveted Warren truss is located north of the community of Carnation. Listed on the Washington Historic Registry in 2002. Designated in 1997.