

2018 Annual Clark County Bridge Report



NE 10th Avenue Bridge

Submitted by Ahmad Qayoumi, PE
County Engineer/Public Works Director

Prepared by David Dolan, PE
Clark County Public Works, Engineering and Construction Division
Submitted June 2019



TABLE OF CONTENTS

I. INTRODUCTION	Page 3
II. BRIDGE INVENTORY	Page 3
III. BRIDGE INSPECTION FINDINGS AND REPAIRS	Page 5
IV. RESTRICTED BRIDGES	Page 7
V. BRIDGE CONSTRUCTION/ACCOMPLISHMENTS IN 2018	Page 8
VI. FUTURE PLANS	Page 9
GLOSSARY OF BRIDGE TERMINOLOGY	Page 10-11
APPENDIX TO THE 2018 ANNUAL BRIDGE REPORT	Page 12
Table A – Bridge Inventory	
Table B - Bridge Condition State	
Table C - Bridge Repairs	

I. INTRODUCTION

This bridge report is prepared by the Clark County Public Works Department each year to fulfill the requirements of the Washington Administrative Code (WAC) 136-20-060. The WAC requires:

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.

The bridge inspections follow the National Bridge Inspection Standards (NBIS), which are published in the Code of Federal Regulations, 23 CFR 650, subpart C. The NBIS sets national standards for the proper safety inspection and evaluation of bridges and applies to all structures defined as highway bridges on public roads. The county uses the Washington State Bridge Inspection Manual, which details state policies and procedures for inspecting bridges and assessing their condition.

This report summarizes the county's 2018 bridge program, activities and findings. These programs help prioritize the maintenance and preservation of county bridges and identify complete bridge replacements before they significantly affect the county's transportation network.

II. BRIDGE INVENTORY

The county inspects 109 bridges located throughout Clark County. Of these bridges:

- 76 bridges owned by Clark County.
- 27 bridges owned by cities and inspected under interagency agreements.
- 6 bridges owned by the railroads (BNSF Railway, Chelatchie Prairie Railroad) and inspected for roadway safety.

Bridges are identified throughout this report by the bridge name followed by the bridge number, e.g., **Betts Bridge No. 26**. A complete bridge inventory is included in Table A in the Appendix. As referenced above, 27 bridges are owned by the cities of Vancouver, Camas, Washougal, Ridgefield, Battle Ground and La Center and six are owned by BNSF Railway or Chelatchie Prairie Railroad and are inspected for roadway safety on the streets that pass under them. The following map, Clark County Bridge Locations Figure 1, illustrates the distribution of county-owned and city-owned bridges throughout the county, in each councilor's district.

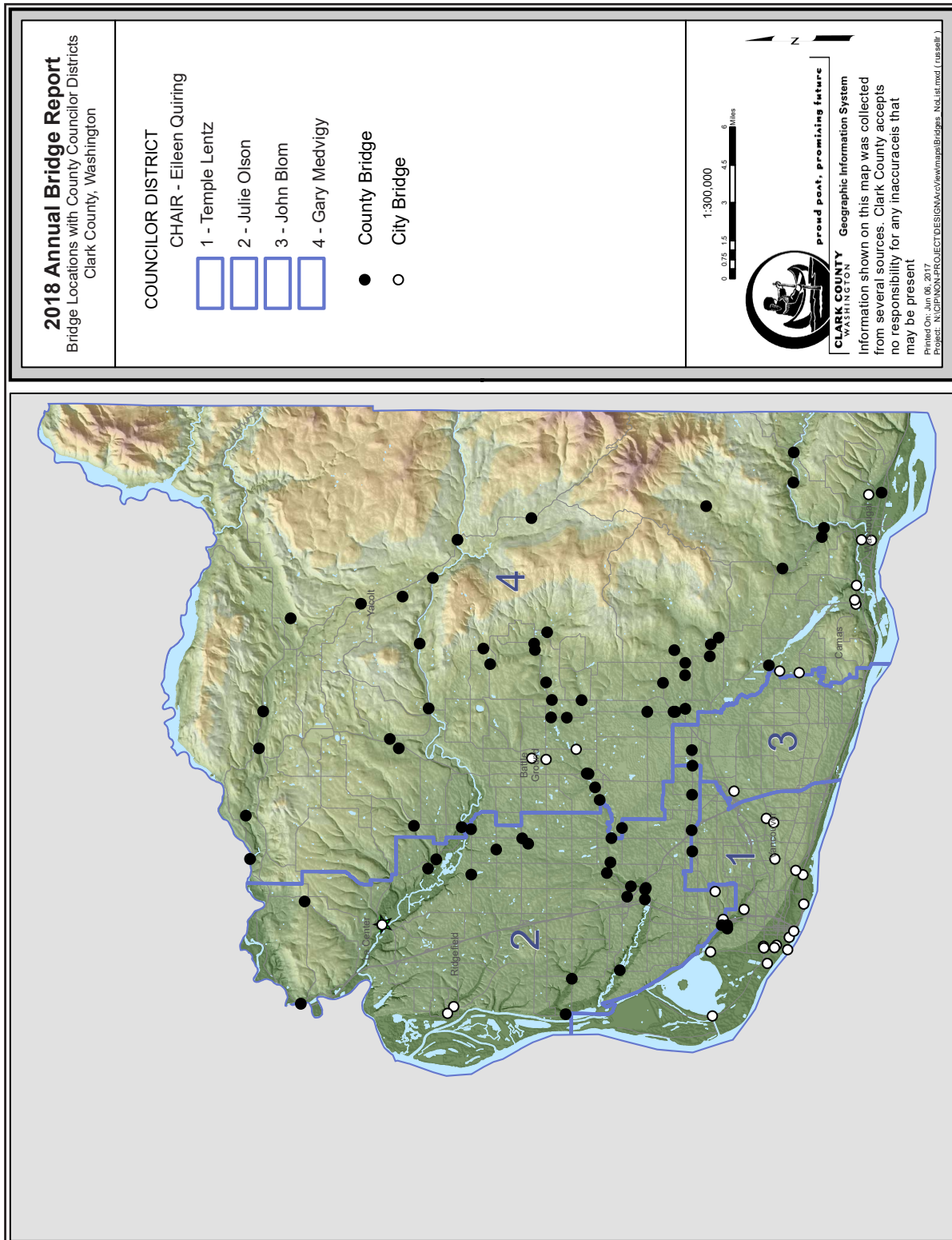


Figure 1 Clark County Bridge Locations Map

III. BRIDGE INSPECTION FINDINGS AND REPAIRS

A. Bridge Inspection Findings

NBIS mandates that public agencies inspect and report on all bridges at least once every two years. Under these standards, the county is required to document and report the current condition of each bridge, determine the degree of wear or deterioration, and recommend repairs or needed services. Deficient bridges, such as load restricted bridges, may require more frequent inspections.

A total of forty-seven routine bridge inspections were conducted in 2018. During these bridge inspections, inspectors evaluated the condition of the bridge structure and documented any observable deficiencies. When deficiencies were spotted, they were noted in the report and a deficiency report was generated and provided to the Road Maintenance and Safety Division for follow up. Any urgent structural or safety concerns were addressed promptly. No significant findings resulted from this year's routine bridge inspections.



High flow at scour critical bridge.

Thirteen county bridges are considered scour critical and require special inspection after storms for erosion, debris and stream bank instability. As a result of these post-flooding inspections, several county bridges were submitted for scour mitigation preventative maintenance grants. One bridge, Davis Bridge No. 232, is scheduled for replacement.

The bridge inspection reports are generated, reviewed and entered into Bridge Works, a bridge management database developed by the Washington State Department of Transportation (WSDOT) Bridge Preservation office. This database is a master inventory of all structures that are the responsibility of WSDOT. State transportation officials verify that Clark County bridges comply with NBIS standards and report the information to the Federal Highway Administration (FHWA).

One measure that provides an overview of a bridge's condition is the Sufficiency Rating (SR). The SR is a numeric value that indicates a bridge's relative ability to serve its intended purpose. The SR is the summation of four calculated values: Structural Adequacy and Safety, Serviceability and Functional Obsolescence, Essentiality for Public Use and Special Reductions. A SR is calculated for each bridge using the inspector's ratings for individual features of the bridge. Geometric layout, traffic volume and the length of a detour route are also used in calculating the SR. The SR ranges from zero (a bridge that is closed and cannot carry traffic loads) to 100 (a new bridge with no deficiencies). The average SR of the entire inventory provides a comparative look at the health of county bridges from one year to the next.

Overall, the SR for the county inventory of bridges shows a negative trend, with minor fluctuations from year to year. Due to the overall number of bridges in the inventory and the fact that the inventory continues to age, it is not unexpected to see a negative SR trend. With only one new bridge included in the six-year Transportation Improvement Program, the trend will continue to drop. **Figure 2** depicts the age of county bridges.

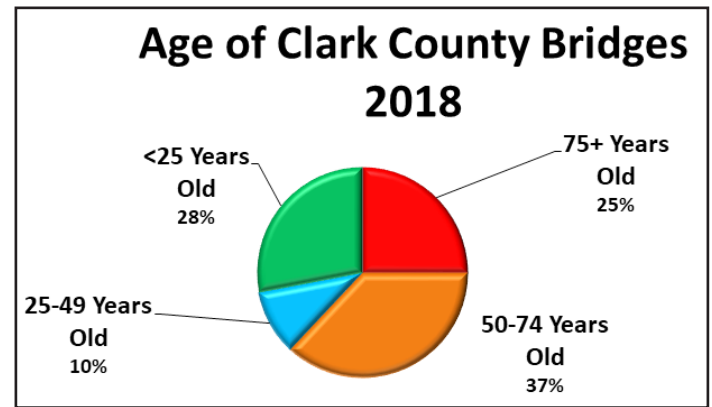


Figure 2: Distribution of Clark County's Bridges by Age

Generally speaking, bridges with an SR greater than 50 have a fair amount of useful life remaining. Bridges with an SR less than 50 require more attention and may need major repairs or complete replacement. The Bridge Replacement Advisory Committee, a WSDOT-sponsored committee that helps determine how to allocate federal bridge funds, is only screening bridges with an SR of 40 or less for replacement and an SR of 80 or less for rehabilitation. Although the SR for the overall county inventory is 77.38, there are a number of individual bridges with an SR below 50. There is a direct correlation between the SR and the age of the bridge. The average SR rating will begin to decline if bridge maintenance and repairs needs are not addressed.

In addition to using the SR as a bridge condition measure, the NBIS defines two types of deficient bridges – **structurally deficient** and **functionally obsolete**.

A **structurally deficient bridge**, as defined by the FHWA, is one with a condition or design that has affected its ability to carry its intended traffic loads. An example is a bridge that has significant load carrying elements in poor condition due to deterioration or damage. Another example is a bridge with an inadequate waterway opening underneath that causes flooding over the bridge deck or adjacent roadway, triggering significant traffic disruptions. The fact that a bridge is “structurally deficient” does not mean the bridge is unsafe or likely to collapse. It does, however, indicate the bridge typically will require significant maintenance and repair to remain in service and ultimately will require replacement or major rehabilitation. Clark County currently has two structurally deficient bridges: Davis Bridge No. 232 and Salmon Creek Bridge No. 331. Both bridges were downgraded in 2016 and are structurally deficient due to substructure scour damage. Both bridges are on increased inspection and monitoring plans.



Kline Line Bridge No. 1 Collapse 1956

A **functionally obsolete bridge** is one in which the deck geometry, load carrying capacity, clearance or approach roadway alignment does not meet accepted design standards. While structural deficiencies are generally the result of deterioration of bridge components, functional obsolescence typically results from older bridge configurations that are subject to increased traffic demands and are substandard structures, as defined by current bridge design codes. Examples include narrow lane/shoulder widths and height restrictions of less than 14 feet. Clark County's inventory has 14 bridges that are listed as Functionally Obsolete while the city of Camas has four, the city of Vancouver has two and the cities of Ridgefield, Battle Ground and Washougal each have one.

Table 1: Functionally Obsolete & Structurally Deficient Bridges

Agency	Number of Bridges	Functionality Obsolete	Structurally Deficient
Clark County	76	14	2
City of Vancouver	13	2	0
City of Camas	6	4	0
City of Washougal	3	1	0
City of Ridgefield	2	1	0
City of Battle Ground	2	1	0
City of La Center	1	0	0
Railroad (BNSF-5, CPR-1)	6	N/A	N/A

IV. RESTRICTED BRIDGES

If a bridge deficiency is severe and repairs cannot restore full load capability, load restriction signs for trucks are posted at each end of the bridge. Recent federal regulations have required that load ratings be updated to include Special Hauling Vehicles (SHV) and emergency vehicles (EV). These new requirements have increased the number of weight restricted bridges from 1 to 12 bridges. Currently, Clark County has 12 weight-limited bridges and one height-restricted bridge.

BRIDGE WEIGHT LIMIT SINGLE UNIT TRUCKS	
4 AXLES	23 T
5 AXLES	25 T
6 AXLES	26 T
7 AXLES	27 T

Table 2: Height and Load Limited Bridges in Clark County

Bridge Name	Bridge No.	Action
CPR - Highway 99 (County)	20141	Height Restricted
Kepfer (County)	102	Weight Restricted
Gibbons Creek	6	Weight Restricted
Rock Creek	96	Weight Restricted
Matney	168	Weight Restricted
Morgan	213	Weight Restricted
Venersborg	217	Weight Restricted
Unnamed	222	Weight Restricted
Landon	299	Weight Restricted
Flatwood	30	Weight Restricted
Lucia Falls	116	Weight Restricted
Brush Prairie	201	Weight Restricted
JC Ward	212	Weight Restricted

V. BRIDGE CONSTRUCTION/ACCOMPLISHMENTS IN 2018

1. Continued to develop procedures and resources for emergency response to natural disasters.
2. Received three BRAC grants to address scour deficiencies of existing county bridges: Lehto Bridge No. 294, Smith Bridge No. 211 and Salmon Creek Bridge No. 331. Design and permitting of these scour projects started in 2019 and will continue into 2020 with construction scheduled into 2020.
3. Completed the NE 10th Avenue Bridge which began in late spring of 2017.
4. Updated the majority of the bridge inventory load ratings with the remainder scheduled for completion in 2019.
5. Submitted BRAC grants for 9 bridges to address recent load restrictions.



NE 10th Avenue Bridge construction

VI. FUTURE PLANS

- Continue to support Clark County Parks and Railroad with their bridge needs. Monitor and assess their bridges and provide engineering support as needed.
- Coordinate bridge barrier upgrades with other projects.
- Continue to review private bridge designs.
- Participate in emergency preparedness efforts.
- Complete federally required updates to load ratings.
- Participate in statewide discussions about programmatic approaches and asset management for short span bridges.
- Begin design of Davis Bridge No. 211 (one of two Structurally Deficient bridges) with construction scheduled for 2021.



Davis Bridge scour

GLOSSARY OF BRIDGE TERMINOLOGY

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

Backwall: the top-most 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 column or column-like members connected at their top-most ends by a cap, strut, or other horizontal member.

Bridge Replacement Advisory Committee: a WSDOT-sponsored committee that helps determine how to allocate federal bridge funds.

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, top-most 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 upper-most and the lower-most longitudinal members, extending the full length of the truss.

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

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

Elastomeric pads: rectangular pads made of neoprene, found between the sub- and superstructure that bears the entire weight of the superstructure. Elastomeric pads can deform to allow for thermal movements of the superstructure.

Endwall: the wall located directly under each end of a bridge that holds back approach roadway fill. The endwall is part of the abutment.

Fracture critical member: a member in tension or with a tension element whose failure would probably cause a portion of or the entire bridge to collapse.

Pier: a structure comprised of stone, concrete, brick, steel, or wood that supports the ends of the spans of a multispan superstructure at an intermediate location between abutments. A pier is usually a solid structure as opposed to a bent, which is usually made up of columns.

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

Pinpile: a series of two-inch-diameter pipes driven in a line into the ground to support the timber planks of a small retaining wall, typically used to prevent erosion under a bridge abutment.

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

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

Short span bridge: the characteristics of these bridges are a span less than 20 feet and typically supported by timber piles or shallow concrete footings.

Soffit: the underside of the bridge deck or sidewalk.

Spall: a concrete deficiency 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' long) supporting the bridge deck, and in large bridges, framed into or upon the floor beams.

Sufficiency rating: the sufficiency rating is a numeric value from 100 (a bridge in new condition) to 0 (a bridge incapable of carrying traffic). The sufficiency rating is the summation of four calculated values: Structural Adequacy and Safety, Serviceability and Functional Obsolescence, Essentiality for Public Use, and Special Reductions.

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

Superstructure: the entire portion of a bridge structure which 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 which 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.

UBIT: Under Bridge Inspection Truck

Wheelrail: a timber curb fastened directly to the deck, most commonly found on all-timber bridges.

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

APPENDIX TO THE 2017 ANNUAL BRIDGE REPORT

Table A – Bridge Condition Summary

Table B - Bridge Inventory Detail

Table C - Bridge Repairs



T

Bridge #	Name	Facilities Carried	Year Built	Reconstructed	Sufficiency Rating	SD / FO	Scour Code	Posted	Subject To NBI	Municipal Code
BATTLE GROUND										
0000000336	WOODIN CREEK CULVERT	NE 199TH STREET	2003	0	96.5		5	Open, no	Y	0060
0000000205	NONE	NE 142ND AVE	1958	0	76.13	FO	5	Open, no	Y	0060
CAMAS										
CAMAS-060	LACAMAS	NE GOODWIN RD	1933	1957	59.1	FO	3	Open, no	Y	0145
CAMAS-030	DALLAS STREET	DALLAS STREET	1919	0	44.57	FO	8	Open, no	Y	0145
CAMAS-020	DIVISION STREET BRIDGE	DIVISION STREET	1960	0	59.02	FO	8	Open, no	Y	0145
CAMAS-040	CAMAS MEADOWS	CAMAS MEADOWS DRV.	2000	0	98.92		8	Open, no	Y	0145
CAMAS-050	Woodburn Drive	NE Woodburn Drive	2013	0	93.13		8	Open, no	Y	0145
CAMAS-010	WASHOUGAL RIVER BRIDGE	NE 3 AVE.	1947	1969	58.89	FO	3	Open, no	Y	0145
Clark										
0330	PADDEN	NE 107TH AVENUE	1999	0	98.19		N	Open, no	Y	0000
0000000212	JC WARD	NE 182ND AVE	1960	0	75.06	FO	7	Open, no	Y	0000
0000000094	BLAKER	NE 142 AVE	1953	0	77.47		5	Open, no	N	0000
0000000030	FLATWOOD	NE 239TH ST	1935	1951	66.38		4	Open, no	Y	0000
0000000056	PIONEER	NE 259TH ST	1941	1951	68.54		5	Open, no	N	0000
00001406	LITTLE WASHOUGAL R	WASHOUGAL RIVER RD	1949	0	66.53	FO	5	Open, no	Y	0000
0000000169	MATNEY SOUTH	NE 232ND AVE	1930	1953	67.23		3	Open, no	Y	0000
0000000266	ALLWORTH	ALLWORTH RD.	1954	0	65.86		5	Open, no	N	0000
0059	BRAITTON (CATTLE PASS)	NE JENNY CREEK RD	1956	0	76.16		5	Open, no	N	0000
344	Carty Road Culvert	NW Carty Road	2016	0	99.43		8	Open, no	Y	0000
345	NE 10TH AVE	NE 10TH AVE	2018	0	95.86		9	Open, no	Y	0000
0000000011	WHIPPLE CREEK	NW 179 TH ST	1963	0	82.54		5	Open, no	Y	0000
0000000341	AMBOY/CEDAR CRK CULVERT	Amboy Road	1999	0	63		4	Open, no restriction	Y	0000
Clark										
0000000033	PLEASANT VALLEY	NE 50TH AVE	1960	0	72.86	FO	7	Open, no	Y	0000
1409	Cougar Creek	Washougal River Rd	2012	0	94.09		8	Open, no	Y	0000
000000036	WILSON	NE 72ND AVE	1994	0	94.99		5	Open, no	Y	0000
0000000116	LUCIA FALLS	NE HANTWICK RD	1937	2005	83.89		5	Posted for	Y	0000
0000000308	BONNEVILLE	NE 222TH AVE	1955	0	77.47		3	Open, no	N	0000
0000000216	JOHN OTT	RISTO RD	1958	0	62.51	FO	8	Open, no	Y	0000
0000000039	GLENWOOD	NE 139TH ST	1936	1955	70.43		5	Open, no	N	0000
0000000203	BOULDER CREEK	NE LESSARD ROAD	1960	0	73.04		3	Open, no	N	0000
00000342	ROCKWELL CREEK	N E 23RD AVE	2004	0	99.36		9	Open, no	Y	0000
0000000242	LEWIS RIVER	DOLE VALLEY ROAD	1961	0	87.92		8	Open, no	Y	0000
0000000032	KNOWLES	NE SALMON CREEK AV	1963	0	79.9		5	Open, no	N	0000
00000231	China Ditch	NE Ward Road	2009	0	98.53		8	Open, no	Y	0000
0000000054	HUBER	NE 259TH ST	1940	1951	63.38		5	Open, no	N	0000
0000000307	LITTLE WASHOUGAL	SE BLAIR ROAD	1930	1959	51.14		5	Open, no	Y	0000
00000229	172 nd Ave	172nd Ave	2009	0	99.75		8	Open, no	Y	0000
502/6A	MILL CREEK NO 3	72ND AVE	2015	0	94.89		5	Open, no	Y	0000
0000000267	CRESAP	CRESAP RD	1956	0	77.42		5	Open, no	N	0000
230	FIFTH PLAIN CREEK	NE 88th Street	2016	0	99.76		8	Open, no	Y	0000

0075	DAYTON	CEDAR CREEK RD	1930	1955	52.91	FO	7	Open, no	Y	0000
00000338	SALMON CREEK CULVERT	NE SALMON CREEK AV	2002	0	81.51		U	Open, no	N	0000
0000000327	ALKI ROAD	ALKI ROAD	1985	0	79.99		4	Open, no	Y	0000
00000000326	N.E. 2ND AVENUE	N.E. 2ND AVENUE	1985	0	88.6		5	Open, no	Y	0000
00000340	JOHN CREEK CULVERT	CEDAR CREEK ROAD	1999	0	80		5	Open, no	N	0000
0000000244	ROCK CREEK	DOLE VALLEY ROAD	1975	0	68.19	FO	5	Open, no	Y	0000
0000000127	ARCH MCKEE	NE GERBER MCKEE RD	1934	1958	72.66		3	Open, no	N	0000
0000000232	DAVIS	NE DAVIS RD.	1935	1953	9.4	SD	2	Open, no	N	0000
0000000107	JA MOORE	J A MOORE RD	1932	1954	75.52		8	Open, no	N	0000
0000000069	GRIST MILL	GRIST MILL RD	1994	0	83.95		5	Open, no	Y	0000
0000000261	NONE	NE 119TH ST	1935	1949	81.23		5	Open, no	N	0000
00000225	DUDLEY	NE 199TH ST	1962	0	89.33		8	Open, no	Y	0000
0000000120	BIG TREE CREEK	LUCIA FALLS ROAD	1940	1959	85.63		7	Open, no	Y	0000
000000006	GIBBONS CREEK	SE EVERGREEN WAY	2003	0	74.57		5	Posted for	Y	0000
0000000337	LA LONDE CULVERT	NE 119TH AVENUE	1940	0	84.44		U	Open, no	N	0000
0000000294	LEHTO	NE LEHTO RD	1972	0	55.62	FO	3	Open, no	Y	0000
0000000100	HEISSON	NE 172ND AVENUE	1999	0	96.36		8	Open, no	Y	0000
0000000299	LANDON	CC LANDON ROAD	1955	0	62.45		4	Posted for	Y	0000
0000000222	NONE	NE 167TH AVE	1954	0	63.85	FO	5	Posted for	Y	0000
0000000252	BLAIR ZEEK	NE BLAIR RD	1961	0	76.2	FO	3	Open, no	Y	0000
0000000274	SHANGHAI CREEK	NE 212TH AVE	1955	0	74.64		4	Open, no	N	0000
00000002	FELIDA	NW SEWARD ROAD	1985	0	95.57		8	Open, no	Y	0000
0000000063	CARSON	NE 67TH AVE	1957	0	74.76		5	Open, no	Y	0000
0000000012	KNAPPS STATION	NW KRIEGER RD	1962	0	86.41		5	Open, no	Y	0000
0000000108	HEITMAN	J A MOORE RD	1930	1958	50.08	FO	5	Open, no	Y	0000
0000000273	DAY BREAK	DAYBREAK ROAD	1966	0	88.27		4	Open, no	Y	0000
0000000167	VANCAMP	NE 217TH AVE	1991	0	98.82		5	Open, no	Y	0000
0000000272	NONE	NE 202ND AVE.	1961	0	71.52		5	Open, no	N	0000
0000000096	ROCK CREEK	ROCK CRK RD	1949	0	63.83	FO	5	Posted for	Y	0000
0000000211	NONE	NE Hwy 99	2008	0	96.15		8	Open, no	Y	0000
0000000026	BETTS	NE 167TH AVE	1963	0	67.76		3	Open, no	Y	0000
00000339	PADDEN WEST CULVERTS	NE Salmon Creel Av	2006	0	99.3		8	Open, no	Y	0000
0000000102	KEPPER	PADDEN PARKWAY	2003	0	81.69		8	Open, no	Y	0000
0000000217	VENERSBORG	J R ANDERSON RD	1959	0	47.65		5	Posted for	Y	0000
0000000213	MORGAN	NE RISTO ROAD	1941	1954	54.6	FO	5	Posted for	Y	0000
0000000201	BRUSH PRAIRIE	NE 182ND AVE	1956	0	60.62	FO	4	Open,	Y	0000
0000000013	BURNT BRIDGE CREST	NE 156TH ST.	1960	0	69.87		7	Open, no	Y	0000
0000000275	VAN ATTA	NE HAZEL DELL AVE	1996	0	96.59		N	Open, no	Y	0000
65	Cedar Creek	NE 112TH AVE.	1960	0	70.86		3	Open, no	Y	0000
00000331	SALMON CR	NE Etna Road	2017	0	99.91		8	Open, no	Y	0000
343	Curtain Creek Culvert	Caples Road	1923	0	75.98	SD	3	Open, no	Y	0000
0000000196	WASHOUGAL RIVER	NE 119th Street	2015	0	97.42		8	Open, no	Y	0000
0000000168	MATTNEY	NE VERNON RD	1998	0	93.1	FO	8	Open, no	Y	0000
0000000332	WOODIN CREEK BRIDGE	NE 68TH ST	1938	1955	58.15		5	Posted for	Y	0000
0000320P	NW 149th Ped Bridge	STATE ROUTE 503	1900	0	61.2		3	Open, no	N	0000
		PEDESTRIAN BRIDGE	2005	0			8	Open, no	N	1350
LA CENTER	LA CENTER	LA CENTER ROAD	2001	0	82.37		8	Open, no	Y	0640
RIDGEFIEL										

RIDGEFD-1 RIDGEFD-2	GEE CREEK-ABRAMS PARK HERON RIDGE	DIVISION ST HERON DRIVE	1975 2003	0 0	63.98 94.07	FO	4 5	Open, no Open, no	Y Y	1085 1085
VANCOUVE										
000501/10C	VANCOUVER LK FLUSHING CN	SR 501	1990	0	86.14		8	Open, no restriction	Y	1350
00001352	BURNT BRIDGE CREEK	NE 86TH AVENUE	2001	0	97.12		8	Open, no	Y	1350
0000501/8W	BNRR OC	FOURTH PLAIN BLVD.	1986	0	82.28		N	Open, no	Y	1350
0000000005	MINNEHAHA	NE MINNEHAHA ST	1972	0	88.93		N	Open, no	Y	1350
00001350	BURNT BRIDGE CRK CULVERT	DEVINE ROAD	1978	0	76.86		5	Open, no	N	1350
4236	EVERGREEN BLVD. OVERPASS	EVERGREEN BLVD.	1969	0	78.49		N	Open, no restriction	Y	1350
0000000329	NE 15TH AVENUE BRIDGE	NE 15TH AVENUE	1984	0	94.72		8	Open, no	Y	1350
0000004891	FRUIT VALLEY RD OVERPASS	FRUIT VALLEY ROAD	1948	0	54.71	FO	N	Open, no	Y	1350
00000328	CORPORATE WOODS BRIDGE	NE 110TH AVE	1989	0	98.57		5	Open, no	Y	1350
0000001351	PORT OF VANCOUVER	NW 26TH AVENUE	2000	0	92.48		N	Open, no	Y	1350
00000000162	BURTON ROAD	NE BURTON RD	2005	0	96.29		8	Open, no	Y	1350
038	39th Street RR O/C	NW 39th Street	2010	0	99.86		N	Open, no	Y	1350
0000501/8E	BNRR OC	FOURTH PLAIN BLVD.	1962	0	72.31	FO	N	Open, no	Y	1350
WASHOUG										
0000001404	WASHOUGAL RIVER BRIDGE	WASHOUGAL RIVER RD	1993	0	90.07		5	Open, no	Y	1385
Washou-1	Orchard View	Fairway Drive	2008	0	97.94		8	Open, no	Y	1385
0000001402	BN/SF RR O/C	WASHOUGAL RIVER RD	1965	0	75.4	FO	N	Open, no	Y	1385

scour critical =/ < 3



Table B - Bridge Condition 2019

Agency	Total Bridges In Program	Bridge Condition			Structurally Deficient	Functionally Obsolete	Scour		Fracture Critical
		Good	Fair	Poor			Critical		
Clark County	76	56	18	1	1	14	11		0
City Of Vancouver	13	11	2	0	1	1	0		1
City Of Washougal	3	3	0	0	0	1	0		0
City Of Camas	6	3	3	0	0	4	2		0
City Of Ridgefield	2	1	1	0	0	1	0		0
City Of Battle Ground	2	2	0	0	0	1	0		0
City Of La Center	1	1	0	0	0	0	0		0
Railroad (BNSF-5,CC-1)	6	N/A	N/A	N/A	N/A	N/A	N/A		N/A
Totals	109	78	24	1	2	22	13		1

> Good - Sufficiency Rating from 66.7 to 99.9

> Fair - Sufficiency Rating from 33.3 to 66.6

> Poor - Sufficiency Rating From 0 to 33.2

> Structurally Deficient - Impacted ability to carry intended traffic loads

> Functionally Obsolete - Narrow structure and geometry are not based on current standards

> Scour Critical - Foundations considered unstable or shallow or stream is undermining stability of structure. Requires more extensive monitoring and inspection during and after flood events.

> Fracture Critical – Defined as a structure with 2 load paths with steel members in tension, could cause immediate catastrophic failure if member fail.
Requires more extensive inspection and testing



Table C - Bridge Repairs

Structure ID	Bridge No.	Bridge Name	Agency ID	City ID	Repair Description
BATTLE GROUND					
08171200	0000000205	NONE	04	0060	Clean dirt and moss off the girders, pier and abutments. Repaint as necessary.
08171200	0000000205	NONE	04	0060	Patch cracks in the abutments and Girder E at Pier 2. Patch spall in Girder E at Pier 2
08171200	0000000205	NONE	04	0060	Seal cracks in the AC wearing surface and monitor settlement at NW approach
CAMAS					
08269900	CAMAS-060	LACAMAS	04	0145	Repair/replace joints - sealed, pic in superstructure.
08507100	CAMAS-010	WASHOUGAL RIVER BRIDGE	04	0145	Guardrail terminal on northeast is damaged; needs replacement
08507100	CAMAS-010	WASHOUGAL RIVER BRIDGE	04	0145	Steel sliding joint plate on southern half of Pier 2 (Outside EB lane) AC spall 12' x 4" x 1" exposing angle iron. several nut have rattled off causing noise and excess movement. Notified
08706000	CAMAS-030	DALLAS STREET	04	0145	Norm Wurzer w/ COC 817-1561
08706000	CAMAS-030	DALLAS STREET	04	0145	Repair Buried Gaurdrail Terminal.
Clark County					
08010700	0000000274	SHANGHAI CREEK	02	0000	Monitor pothole formation in northbound lane, on north end of bridge.
08010700	0000000274	SHANGHAI CREEK	02	0000	Replace broken roadway delineator (on north end of bridge).
08012100	0000000308	BONNEVILLE	02	0000	NE approach fill is loose and unstable, guard rail inadequately supported
08016100	0000000216	JOHN OTT	02	0000	Damage to bridge guardrail
08016100	0000000216	JOHN OTT	02	0000	SW Abutment large spall picture
08026100	0000000272	NONE	02	0000	Remove woody debris in channel upstream of bridge
08032800	0000000244	ROCK CREEK	02	0000	Repair damage to asphalt overlay at south end of bridge
08032800	0000000244	ROCK CREEK	02	0000	Repair eroded soil around guardrail terminal at NE corner of bridge.
08032800	0000000244	ROCK CREEK	02	0000	Replace damaged roadway delineator sign
08095600	0000000203	BOULDER CREEK	02	0000	East Bridge Rail Post and Thrie-Beam - Thrie beam was hit, and bolt holding a post broke away. Other bolts may be compromised. Check all bolts on east side of bridge for damage. Thrie beam damage.
08095600	0000000203	BOULDER CREEK	02	0000	Needs painting
08095600	0000000203	BOULDER CREEK	02	0000	NW Guardrail Terminal - Has been hit and a bolt is broken, as well as a steel member is bent.
08095600	0000000203	BOULDER CREEK	02	0000	One lane bridge sign is down
08140500	0000000222	NONE	02	0000	Clear Downstream vegetation to prevent buildup.
08202500	000000006	GIBBONS CREEK	02	0000	Monitor and remove excess vegetation from around bridge. May prevent future inspections.
08275800	0000000054	HUBER	02	0000	Remove vegetation on south side of bridge.
08276000	0000000273	DAY BREAK	02	0000	Remove logs and debris from the south face of Pier 2.
08393900	0000000266	ALLWORTH	02	0000	Remove vegetation in downstream flow and clear vegetation from bridge ends as needed.
08611600	000000069	GRIST MILL	02	0000	NW corner behind K rail a fall hazard exists recommend fence or rail be installed on abutment concrete.

08611600	00000069	GRIST MILL	02	0000	Object marker posts need replaced
08627800	000000013	BURNT BRIDGE CREST	02	0000	Remove vegetation accumulation along sidewalk.
08627800	000000013	BURNT BRIDGE CREST	02	0000	Remove/paint over graffiti on concrete railing.
08709100	00000340	JOHN CREEK CULVERT	02	0000	Adjust guardrail
08709100	00000340	JOHN CREEK CULVERT	02	0000	Clear vegetation upstream and downstream of culvert
08771800	00000342	ROCKWELL CREEK	02	0000	Remove rock, sediment, and vegetation from sidewalk.
LA CENTER					
08684200	000000021	LA CENTER	04	0640	Repair Damaged Guardrail
RIDGEFIELD					
08531500	RIDGEFD-1	GEE CREEK-ABRAMS PARK	04	1085	Repair Damaged Utility Pipe
08706200	RIDGEFD-2	HERON RIDGE	04	1085	Remove trees from gabion wall.
VANCOUVER					
0006786A	0000501/8E	BNRR OC	04	1350	Replace missing bolt on Span 2 east rail.
08512400	0000004891	FRUIT VALLEY RD OVERPASS	04	1350	Repair or replace damaged metal railing and post on east rail.
WASHOUGAL					
0007597A	0000001402	BN/SF RR O/C	04	1385	Repair Drain under Bridge
08602800	0000001404	WASHOUGAL RIVER BRIDGE	04	1385	Repair differential settlement on sidewalk at south end of bridge.
08602800	0000001404	WASHOUGAL RIVER BRIDGE	04	1385	Replace missing vertical elements in metal bridge rail.
08772000	Washou-1	Orchard View	04	1385	Remove debris from beneath culvert in channel.
08772000	Washou-1	Orchard View	04	1385	Remove graffiti from sides of culvert barrier
08772000	Washou-1	Orchard View	04	1385	Remove vegetation from roadway and in channel.