



Bridge Inventory and Condition Report

Presented to:

Board of Commissioners

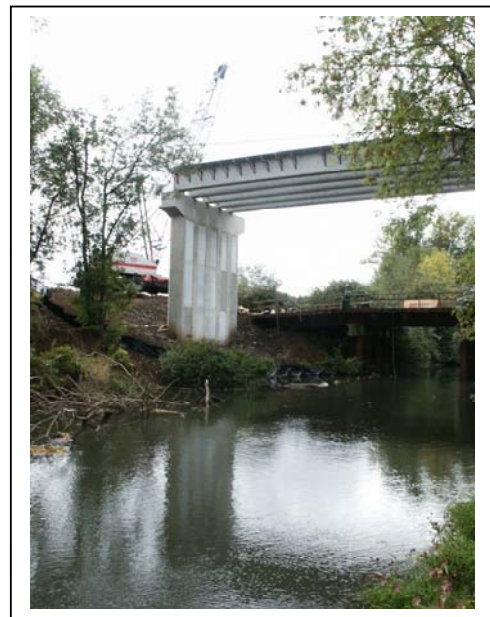
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January 2007

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On the cover:	Project:	Rood Bridge Road over the Tualatin River, 2003
	Owner:	Washington County, Oregon
	Designer:	OBEC Consulting Engineers (Eugene, Oregon)
	Contractor:	Carter & Company (Salem, Oregon)

Table of Contents

Executive Summary	1
Purpose	2
Introduction.....	2
Mission	3
Inventory	3
Condition.....	4
<i>Indices.....</i>	<i>4</i>
<i>Materials.....</i>	<i>4</i>
<i>Expected Life</i>	<i>5</i>
Bridge Management Program.....	6
<i>New Construction</i>	<i>7</i>
<i>Inspections.....</i>	<i>8</i>
<i>Maintenance</i>	<i>9</i>
<i>Enforcement.....</i>	<i>9</i>
Future Needs	10
<i>Prioritization Model</i>	<i>10</i>
<i>Forecast.....</i>	<i>11</i>
Summary	12

Figures and Tables

Figure 1	Distribution of Material Types	4
Figure 2	Deterioration Curve	5
Figure 3	Distribution of Structure Age (Timber)	5
Table 1	2006 – 2007 OTIA-Funded Replacements	7
Table 2	Future OTIA-Funded Replacements	7
Table 3	MSTIP 3c-Funded Replacements	7
Table 4	Annual NBI Inspections	8
Table 5	Proposed Timber Structure Replacements	10
Figure 4	Distribution of Structure Age (Timber) at 2022 with No Additional Funding	11

Appendices

- A: Bridge Inventory
- B: Obsolete, Deficient, and Weight Limited Structures
- C: Bridge Replacements Since 1995
- D: 2006 – 2007 Bridge Maintenance Work Program
- E: Replacement Prioritization

Executive Summary

Washington County manages 187 bridges, which are inspected at least every two years. They are well maintained by a full-time Bridge Maintenance Section in the Department of Land Use and Transportation's Operations and Maintenance Division. Unfortunately, many are built either entirely of timber or have major timber components. Most of these timber structures have a variety of flaws. To protect the aging and deteriorating bridge inventory from further decay, it is critical to begin an aggressive bridge replacement program to ensure that these structures continue to link the county's 1,300 miles of roadway.

Continuing at the current rate of three or four bridge replacements per year could result in significant transportation infrastructure problems in 15 to 20 years. State (OTIA¹), federal (HBP²), and local (MSTIP³ and Road Fund) dollars have financed almost all bridge replacements for the past 12 years. In fact, 40 bridges have been replaced during that time from all of these sources. However, if additional funding is not made available, the average age of the county's timber bridge inventory will increase from today's 42 years to almost 60 years by 2022. However, the average design life for a timber bridge is only 30 years.

Bridge collapses are an extremely unlikely occurrence. Regular inspections by professionally trained consultants and staff, along with a continued robust bridge maintenance program, should prevent this from happening. However, rotting of timber components will likely require weight limit restrictions and bridge closures. This will result in detours for the users of the infrastructure, which will affect commute times, product delivery costs, and emergency service response times. The overall economy and livability of the region will be negatively impacted by a failure to replace most of the county's remaining timber bridges in a timely manner.

Combined with bridges being replaced through other capital projects and the need to upgrade one or two culverts per year with bridges, the anticipated need is to construct eight to ten bridges per year, at an estimated cost of \$5 million to \$10 million per year for 15 years.

¹ Oregon Transportation Investment Act

² Highway Bridge Program

³ Major Streets Transportation Improvement Program

Purpose

Bridges provide a critical link for the county's infrastructure and allow the movement of its citizens, freight, commuters, tourists, and emergency responders. This report documents the condition of Washington County's bridges and how they are being inspected, maintained, replaced, and protected⁴.

Introduction

A significant number of the County's 187 structures are in need of attention and the cost is high to remedy this situation.

In particular:

- 88 structures (47 percent) are *structurally deficient, functionally obsolete, weight limited* or at the end of their design life.
- The replacement cost for these structures alone is \$93 million⁵.
- Only nine (5 percent) of these structures are funded for replacement in the next five years with five of them being timber bridges.

A common construction material in the current inventory is timber. Timber bridges have a design life of 30 years; however, the average age of the county's 78⁶ timber bridges is 42 years and 85 percent are beyond their design life. These structures represent a potential safety liability, require significant maintenance costs, and are susceptible to component failures.

Forty (40) bridges have been replaced since 1995 which averages just over three structures per year. If the current rate continues and only timber bridges are replaced, the county will still have timber bridges in its inventory until at least 2030, and it is likely that closures and weight limits will be required on many of those structures.

Additional funding is essential to maintain the safety and reliability of Washington County's bridges.

⁴ The status of the county's bridge inventory is dynamic and is constantly changing, as structures are re-inspected, repaired, and replaced. The information in this report is a snapshot of the bridge inventory at the time of publication and is subject to change without notice.

⁵ All estimates in this report are based on bridge width that meets or exceeds the requirements set forth in the Transportation Plan, a length that is 20 feet longer than the existing structure, and a unit cost of \$350 per square foot of bridge deck, except where noted.

⁶ Not including seven pedestrian bridges that are predominantly timber

Mission

The Washington County Department of Land Use and Transportation (DLUT) is committed to building and maintaining the best transportation system, ensuring the safety of all roadway users, and to operating the county roadway system in a cost-effective and environmentally responsible manner.

A healthy roadway system enhances the economic well being of the community by providing reliable routes for commerce, freight, natural resources, commuters, and emergency services. The integrity and continuity of our 1,300-mile roadway system is dependent on its 187 bridges.

The Bridge Management Program is an integrated and comprehensive effort to maintain the county's bridges and preserve the continuity of the overall roadway network. The program has the following objectives requiring the identified resources needed for achievement:

Objective	Achieved by
1. Keep bridges open, reliable, and safe for use	<ul style="list-style-type: none">• Active inspection schedule• Full-time technical and maintenance staff
2. Maximize the useful life of bridges	<ul style="list-style-type: none">• Formal permitting system• Dedicated law enforcement resources
3. Plan for and replace bridges as appropriate (asset management)	<ul style="list-style-type: none">• Accurate bridge inventory and condition ratings• Full-time transportation planners• Full-time project management staff• Stable funding to maintain a sufficient replacement rate

Inventory

Washington County's bridge inventory consists of 187 structures, which includes 180 vehicular and seven pedestrian structures. A complete listing of the county's bridge inventory is provided in **Appendix A**.

The current estimated replacement value of the bridge inventory is approximately \$270 million. However, construction costs are steadily rising and prices for raw materials such as concrete and steel will continue to increase over time.

Condition

Indices

Several indices are used to determine a bridge's condition. The routine inspections reveal if a bridge is **structurally deficient**⁷ or **functionally obsolete**⁸. In addition, a load rating analysis determines whether or not a structure should be posted with a **weight limit** based on its ability to carry a specific type of load. The **design life** is the length of time the structure is expected to remain in service based on the type of material used and how the bridge was constructed.

Of the 187 bridges in the county's inventory:

- 10 are structurally deficient
- 60 are functionally obsolete
- 15 are weight limited
- 66 have reached or exceeded their design life

These indices are not mutually exclusive. Some structures have multiple designations based upon the individual characteristics of the particular structure. In addition, these structures are uniformly distributed throughout the county as listed in **Appendix B**.

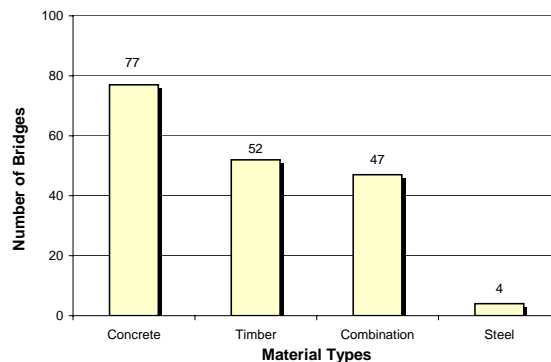
The replacement cost of the obsolete, deficient, weight-limited, and end of design life structures is currently estimated at \$93 million, with \$74 million of that currently unfunded.

Materials

Washington County's bridges are built with three material types: concrete, timber, and steel.

As shown in **Figure 1**⁹, structures that are predominantly concrete make up 43 percent of the inventory, followed by timber at 29 percent. Four structures are constructed entirely of steel and represent only 2 percent of the inventory. The remaining 26 percent of structures are built with a combination of materials.

Figure 1 - Distribution of Material Types



⁷ This is typically associated with bridges that have issues with specific structural components

⁸ This is typically associated with bridges that have issues with specific geometry or roadway elements

⁹ Pedestrian structures are not included in this comparison

Expected Life

Concrete structures typically provide the longest life span, as illustrated in **Figure 2**, with prestressed concrete being the best performing material in all weather and environmental conditions. Although timber structures are treated with preservatives to prevent or inhibit rot, they are still susceptible to decay due to their exposure and proximity to air and water. Steel components throughout the bridge system are galvanized, painted, or powder coated. However, chipping or delamination of the coating exposes the steel to rust and corrosion.

Structures made of timber or with major timber components have a design life of 30 years.

Sixty-six of the County's 78 timber bridges have already met or exceeded this age as shown in **Figure 3**. As with the other structures with some sort of deficiency, these bridges are located uniformly throughout the county.

Eighteen of the top twenty structures in the replacement prioritization model are constructed with major timber components and have reached the end of their design life. Of these eighteen structures, six are currently funded for replacement.

Today's Washington County standards require vehicular bridges to be designed for a minimum service life of 75 years, with newer structures built almost exclusively from prestressed reinforced concrete.

Figure 2 - Deterioration Curve

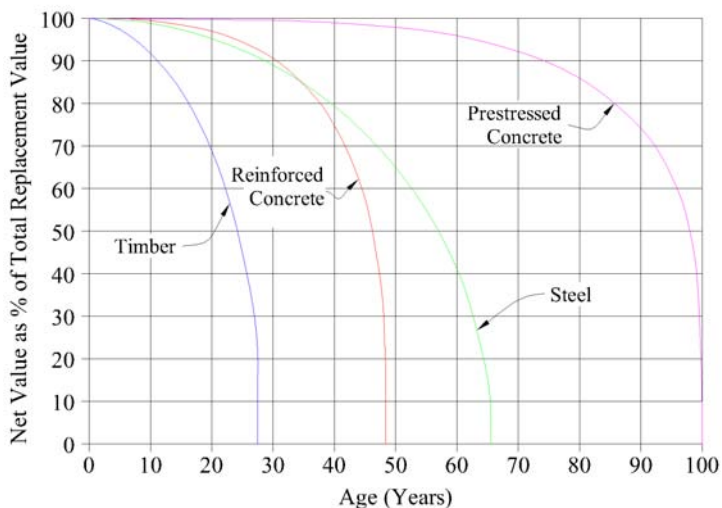
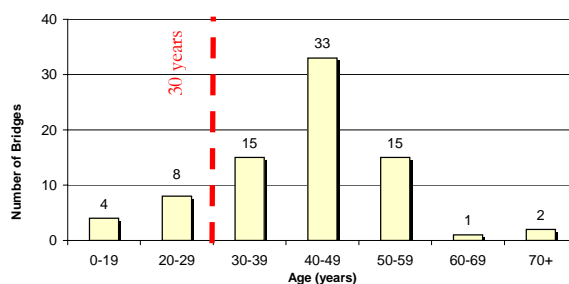


Figure 3 - Distribution of Structure Age (Timber)



Bridge Management Program

DLUT is responsible for the planning, design, construction, operation, and maintenance of the county's bridges. Each DLUT division has a role in the bridge program:

Office of the Director

- Provides guidance for bridge replacement and maintenance expenditures

Operations and Maintenance

- Maintains structure inventory and condition ratings
- Plans and performs routine or emergency maintenance and repairs
- Issues overweight and overdimensional bridge crossing permits
- Coordinates and performs routine and emergency inspections
- Provides input on replacement project selection
- Periodically produces a bridge report

Planning

- Provides long-term planning for regional and corridor-related transportation needs

Land Development

- Issues land use permits for bridge replacement projects

Engineering

- Performs engineering design for some bridge replacement projects
- Reviews engineering bridge plans submitted by consultants
- Provides technical guidance for some repairs

Capital Project Management

- Manages bridge replacement projects

Administration

- Provides budgeting and accounting support for bridge replacement and maintenance expenditures

In addition to the Department of Land Use and Transportation, the Sheriff's Office Motor Carrier Enforcement Unit supports the bridge program by enforcing posted weight limits and vehicle dimension and weight regulations. This effort helps protect the existing infrastructure from accelerated deterioration due to truck-induced stresses.

New Construction



New Construction - Placement of Pre-Stressed Concrete Box Beam

deliver three more bridges at a cost of approximately \$4.2 million¹⁰.

In addition to routine maintenance performed by the county's bridge crew, \$45,000 will be expended, through CPM for ongoing maintenance and monitoring associated with the permit requirements for several recent bridge projects.

Major funding sources for bridge replacements include the Major Streets Transportation Improvement Program (MSTIP), the Oregon Transportation Investment Act (OTIA), and the Road Fund.

OTIA dollars were the sole source of funding for the 2006-2007 replacements. The final three OTIA-funded structures, as shown in **Table 2** and **Appendix E**, are scheduled to be replaced soon.

In addition, several MSTIP 3c bridge projects are in the development phase and are scheduled to be completed by 2012 as shown in **Table 3** and **Appendix E**.

Since 1995, the Capital Project Management (CPM) Division delivered 34 new structures into service, with another six structures delivered through the Operations and Maintenance Division. **Appendix C** identifies the structures replaced and the funding source associated with each of these projects.

The 2005-2006 bridge replacements included five new structures. As shown in **Table 1**, it is estimated that 2006-2007 will

Table 1
2006 – 2007 OTIA-Funded Replacements

Road	Bridge #	Cost
Timber Rd	20297	\$1,800,000
Vernonia Rd	20296	\$1,280,000
Greener Rd	1367*	\$1,100,000

Table 2
Future OTIA-Funded Replacements

Road	Bridge #
Scholls Ferry Rd	1418
Cornelius-Schefflin Rd	1304
Spiesschaert Rd	1305

Table 3
MSTIP 3c-Funded Replacements

Road	Bridge #
229th Ave	1237
Glencoe Rd	1316
Cornelius Pass Rd	1326
Scholls Ferry Rd	1421
River Rd	1422

¹⁰ Costs provided by the Capital Project Management Division

Inspections



Pile Inspection – Looking for rotted wood

Once a bridge enters service, it is added to the routine inspection schedule.

Bridges classified as National Bridge Inventory¹¹ (NBI) structures are scheduled for inspection every two years through the Oregon Department of Transportation (ODOT). A few NBI structures (see **Table 4**) have specific issues, which warrant increased monitoring and are scheduled for annual inspections. ODOT manages these inspections because they are the agency responsible for reporting NBI information to the Federal Highway Administration.

The current consultant who performs our routine NBI bridge inspections is Burgess & Niple (Columbus, Ohio). NBI inspections were performed in the fall of 2006 for the current two-year cycle, with reports expected from the consultant in early spring 2007.

For non-NBI¹² structures, the Operations and Maintenance Division coordinates, schedules and performs the inspections. Inspections occur using both certified bridge inspectors who are on staff as well as contracted consultants. The last non-NBI inspection season occurred in the fall of 2005 using OBEC Consulting Engineers (Eugene, Oregon).

Table 4
Annual NBI Inspections

Road	Bridge #
Scholls Ferry Rd	1418
South Rd	1266
Glencoe Rd	1316
Old Hwy 47	1404

Non-NBI structures account for 47 of the bridges in the inventory. Forty (40) of these structures are vehicular; the remaining seven are pedestrian.

The reports that are generated from these routine inspections are the basis for the annual bridge maintenance work program (See **Appendix D**). These reports usually trigger additional maintenance needs and restrictions as the inventory continues to age and deteriorate.

¹¹ Structures that are longer than 20 feet and carry vehicular traffic

¹² Structures that do not carry vehicular traffic or are less than 20 feet long

Maintenance



Maintenance - Bulkhead and Deck Replacement

A full-time crew in the Operations and Maintenance Division performs bridge maintenance. The staff includes one supervisor and eight workers, along with six vehicles including specialized utility trucks and a crane truck. Additional staff and equipment are also available from other Washington County road maintenance crews as well as interagency cooperation and rental companies.

Maintenance activities include guardrail repair and replacement, structural component repair and replacement, and deck washing. The bridge crew is also involved with emergency response and an occasional short span bridge replacement.

The annual bridge maintenance budget is approximately \$875,000. This includes the labor, material, and equipment costs associated with the annual work program.

An active and well-managed bridge maintenance program is vital to ensuring that the existing structures provide maximum performance during the course of their design life and beyond. Washington County crews perform comprehensive preventive and emergency maintenance activities for all of the county's structures. In addition to providing routine maintenance, this resource allows the department's management staff to consider additional options when a bridge becomes a candidate for replacement. In some cases, the bridge crew is able to construct or install temporary repairs that allow flexibility in the scheduling and funding of the replacement.

Enforcement



Weighmaster checking axle weights of a loaded dump truck

In addition to deterioration associated with age and the environment, damage to the county's road and bridge system also occurs from trucks. Even when loaded legally, trucks carrying natural resources, commodities, and other items deteriorate the structural integrity of the transportation infrastructure more rapidly than passenger vehicles.

The county's transportation infrastructure can handle almost any load that passes through our jurisdiction, but enforcement of the laws and regulations pertaining to the operation of trucks helps preserve the road and bridge system. The Washington County Sheriff's Office

has several deputies capable of performing safety checks and issuing citations related to motor carrier activities. However, there is only one deputy assigned to this activity on a full-time basis. The deputy, who is funded by the Road Fund, is equipped with a full-service van that includes portable scales, signs, and inspection tools which are all needed for investigating a suspicious truck.

Enforcing weight limit laws protects the bridge system from premature failure by keeping overloaded vehicles from making unauthorized crossings. In calendar year 2006, 171 citations were issued by the weighmaster.

Future Needs

The county's aging inventory of 78 structures with major timber components poses significant maintenance cost and continued susceptibility to isolated failure of individual parts.

According to the U.S. Census Bureau, the population was 499,794 in 2005 which represents a 12.2 percent increase in population since 2000. This is almost twice the rate of increase compared to the rest of the state, which was only 6.4 percent. According to Metro's forecast, Washington County's population will be approximately 650,000 by 2020.

All structures, but timber bridges in particular, will continue to deteriorate when exposed to increased traffic loads associated with this additional growth.

Table 5 identifies only seven timber structures scheduled for replacement as part of the OTIA III and MSTIP programs. The remaining 71 timber structures have an unfunded replacement cost estimated at \$53 million.

**Table 5
Proposed Timber Structure Replacements**

Road	Bridge #	Funding Source
229th Ave	1237	MSTIP
Cornelius Schefflin Rd	1304	OTIA
Greener Rd	1367	OTIA
Scholls Ferry Rd	1418	OTIA
Scholls Ferry Rd	1421	MSTIP
Spiesschaert Rd	1305	OTIA
River Rd	1422	MSTIP

Prioritization Model

All vehicular bridges in Washington County's bridge inventory are ranked using an empirical formula to identify a replacement priority matrix. The matrix generates a benefit/cost ratio and is based on the following equation:

$$\frac{\Sigma(\text{Deficiencies}) \times \Pi(\text{Importance Factors})}{\text{Cost}}$$

The benefit is defined as the "sum of the deficiencies multiplied by the product of the importance factors".

The deficiencies that are considered include:

- Type of construction material (more points if timber versus concrete or steel)
- Age of the structure (more points for aging timber)
- Width of the structure (planned width minus current width)
- Load Capacity (difference between existing capacity and highway legal capacity)
- Sufficiency Rating (difference between 100 and existing)

The importance factors take into consideration:

- Detour length
- Traffic volumes
- Functional classification
- Truck routes
- Emergency Transportation Routes

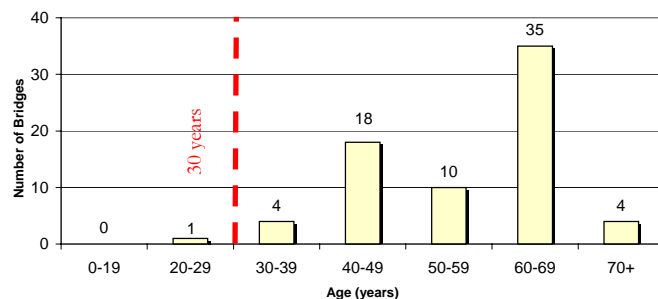
The cost assumes the bridge will be 20 feet longer with a width that meets the standards and guidelines established in the Transportation Plan based on the functional classification and ultimate number of lanes. The estimate is calculated by multiplying the ultimate deck area (i.e., length times width) by \$350 per square foot.

Bridge data is dynamic and, as it changes, so too will the ranking in the prioritization model. The prioritization model is a tool that is used only as a guideline for bridge replacement considerations. It is not intended to be a sole source reference for determining which projects should be constructed. Other influences that are considered with a bridge replacement project include corridor-related improvements, funding leverage, and regional transportation goals and objectives.

Forecast

Within 15 years, the average age of the county's remaining timber structures will be 57 years if no additional funds are expended for more bridge replacements (See **Figure 4**). Although routine maintenance and emergency repairs will allow many of these bridges to remain in service past their design life, it is likely that more will succumb to a level of deterioration that requires additional weight limits and / or closures.

Figure 4
Distribution of Structure Age (Timber)
At 2022 with No Additional Replacement Funding



It is impossible to predict the longevity of any particular bridge. However, the structural integrity of all Washington County bridges will continue to decline due to three inevitable factors:

- **Age:** 99 percent of the county's remaining 72 timber structures will have exceeded their design life in 15 years.
- **Environment:** Timber structures are the most susceptible to deterioration due to rot and decay.
- **Traffic Volumes:** Traffic volumes, in particular truck traffic, will increase as Washington County's population is projected to be 650,000 within the next 15 years; a 23 percent increase from today.

Summary

Washington County's bridge inventory continues to age and deteriorate. There are active programs in place to preserve and protect the existing structures, but the replacement rate of three structures per year is not keeping pace with the rate of deterioration. Within the next 15 years, while the population is nearing 650,000 residents, all but one of the timber structures in Washington County will have exceeded its design life. If the replacement rate stays at three per year and only timber structures are replaced, the county will continue to have timber structures in the inventory until the year 2030.

In order to maintain a safe and efficient transportation system, an emphasis must be placed on replacing more bridges on a faster, more aggressive timetable than is occurring today. Ideally, the target replacement rate should be eight to ten structures per year with an estimated annual expenditure of \$5 million to \$10 million for 15 years.

Without this approach, it is likely that closures and weight limits will be required which will impede commerce, increase commute times, and decrease the livability of the county.

Washington County
Bridge Inventory

<i>Road Name</i>	<i>Milepost</i>	<i>Bridge #</i>	<i>Sufficiency Rating</i>	<i>Deck Type</i>	<i>Stringer or Girder Type</i>	<i>Abutment Type</i>	<i>Pier Type</i>	<i>Posted Weight Limit</i>	<i>Width</i>	<i>Length</i>	<i>Year Built</i>	<i>Water Body</i>
065th AV	3.188	1211	96.2	Concrete	none	Concrete	Concrete	N	58	100	1980	Nyberg Creek
086th AV	0.215	1206	81	Timber	Timber	Timber	Timber	N	18.5	32	1960	Fanno Creek
092nd AV	0.22	1204	77.2	Concrete	none	Concrete	Steel/Concr	N	32	50	1970	Fanno Creek
170th AV	2.701	1333	78.5	Concrete	none	Steel/Conc	Steel/Concr	N	35	50	1969	Beaverton Creek
185th AV	1.627	1238	80.3	Concrete	none	Concrete	none	N	40	28	1974	Butternut Creek
185th AV	3.376	1331	97.6	Concrete	Concrete	Concrete	none	N	89	103	1987	Beaverton Creek
185th AV	4.03	1330C	78.1	none	none	none	none	N	82	33	1988	Willow Creek
185th AV	7.536	1340	96.8	Concrete	none	Concrete	none	N	32	60	1982	Rock Creek
185th AV	7.715	1341	89.7	Concrete	none	Concrete	none	N	32	37.5	1982	Rock Creek
192nd AV	0.83	1239	81.9	Timber	Timber	Steel/Timb	Timber	N	24.5	26	1974	Butternut Creek
197th AV	0.443	1329	76.6	Concrete	none	Steel/Conc	Steel/Concr	N	32.5	75	1971	Beaverton Creek
198th AV	0.981	1214	89.5	Concrete	none	Steel/Conc	none	N	36	23	1995	Butternut Creek
205th AV	0.326	1327	78.6	Timber	Timber	Timber	Timber	N	20.5	62	1960	Beaverton Creek
227th AV	0.015	1323	72.8	Timber	Timber	Timber	Timber	N	21	92	1960	Rock Creek
229th AV	0.797	1237	71.6	Timber	Timber	Timber	Timber	Y	24	59	1978	Butternut Creek
B ST	0.302	00459	74	Timber	Timber	Timber	Timber	N	27.5	129	1953	Naylor Creek
B ST	0.565	00736A	61.6	Concrete	none	Concrete	Concrete	N	35	95	1949	Gales Creek
BARNES RD	3.409	20304	N/A	Concrete	none	Concrete	none	N	97	50	2005	
BARROWS RD	0.115	1419	26.4	Timber	Timber	Timber	none	Y	28.5	17	1940	Summer Creek Trib
BASELINE RD	2.087	19189	98.4	Concrete	Concrete	Concrete	none	N	86	136.5	2000	Beaverton Creek
BASELINE RD	3.605	19884	N/A	Concrete	none	Concrete	Concrete	N	88	141	2005	Beaverton Creek
BASELINE RD	3.755	19878	N/A	Concrete	none	Concrete	none	N	88	108	2005	Rock Creek
BEAL RD	0.31	1295	91.9	Concrete	none	Timber	none	N	25	15	1957	Council Creek
BOHMANN PK	0.25	1203	96	Timber	Timber	Timber	Timber	N	28	47	1957	Fanno Creek
BROOKWOOD AV	0.639	1423	92	Concrete	none	Concrete	Concrete	N	57	118	1988	Rock Creek
BROOKWOOD PK	0.604	19187	90.6	Concrete	none	Concrete	Concrete	N	56	107	1996	Max tracks
BUTNER RD	1.23	1438P	~	Timber	Timber	Timber	none	N	6	22	1989	Johnson Cr.
BUTNER RD	1.88	1400	98.6	Concrete	none	Concrete	none	N	50	39	1987	Cedar Mill Creek
CEDAR CANYON RD	0.07	1290	83.5	Concrete	none	Steel/Conc	Steel/Concr	N	28.5	76	1971	W Fork Dairy Creek
CEDAR CANYON RD	0.342	1289	68.7	Timber	Timber	Timber	none	N	21	21	1961	Dairy Crk Overflow
CEDAR CANYON RD	0.494	18035	98.1	Concrete	Concrete	Concrete	none	N	32.5	56	1997	Dairy Crk Overflow
CEDAR CANYON RD	1.475	1287	69.8	Concrete		Concrete	none	N	24	35	1996	Small Stream
CEDAR HILLS BL	1.592	1433P	~	Timber	Timber	Concrete	none	N	11	149	1997	Path
CEDAR HILLS BL	1.917	1432P	~	Timber	Timber	Concrete	none	N	11	129	1997	Path
CLAPSHAW HILL RD	3.293	18951	99.8	Concrete	none	Concrete	none	N	32	116	2001	Gales Creek
CLARK HILL RD	1.003	1398	72.5	Concrete	none	Cnc/St/Tmb	none	N	25	15	1957	Small Stream
COCHRAN RD	1.642	1393	79.8	Concrete	none	Concrete	none	N	24	45	1980	Nehalem River
COCHRAN RD	2.868	1394	72.5	Timber	Timber	Timber	Steel/Concr	N	24	77.5	1979	Nehalem River
COLLINS RD	1.466	1425	78.8	Concrete	none	Concrete	none	N	16	50	1997	Williams Creek
COLLINS RD	1.641	1424	78.8	Concrete	none	Concrete	none	N	16	80	1997	McKay Creek
CONZELMAN RD	0.51	1222	59	Timber	Timber	Timber	none	Y	20.5	11	1958	N Fk Chicken Creek
CORNELIUS PASS RD	1.664	1326	77.2	Concrete	none	Steel/Conc	Steel/Concr	N	32	84	1971	Beaverton Creek
CORNELIUS PASS RD	2.235	1325	93.2	Concrete	Concrete	Concrete	none	N	36	86	1995	Rock Creek
CORNELIUS PASS RD	6.845	1343	56.7	Concrete	Concrete	Concrete	Concrete	N	31	59	1950	Rock Creek
CORNELIUS-SCHEFFLIN RD	0.185	1304	60	Timber	Timber	Steel/Timb	Steel/Timb	N	24.5	41	1957	Council Creek
CORNELIUS-SCHEFFLIN RD	2.086	1303	68.7	Concrete	none	Concrete	Steel	N	32	126	1972	Dairy Creek
CORNELL RD	1.75	1434P	~	Timber	Timber	Timber	none	N	6	107	2002	Small Stream
CORNELL RD	6.588	19186C	78.7	none	none	none	none	N	30	176	1991	Rock Creek
CORNELL RD	6.592	19185C	78.7	none	none	none	none	N	32	177	1991	Rock Creek overflow

Washington County
Bridge Inventory

<i>Road Name</i>	<i>Milepost</i>	<i>Bridge #</i>	<i>Sufficiency Rating</i>	<i>Deck Type</i>	<i>Stringer or Girder Type</i>	<i>Abutment Type</i>	<i>Pier Type</i>	<i>Posted Weight Limit</i>	<i>Width</i>	<i>Length</i>	<i>Year Built</i>	<i>Water Body</i>
DAIRY CREEK RD	0.617	1361	59.8	Concrete	none	Steel/Conc	Steel/Concr	N	28	82	1969	E Fk Dairy Creek
DAIRY CREEK RD	7.402	1366	78	Timber	Timber	Conc/Timb	Conc/Timb	N	24	57	1957	E Fk Dairy Creek
DOBER RD	0.32	1240	69.7	Concrete	none	Steel/Conc	none	N	25	15	1956	Inlet to Dober L
EVERS RD	0.898	1294	64.3	Timber	Timber	Steel/Timb	Steel/Timb	N	20.5	47	1957	W Fk Dairy Cr Oflo
EVERS RD	1.049	1297	92.1	Timber	Timber	Timber	Timber	N	27	89	1984	W Fk Dairy Cr Oflo
FARMINGTON RD	6.965	20069	N/A	Concrete	Concrete	Concrete	Concrete	N	43	400	2005	Tualatin River
FERN FLAT RD	1.49	18741	93.8	Concrete	none	Concrete	none	N	24	49	1998	E Fk Dairy Creek
FERN FLAT RD	1.591	18739	100	Concrete	none	Concrete	none	N	24	42	1997	Panther Creek
FERN FLAT RD	1.967	1371	75.8	Timber	none	Steel/Timb	none	N	17	31	1975	E Fk Dairy Creek
FERN FLAT RD	2.292	1372	80.9	Timber	Timber	Timber	none	N	20.5	21	1932	Small Stream
FERN HILL RD	2.737	1249	86.7	Concrete	none	Concrete	Concrete	N	28	122	1984	Tualatin River
FINNIGAN HILL RD	0.717	1230	50.9	Concrete	none	Timber	none	N	25	15	1966	McFee Creek
FISHER RD	0.109	1381	83.7	Timber	Timber	Timber	Timber	N	22.5	70	1977	W Fk Dairy Creek
FISHER RD	0.519	1380	82.4	Concrete	none	Steel	none	N	28	20	1957	Mendenhall Creek
GALES CREEK RD	6.234	1275	79.4	Concrete	Concrete	Concrete	none	N	27.5	78	1934	Gales Creek
GASTON RD	0.512	1243	77	Timber	Timber	Steel/Timb	Steel/Timber	N	24	76	1958	Wapato Creek
GEIGER RD	0.7	1250	94.9	Concrete	none	Concrete	none	N	29.5	51	1991	Tualatin R Overflow
GERMANTOWN RD	0.569	19033	98.2	Concrete	none	Concrete	none	N	40	66.5	2000	Rock Creek
GLENCOE RD	1.582	1316	41.6	Steel	Steel	Steel	Steel	N	26	80	1955	McKay Creek
GOLF COURSE RD	1.567	1246	99	Concrete	none	Concrete	Concrete	N	49	490	1974	Tualatin River
GOLF COURSE RD	2.073	17997	98.2	Concrete	none	Concrete	Steel/Conc	N	40	131	1997	Tualatin R Overflow
GREEN MOUNTAIN RD	0.05	1373	91.4	Concrete	none	Concrete	none	N	28	64	1978	W Fk Dairy Creek
GREENER RD	0.03	1367	52.3	Timber	Timber	Conc/Timb	Conc/Timb	Y	24.5	69	1964	E Fk Dairy Creek
GREENVILLE RD	2.561	18034	99.6	Concrete	Concrete	Concrete	none	N	35.5	93.5	1997	W Frk Dairy Cr Oflo
GREENVILLE RD	3.023	1284	65.8	Timber	Timber	Timber	Timber	N	22	71	1964	Dairy Creek
GROVELAND DR	0.179	1416	90.8	Concrete	Concrete	Concrete	none	N	37	21	1951	N Fk Storey Creek
HAHN RD	1.824	1363	67	Timber	Timber	Timber	none	N	20	21	1977	Bledsoe Creek
HARRINGTON RD	1.896	1299	97.3	Concrete	none	Concrete	none	N	28	69	1985	E Fk Dairy Creek
HARRINGTON RD	2.059	1300	97.3	Concrete	none	Concrete	none	N	28	61	1985	Bledsoe Creek
HELVETIA RD	0.245	1346	72.5	Timber	Timber	Timber	none	N	24	15	1962	Rock Creek
HOBBS RD	0.006	1309	67.4	Timber	Timber	Timber	Timber	Y	20.5	61	1955	Council Creek
HORNECKER RD	0.525	1313	97	Concrete	none	Concrete	Concrete	N	36	167	1978	McKay Creek
JACKSON QUARRY RD	2.282	1349	77.4	Timber	none	Concr/Timb	none	N	24.5	29	1991	Jackson Creek
JACKSON SCHOOL RD	1.036	1315	90.6	Concrete	none	Steel/Conc	Steel/Concr	N	36	56	1972	Waibel Creek
JACKSON SCHOOL RD	4.455	1350	77.8	Timber	Timber	Timber	none	N	24.5	20.5	1963	Jacobson Creek
JARRELL RD	0.156	1354	86.4	Timber	Timber	Timber	none	N	23.5	25	1976	Jackson Creek
JAY ST	0.144	1409	97.9	Concrete	Concrete	Concrete	none	N	52	38	1977	Cedar Mill Creek
JENKINS RD	1.295	1335	93.2	Concrete	none	Concrete	none	N	53	41	1982	Cedar Mill Creek
JOHNSON SCHOOL RD	0.516	1241	50.8	Concrete	none	Timber	none	N	25	21	1953	Small Stream
KILLIN RD	0.967	1383	87.3	Timber	Timber	Timber	none	N	24	20.5	1969	Park farms Creek
LABROUSSE RD	0.353	1219	90.7	Concrete	none	Steel/Conc	none	N	28	25	1971	Cedar Creek
LAFOLLETT RD	0.175	19853	99.8	Concrete	Concrete	Concrete	none	N	40	95.5	2003	Tualatin R Overflow
LAURELWOOD RD	2.991	1242	69.5	Concrete	none	Steel/Conc	none	N	25	21	1968	Mill Creek
LONG RD	0.15	1307	64.9	Timber	Timber	Timber	none	N	25	11	1960	Cattle Pass
McCormick Hill RD	2.249	1229C	98	none	none	none	none	N	22	30	1991	McFee Creek
MEACHAM RD	0.157	1364	67.8	Timber	Timber	Concr/Timb	Concr/Timb	N	28	69	1957	E Fk Dairy Creek
MIDWAY RD	0.6	1227	91.1	Concrete	none	Concrete	none	N	28	64	1981	McFee Creek
MINTER BRIDGE RD	0.247	1232	70.8	Timber	Timber	Timber	Timber	Y	20.5	62	1959	Davis Creek
MINTER BRIDGE RD	1.487	19194	94.2	Concrete	Concrete	Concrete	none	N	38	211	2003	Tualatin River

Washington County
Bridge Inventory

<i>Road Name</i>	<i>Milepost</i>	<i>Bridge #</i>	<i>Sufficiency Rating</i>	<i>Deck Type</i>	<i>Stringer or Girder Type</i>	<i>Abutment Type</i>	<i>Pier Type</i>	<i>Posted Weight Limit</i>	<i>Width</i>	<i>Length</i>	<i>Year Built</i>	<i>Water Body</i>
MINTER BRIDGE RD	1.573	19193	94.2	Concrete	Concrete	Concrete	Concrete	N	38	191.5	2003	Tualatin R Overflow
MOUNT RICHMOND RD	0.056	1263	53.3	Timber	Timber	Timber	Timber	Y	20.5	46	1958	Tualatin R Overflow
MOUNT RICHMOND RD	0.262	1264	96.4	Concrete	none	Steel/Conc	Steel/Concr	N	28.5	130	1972	Tualatin River
MOUNT RICHMOND RD	0.369	1265	62.3	Timber	Timber	Timber	Timber	Y	20.5	61	1958	Small Creek
MOUNTAINDALE RD	2.139	1358	87.1	Timber	none	Conc/Timb	Steel	N	28	76	1992	E Fk Dairy Creek
MOUNTAINDALE RD	3.258	1360	94.3	Timber	none	Conc/Steel	none	N	28	26	1992	Bledsoe Creek
MURRAY BL	4.197	1408	95.8	Concrete	Concrete	Concrete	Concrete	N	40	321	1966	Terman Rd-Max trax
MURRAY BL	4.197	19188	75.9	Concrete	Concrete	Concrete	Concrete	N	78.5	325.5	1999	Terman Rd-Max trax
MURRAY BL	5.086	1355	93.9	Concrete	none	Concrete	none	N	93	67	1987	Cedar Mill Creek
MURTAUGH RD	0.064	19786	81.4	Concrete	none	Concrete	none	N	24	61	2003	Murtaugh Creek
MURTAUGH RD	0.6	19190	98	Timber	none	Concr/Timb	none	N	24	28	2000	Whiskey Creek
NICOL RD	0	1202	71.8	Timber	Timber	Timber	none	N	24.5	23	1962	Fanno Creek
NORTHRUP RD	0.331	18840	99.9	Concrete	none	Concrete	none	N	32	89	2000	McKay Creek
OBERST RD	0.11	1218	91.2	Concrete	none	Steel/Conc	none	N	28.5	25	1971	Cedar Creek
OLD CORNELIUS PASS RD	1.286	1344	76	Timber	Timber	Timber	Timber	Y	24	54	1977	Rock Creek
OLD HWY 47	0.07	1269	60.6	Timber	Timber	Timber	Timber	Y	26	65	1953	Carpenter Creek
OLD HWY 47	0.045	1407	77.9	Concrete	Concrete	Concrete	Concrete	N	22.5	113	1921	Tualatin River
OLD HWY 47	0.15	1406	60.3	Concrete	none	Concrete	Concrete	N	33.5	62	1934	Tualatin R Overflow
OLD HWY 47	0.245	1405	76.1	Timber	Timber	Timber	Timber	N	27.5	58	1934	Gaston slough
OLD HWY 47	1.75	1404	16.6	Concrete	Concrete	Concrete	Concrete	Y	22.5	77	1921	Scoggins Creek
OLD HWY 47	1.93	1403	85.7	Concrete	Concrete	Concrete	none	N	28	30.5	1924	Scoggins Cr Oflo
OLESON RD	2.743	1201	78.9	Concrete	none	Timber	Timber	N	33	45	1958	Fanno Creek
OLESON RD	2.743	1439P	~	Timber	Timber	Concrete	none	N	7.5	38.5	2006	Fanno Creek
OREGON ST	0.651	19059	N/A	Concrete	none	Concrete	none	N	76	69	2003	Rock Creek
PADGETT RD	0.126	1312	82.5	Concrete	none	Steel/Conc	Steel/Concr	N	32	145	1971	McKay Creek
PADGETT RD	0.166	1311	64.1	Timber	Timber	Timber	Timber	Y	20.5	32	1963	McKay Cr Overflow
PARSON RD	0.058	1277	96.5	Concrete	none	Concrete	Concrete	N	28	148	1981	Gales Creek
PARSON RD	0.385	1278	78.9	Timber	Timber	Timber	none	N	24.5	17	1955	Beaver Creek
PARSON RD	3.405	1387	83.8	Timber	Timber	Timber	none	N	21.5	19	1973	Small stream
PHILLIPS RD	1.246	1345	73.8	Timber	Timber	Timber	none	N	24.5	17	1974	Rock Creek
PIHL RD	0.113	1376	95.4	Concrete	none	Concrete	Concrete	N	28	88	1984	Dairy Creek
PLUMLEE RD	1.594	1261	82.9	Timber	Timber	Timber	none	N	23.5	8	1964	Stock Pass
PLUMLEE RD	1.986	1262	58.3	Timber	Timber	Timber	none	N	24.5	21	1960	Carpenter Creek
PONGRATZ RD	0.935	1377	98.9	Timber	Timber	Timber	none	N	28	25	1981	Whitcher Creek
PONGRATZ RD	2.12	1379	89.2	Timber	Timber	Timber	none	N	24	21	1980	Mendenhall Cr.
PORTER RD	0.089	1296	75.6	Timber	Timber	Timber	Timber	N	20.5	46	1950	Council Creek
REILING RD	0.57	1293	93.9	Timber	Timber	Timber	Timber	N	24	34	1960	Small Stream
REIN RD	0.168	1220	80.2	Timber	Timber	Timber	Timber	N	24	40	1978	Cedar Creek
RITCHEY RD	0.14	1258	98.8	Concrete	none	Concrete	none	N	32	86	1985	Gales Creek
RIVER RD	6.809	1422	75.2	Timber	Timber	Timber	Timber	N	26.5	154	1967	Rock Creek
ROCK CREEK BL	0.884	1338	60.7	Concrete	none	Timber/Con	none	N	41.5	23	1967	Rock Creek
RODERICK RD	0.038	1279	74.8	Concrete	none	Concrete	Concrete	N	24	175	1972	Gales Creek
ROOD BRIDGE RD	3.065	19619	93.4	Concrete	Concrete	Concrete	Concrete	N	40	684	2004	Tualatin River
ROY RD	1.462	1302	52.1	Timber	Timber	Timber	Timber	N	20.5	81	1960	E Fk Dairy Creek
ROY RD	1.497	1298	78.5	Timber	Timber	Timber	Timber	N	20.5	47	1960	E Fk Dairy Cr Oflo
ROY ROGERS RD	0.871	19032	98.3	Concrete	Concrete	Concrete	none	N	63	116	2000	Chicken Creek
ROY ROGERS RD	1.913	1217	96	Concrete	Concrete	Concrete	Concrete	N	43.5	310	1971	Tualatin River
ROY ROGERS RD	2.231	19192	97.7	Concrete	none	Concrete	none	N	44	60	2000	Small stream
ROY ROGERS RD	4.187	19191	92	Concrete	Concrete	Concrete	none	N	46	80	2000	Small stream

Washington County
Bridge Inventory

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SCHOLLS FERRY RD	2.353	1421	75	Concrete	Concrete	Timber	Timber	N	34	51	1958	Fanno Creek
SCHOLLS FERRY RD	4.253	1420	91.2	Concrete	none	Concrete	none	N	85	56	1992	Fanno Creek
SCHOLLS FERRY RD	11.445	1418	31.3	Concrete	none	Timber	Timb/Steel	N	34.5	476	1961	Tualatin River
SCOTCH CHURCH RD	1.051	1314	78.6	Timber	Timber	Timber	Timber	N	20.5	93	1959	McKay Creek
SEIFFERT RD	1.455	1225	85.1	Concrete	none	Concrete	Steel/Concr	N	28	64	1972	Heaton Creek
SELL RD	1.94	1375	92.6	Concrete	none	Steel/Conc	none	N	25	15	1957	Custer Creek
SEWELL RD	0.696	1317	82.5	Timber	Timber	Timber	none	N	24.5	16	1963	Small Stream
SHADYBROOK RD	1.998	1353	79.7	Concrete	none	Concrete	none	N	28	57	1983	McKay Creek
SODA SPRINGS RD	0.036	1274	69.2	Timber	Timber	Conc/Timb	none	N	21.5	22	1971	Iler Creek
SODA SPRINGS RD	1.789	1273	84.9	Timber	Timber	Concr/Timb	none	N	20.5	37	1979	Clear Creek
SOUTH RD	1.639	1266	42.5	Timber	Steel/Timber	Conc/Timb	Timber	Y	20	96	1974	Tualatin River
SPIESSCHAERT RD	0.023	1305	46	Timber	Timber	Steel/Timb	Steel/Timb	Y	20.5	44	1959	Council Creek
SPRING HILL RD	4.277	1257	75.6	Timber	none	Steel/Timb	none	N	23.5	12	1957	Small Stream
SPRING HILL RD	5.788	1256	90.4	Concrete	none	Steel/Conc	Steel/Concr	N	32	162	1972	Tualatin River
SPRING HILL RD	6.032	1255	50.7	Timber	Timber	Timber	Timber	N	20.5	197	1960	Tualatin R Overflow
STALEY RD	1.161	1382	77	Timber	Timber	Timber	Timber	N	24	40	1982	Dairy Creek Trib
STRINGTOWN RD	0.18	18738	89.1	Concrete	Concrete	Concrete	none	N	28	44	1998	Carpenter Creek
STRINGTOWN RD	3.71	1282	73.7	Timber	Timber	Timber	none	N	24	18	1961	Pritchett Creek
STRINGTOWN RD	3.91	1281	28.7	Timber	Timber	Timber	none	N	23.5	19	1972	Pritchett Creek
STRINGTOWN RD	4.47	1280	86.4	Concrete	Concrete	Concrete	Concrete	N	29.5	184	1958	Gales Creek
SUSBAUER RD	0.821	1310	88.1	Concrete	none	Concrete	Concrete	N	32	119	1981	Dairy Creek
TAYLORS FERRY RD	0.819	1207	70	Timber	Timber	Timber	none	N	30.5	15	1957	Ash Creek
TIMBER RD	0.104	1388	57.8	Concrete	Steel	Concrete	Concrete	N	27.5	118	1936	Gales Creek
TIMBER RD	2.03	19034	83.1	Concrete	none	Concrete	none	N	36	81	2001	Beaver Creek
TIMBER RD	2.351	20124	N/A	Concrete	none	Concrete	none	N	36	48	2005	Beaver Creek
TIMBER RD	6.723	20297	N/A	Concrete	none	Concrete		N	44.5	110	2006	Nehalem River
TIMBER RD	8.987	1390	96	Concrete	none	Concrete	none	N	28	61	1984	Lousignant
TURK RD	0.04	1374	73.8	Timber	Timber	Timber	Timber	N	20.5	66	1961	W Fk Dairy Creek
UEBEL RD	0.046	1362	64.3	Timber	Timber	Timber	Timber	N	24	74	1973	E Fk Dairy Creek
VANDERSCHUERE RD	1.165	1226	63.3	Timber	Timber	Timber	none	N	24	21	1974	Small Stream
VANDERSCHUERE RD	1.701	1228	69.6	Timber	Timber	Timber	Timber	N	22	55	1975	McFee Creek
VERNONIA RD	0.126	20296	N/A	Concrete	Concrete	Concrete	none	N	40	110	2006	Nehalem River
VERNONIA RD	1.38	1417C	N/A	none	none	none	none	N	25	21	1960	Nehalem River
WALKER RD	2.497	1337	91.7	Concrete	none	Concrete	none	N	88	22	1976	Cedar Mill Creek
WALKER RD	5.35	1436P	~	Timber	Timber	Timber	none	N	6	26	1998	Bronson Cr.
WALKER RD	5.35	1437P	~	Timber	Timber	Timber	none	N	6	26	1998	Bronson Cr.
WEST SHORE DR	3.369	1402	83.6	Concrete	Concrete	Concrete	Concrete	N	32	185	1974	Sain Creek
WEST SHORE DR	5.22	1401	86.3	Concrete	Concrete	Concrete	Concrete	N	32	227	1974	Scoggins Creek
WEST SHORE DR	2.893	1339	76.2	Concrete	none	Concrete	Concrete	N	36	101	1978	Rock Creek
WEST UNION RD	9.449	1351	97.1	Concrete	none	Concrete	Concrete	N	32	103	1981	McKay Creek

Appendix B: Obsolete, Deficient, Weight Limited, and End of Design Life Structures

No.	Road Name	FO	SD	WL	EL
00459	B ST	X			X
00736A	B ST	X			
1201	OLESON RD	X			X
1202	NICOL RD	X			X
1203	BOHMANN PK				X
1204	092nd AV	X			
1206	086th AV	X			X
1207	TAYLORS FERRY RD	X			X
1222	CONZELMAN RD			X	X
1226	VANDERSCHUERE RD				X
1228	VANDERSCHUERE RD	X			X
1230	FINNIGAN HILL RD				X
1232	MINTER BRIDGE RD	X		X	X
1237	229th AV	X		X	
1239	192ND AVE				X
1241	JOHNSON SCHOOL RD		X		X
1242	LAURELWOOD RD	X			
1243	GASTON RD	X			X
1255	SPRING HILL RD	X			X
1257	SPRING HILL RD				X
1261	PLUMLEE RD		X		X
1262	PLUMLEE RD		X		X
1263	MOUNT RICHMOND RD	X		X	X
1265	MOUNT RICHMOND RD	X		X	X
1266	SOUTH RD	X	X	X	X
1269	OLD HWY 47			X	X
1273	SODA SPRINGS RD	X			
1274	SODA SPRINGS RD	X			X
1278	PARSON RD				X
1281	STRINGTOWN RD	X	X		X
1282	STRINGTOWN RD				X
1284	GREENVILLE RD	X			X
1287	CEDAR CANYON RD	X			
1289	CEDAR CANYON RD	X			X
1293	REILING RD				X
1294	EVERS RD	X			X
1295	BEAL RD				X
1296	PORTER RD	X		X	X
1298	ROY RD	X			X
1302	ROY RD	X			X
1303	CORNELIUS-SCHEFFLIN RD	X			
1304	CORNELIUS-SCHEFFLIN RD	X			X
1305	SPIESSCHAERT RD	X		X	X
1307	LONG RD				X

No.	Road Name	FO	SD	WL	EL
1309	HOBBS RD	X		X	X
1310	SUSBAUER RD	X			
1311	PADGETT RD	X		X	X
1314	SCOTCH CHURCH RD	X			X
1316	GLENCOE RD	X	X		
1317	SEWELL RD				X
1323	227th AV	X			X
1326	CORNELIUS PASS RD	X			
1327	205th AV	X			X
1329	197th AV	X			
1330C	185th AV	X			
1333	170th AV	X			
1338	ROCK CREEK BL		X		X
1339	WEST UNION RD	X			
1343	CORNELIUS PASS RD	X			
1344	OLD CORN. PASS RD			X	X
1345	PHILLIPS RD				X
1346	HELVETIA RD	X			X
1349	JACKSON QUARRY RD	X			
1350	JACKSON QUARRY RD				X
1353	SHADYBROOK RD	X			
1354	JARRELL RD				X
1362	UEBEL RD	X			X
1363	HAHN RD	X			X
1364	MEACHAM RD	X			X
1366	DAIRY CREEK RD				X
1367	GREENER RD			X	X
1371	FERN FLAT RD	X			X
1372	FERN FLAT RD				X
1374	TURK RD	X			X
1381	FISHER RD				X
1383	KILLIN RD				X
1387	PARSON RD				X
1398	CLARK HILL RD	X			X
1404	OLD HWY 47	X	X	X	
1405	OLD HWY 47				X
1407	OLD HWY 47	X			
1418	SCHOLLS FERRY RD	X	X		X
1419	BARROWS RD	X	X	X	X
1421	SCHOLLS FERRY RD	X			X
1422	RIVER RD	X			X
1423	BROOKWOOD AVE	X			
1424	COLLINS RD	X			
1425	COLLINS RD	X			

Legend

FO = Functionally Obsolete
SD = Structurally Deficient

WL = Weight Limited
EL = End of Design Life

Appendix C: New Bridge Structures Since 1995

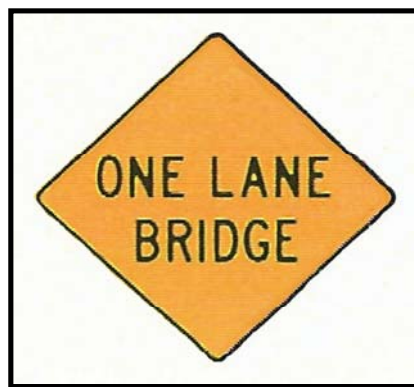
Road Name	Bridge No.	Year Built	Funding
198th Ave	1214	1995	RF
Cornelius Pass Rd	1325	1995	HBRR
Cedar Canyon Rd	1287	1996	RF
Brookwood Pkwy	19187	1996	TRI-MET
Cedar Hills Blvd	1432P	1997	MSTIP
Cedar Hills Blvd	1433P	1997	MSTIP
Cedar Canyon Rd	18035	1997	RF / MSTIP / HBRR
Collins Rd	1424	1997	RF
Collins Rd	1425	1997	RF
Golf Course Rd	17997	1997	HBRR
Greenville Rd	18034	1997	RF / MSTIP
Walker Rd	1436P	1998	RF
Walker Rd	1437P	1998	RF
Fern Flat Rd	18741	1998	FEMA
Fern Flat Rd	18739	1998	FEMA
Stringtown Rd	18738	1998	RF / MSTIP
Murray Blvd	19188	2000	MSTIP / FED
Germantown Rd	19033	2000	HBRR
Murtaugh Rd	19190	2000	RF
Northrup Rd	18840	2000	HBRR

Road Name	Bridge No.	Year Built	Funding
Roy Rogers Rd	19032	2000	MSTIP
Roy Rogers Rd	19191	2000	MSTIP
Roy Rogers Rd	19192	2000	MSTIP
Clapshaw Hill Rd	18951	2001	HBRR
Timber Rd	19034	2001	RF / MSTIP
Cornell Rd	1434	2002	RF
Oregon St	19059	2002	MSTIP
Minter Bridge Rd	19193	2002	OTIA
Minter Bridge Rd	19194	2002	OTIA
Baseline Rd	19189	2002	MSTIP
Lafollet Rd	19853	2003	HBRR
Murtaugh Rd	19786	2003	STATE
Rood Bridge Rd	19619	2004	OTIA
Baseline Rd	19878	2005	MSTIP
Baseline Rd	19884	2005	MSTIP
Farmington Rd	20069	2005	STATE
Timber Rd	20124	2005	OTIA
Barnes Rd	20304	2005	MSTIP
Timber Rd	20297	2006	OTIA
Vernonia Rd	20296	2006	OTIA

HBRR = Highway Bridge Replacement & Rehabilitation / RF = Road Fund

FEMA = Federal Emergency Management Agency / OTIA = Oregon Transportation Investment Act

MSTIP = Major Street Transportation Improvement Program / FED = Federal / STATE = State Funds



Bridge Maintenance

Bridge Maintenance & Rehabilitation
Guardrail Maintenance and Installation
Bridge Cleaning

Bridge and Guardrail Maintenance 2006-2007

	Rd #	Rd Name	Bridge#	Fc	Milepost	Bent-Span	Activity
1	060800	198th Av	1214	UC	0.98	B 1	Repair erosion
2	119400	Brookwood Av	1423	UA	0.64	B 1	Install riprap
3	119400	Brookwood Av	1423	UA	0.64	B 3	Install riprap
4	119400	Brookwood Av	1423	UA	0.64	S 2	Repair scour
5	131800	Conzelman Rd	1222	RL	0.51	All	Replace
6	131800	Conzelman Rd	1222	RL	0.51	All	Replace deck
7	131800	Conzelman Rd	1222	RL	0.51	All	Replace felloe guard
8	131800	Conzelman Rd	1222	RL	0.51	S 5	Replace stringer
9	132800	Cornelius Pass Rd	1343	RA	6.85	B 1	Place rock and regrade
10	140900	Dober Rd	1240	RL	0.32	All	Patch bathtub
11	140900	Dober Rd	1240	RL	0.32	All	Patch Deck
12	140900	Dober Rd	1240	RL	0.32	All	Repaint pile
13	149200	Fern Flat Rd	1371	RL	1.97	B 1	Seal cracks and patch / repair
14	149200	Fern Flat Rd	1371	RL	1.97	B 2	Seal cracks and patch / repair
15	149200	Fern Flat Rd	1371	RL	1.97	B 1	Install riprap
16	149300	Fern Hill Rd	1249	RA	2.74	B 3	Replace pile
17	149700	Finnigan Hill Rd	1230	RL	0.72	B 1	Replace cap
18	149700	Finnigan Hill Rd	1230	RL	0.72	B 2	Replace cap
19	150100	Fisher Rd	1380	RC	0.52	All	Repair channel
20	153700	Geiger Rd	1250	RL	0.70	B 1	Repair joint
21	153700	Geiger Rd	1250	RL	0.70	B 2	Repair joint
22	157500	Groveland Dr	1416	RL	0.18	All	Repair cap
23	161500	Helvetia Rd	1346	RA	0.25	All	Replace bulkhead
24	168700	Jackson School Rd	1350	RC	4.46	All	Repair bulkhead
25	168700	Jackson School Rd	1350	RC	4.46	B 1	Replace pile
26	172100	Johnson School Rd	1241	RC	0.52	B 1	Replace pile
27	178000	Laurelwood Rd	1242	RC	2.99	All	Patch Deck
28	193000	Minter Bridge Rd	1232	RL	0.25	S 2	Repair girder
29	194360	Mount Richmond Rd	1263	RL	0.06	B 1	Repair backwall
30	194360	Mount Richmond Rd	1263	RL	0.06	S 1	Repave
31	194500	Mountindale Rd	1360	RC	3.26	B 2	Repair backwall
32	201870	Old Hwy 47	1407	RL	0.05	B 1	Seal cracks and patch / repair
33	201870	Old Hwy 47	1407	RL	0.05	B 4	Seal cracks and patch / repair
34	201870	Old Hwy 47	1407	RL	0.05	B 1	Repair erosion
35	201870	Old Hwy 47	1407	RL	0.05	S 2	Patch girder
36	201870	Old Hwy 47	1406	RL	0.15	All	Repave
37	201870	Old Hwy 47	1406	RL	0.15	B 1	Replace pile
38	201870	Old Hwy 47	1406	RL	0.15	B 2	Replace pile
39	201870	Old Hwy 47	1406	RL	0.15	B 3	Replace pile
40	201870	Old Hwy 47	1406	RL	0.15	B 4	Replace pile
41	201870	Old Hwy 47	1406	RL	0.15	B 5	Replace pile
42	201870	Old Hwy 47	1406	RL	0.15	B 1	Replace bulkhead
43	201870	Old Hwy 47	1406	RL	0.15	B 6	Replace bulkhead
44	201870	Old Hwy 47	1404	RL	1.75	S 3	Clean and inject epoxy
45	201870	Old Hwy 47	1404	RL	1.75	S 3	Clean and inject epoxy
46	201870	Old Hwy 47	1403	RL	1.93	B 1	Replace backwall
47	201870	Old Hwy 47	1403	RL	1.93	S 1	Replace deck
48	206200	Parson Rd	1278	RL	0.39	All	Repair / Prevent Scour
49	206200	Parson Rd	1387	RL	3.41	B 2	Replace bulkhead
50	208100	Phillips Rd	1345	RC	1.25	B 1	Repair erosion
51	208100	Phillips Rd	1345	RC	1.25	B 2	Repair erosion
52	209200	Plumlee Rd	1261	RL	1.59	All	Replace timbers
53	209200	Plumlee Rd	1262	RL	1.99	B 2	Replace cap
54	209200	Plumlee Rd	1262	RL	1.99	All	Patch Deck
55	209200	Plumlee Rd	1262	RL	1.99	S 1	Replace stringer
56	209200	Plumlee Rd	1262	RL	1.99	S 7	Replace stringer

Bridge and Guardrail Maintenance 2006-2007

	Rd #	Rd Name	Bridge#	Fc	Milepost	Bent-Span	Activity
57	209900	Porter Rd	1296	RL	0.09	All	Replace backwall
58	209900	Porter Rd	1296	RL	0.09	B 2	Replace pile
59	213800	Reiling Rd	1293	RL	0.57	B 1	Repave
60	213800	Reiling Rd	1293	RL	0.57	B 3	Repave
61	213800	Reiling Rd	1293	RL	0.57	B 3	Replace pile
62	216400	River Rd	1422	UA	6.81	B 1	Repave
63	216400	River Rd	1422	UA	6.81	All	Seal cracks and patch / repair
64	217600	Rock Creek Bl	1338	UA	0.88	All	Replace rail
65	217600	Rock Creek Bl	1338	UA	0.88	B 2	Replace pile
66	217600	Rock Creek Bl	1338	UA	0.88	B 2	Replace pile
67	217600	Rock Creek Bl	1338	UA	0.88	B 2	Replace pile
68	217900	Roderick Rd	1279	RL	0.04	B 2	Install riprap
69	223200	Scholls Ferry Rd	1421	UA	2.35	B 1	Install riprap
70	223200	Scholls Ferry Rd	1421	UA	2.35	B 4	Install riprap
71	223200	Scholls Ferry Rd	1421	UA	2.35	B 4	Replace pile
72	224150	Seiffert Rd	1225	RC	1.46	B 1	Install riprap
73	224150	Seiffert Rd	1225	RC	1.46	B 2	Install riprap
74	224150	Seiffert Rd	1225	RC	1.46	B 1	Repair erosion
75	224150	Seiffert Rd	1225	RC	1.46	B 3	Repair erosion
76	231400	Stringtown Rd	1281	RC	3.91	B 2	Replace cap
77	231400	Stringtown Rd	1281	RC	3.91	All	Grind deck and pave or replace
78	231400	Stringtown Rd	1281	RC	3.91	B 1	Replace pile
79	231400	Stringtown Rd	1281	RC	3.91	B 2	Replace pile
80	234400	Taylor's Ferry Rd	1207	UC	0.82	All	Replace felloe guard
81	239300	Uebel Rd	1362	RL	0.05	B 1	Replace backwall
82	244000	Walker Rd	1337	UA	2.50	All	Replace sidewalk
83	247550	West Shore Dr	1401	RC	5.22	B 3	Reseal joints
							Bridge repairs total: 83
1	149200	Fern Flat Rd	1371	RL	1.96	N/A	Upgrade approach guard rail
2	149200	Fern Flat Rd	1371	RL	1.96	N/A	Upgrade approach guard rail
3	186800	Martin Rd	N/A	UA	0.10	N/A	Upgrade guard rail
4	203000	Oleson Rd	N/A	UA	1.67	N/A	Upgrade guard rail
5	203000	Oleson Rd	N/A	UA	2.74	N/A	Upgrade guard rail
6	203000	Oleson Rd	N/A	UA	2.74	N/A	Upgrade guard rail
7	203000	Oleson Rd	N/A	UA	2.75	N/A	Upgrade guard rail
8	237400	Tonquin Rd	N/A	UA	0.43	N/A	Upgrade guard rail
9	126500	Cedar Canyon Rd	1289	RL	0.34	All	Replace guard rail
10	155800	Golf Course Rd	1246	RA	1.57	All	Repair guardrail
11	172100	Johnson School Rd	1241	RC	0.52	All	Replace guard rail
12	175500	Labrousse Rd	1219	RL	0.22	All	Repair guardrail
13	201870	Old Hwy 47	1407	RL	0.05	S 2	Repair guardrail
14	217600	Rock Creek Bl	1338	RC	0.88	All	Replace guard rail
15	217900	Roderick Rd	1279	RL	0.04	B 1	Repair guardrail
16	217900	Roderick Rd	1279	RL	0.04	B 4	Repair guardrail
17	223200	Scholls Ferry Rd	1420	UA	4.25	B 1	Install joint
18	223200	Scholls Ferry Rd	1420	UA	4.25	S 1	Repair guardrail
19	234400	Taylor's Ferry Rd	1207	UC	0.82	B 1	Replace guard rail
20	239300	Uebel Rd	1362	RL	0.05	B 1	Repair guardrail
21	239300	Uebel Rd	1362	RL	0.05	B 5	Repair guardrail
							Guardrail repairs total: 21
1	129400	Clapshaw Hill Rd		RC	3.00		800'
2	187900	McCormick Hill Rd		RL	2.55		400'
							Guardrail installed-total length: 1200 ft

Bridge Cleaning 2006-2007

	Rd #	Rd name	Bridge #	Fc	Bridge milepost	Scheduled Work
		Cleaned Annually				
1	051000	185th Av	1331	UA	3.38	Check and clean all
2	051000	185th Av	1340	UA	7.54	
3	051000	185th Av	1341	RA	7.72	
4	060400	197th Av	1329	UC	0.44	
5	119400	Brookwood Av	1423	UA	0.64	
6	132800	Cornelius Pass Rd	1325	UA	2.24	
7	132800	Cornelius Pass Rd	1326	UA	1.66	
8	132800	Cornelius Pass Rd	1343	RA	6.85	
9	132900	Cornelius-Schefflin Rd	1303	RA	2.09	
10	148950	Farmington Rd	20069	RA	6.97	
11	149300	Fern Hill Rd	1249	RA	2.74	
12	155800	Golf Course Rd	1246	RA	1.57	
13	165500	Hornecker Rd	1313	UC	0.53	
14	216200	Ritchey Rd	1258	UC	0.14	
15	219750	Roy Rogers Rd	1217	RA	1.91	
16	223200	Scholls Ferry Rd	1420	UA	4.25	
17	231400	Stringtown Rd	1280	RC	4.47	
18	233200	Susbauer Rd	1310	RC	0.82	
19	110220	Baseline Rd	19878	UA	3.76	
20	110220	Baseline Rd	19884	UA	3.61	
21	247550	West Shore Dr	1401	RC	5.22	
22	247550	West Shore Dr	1402	RC	3.37	
						Bridge total: 22
		Cleaning_Cycle year 3				
1	001800	065th Av	1211	UA	3.19	Check and clean all
2	011300	086th Av	1206	UL	0.22	
3	015900	092nd Av	1204	UA	0.22	
4	040800	170th Av	1333	UA	2.70	
5	051000	185th Av	1238	UA	1.61	
6	051000	185th Av	1330	UA	4.03	
7	055700	192nd Av	1239	UMiC	0.83	
8	060800	198th Av	1214	UC	0.98	
9	063800	205th Av	1327	UC	0.33	
10	068800	227th Av	1323	UMiC	0.02	
11	069000	229th Av	1237	RC	0.80	
12	110150	Barrows Rd	1419	UC	0.12	
13	121700	Butner Rd	1400	UC	1.88	
14	132550	Corby Dr	1336	UMiC	0.23	
15	154700	Glencoe Rd	1316	RA	1.58	
16	161500	Helvetia Rd	1346	RA	0.25	
17	169800	Jay St	1409	UMiC	0.14	
18	170700	Jenkins Rd	1335	UA	1.30	
19	181900	Long Rd	1307	RC	0.15	

Bridge Cleaning 2006-2007

	Rd #	Rd name	Bridge #	Fc	Bridge milepost	Scheduled Work
20	194500	Mountaindale Rd	1358	RC	2.14	Check and clean all
21	194500	Mountaindale Rd	1360	RC	3.26	
22	196000	Murray Bl	1408	UA	4.20	
23	196000	Murray Bl	19188	UA	4.20	
24	196000	Murray Bl	1355	UA	5.09	
25	201850	Old Hwy 47	1269	RL	0.07	
26	203000	Oleson Rd	1201	UA	2.74	
27	208100	Phillips Rd	1345	RC	1.25	
28	217600	Rock Creek Bl	1338	UC	0.88	
29	218200	Rood Bridge Rd	1235	RC	3.07	
30	223200	Scholls Ferry Rd	1421	UA	2.35	
31	224300	Sell Rd	1375	RL	1.94	
32	227300	Soda Springs Rd	1273	RL	1.79	
33	227720	South Rd	1266	RL	1.64	
34	228500	Spiesschaert Rd	1305	RL	0.02	
35	229800	Staley Rd	1382	RL	1.16	
36	231400	Stringtown Rd	18738	RC	0.18	
37	231400	Stringtown Rd	1282	RC	3.71	
38	231400	Stringtown Rd	1281	RC	3.91	
39	239200	Turk Rd	1374	RL	0.04	
40	239300	Uebel Rd	1362	RL	0.05	
41	241700	Vernonia Rd	1391	RC	0.13	
42	241700	Vernonia Rd	1417	RC	1.35	
43	244000	Walker Rd	1337	UA	2.50	
44	110220	Baseline Rd	19189	UA	2.09	
45	247800	West Union Rd	1339	UA	2.89	
46	247800	West Union Rd	1351	UA	9.45	
						Bridge total: 46

Washington County
Bridge Replacement Prioritization

Priority Ranking	Road Name	Bridge #	Scheduled Replacement?	Proposed Replacement Date
1	BARROWS	1419		
2	CORNELIUS-SCHEFFLIN	1304	Y	2007
3	CONZELMAN	1222		
4	SPIESSCHAERT	1305	Y	TBD
5	TAYLORS FERRY	1207		
6	HELVETIA	1346		
7	GLENCOE	1316	Y	2008
8	STRINGTOWN	1282		
9	CLARK HILL	1398		
10	SPRING HILL	1257		
11	OLESON	1201		
12	JACKSON SCHOOL	1350		
13	NICOL	1202		
14	OLD HWY 47	1404		
15	SCHOLLS FERRY	1421	Y	TBD
16	LONG	1307		
17	PLUMLEE	1261		
18	JOHNSON SCHOOL	1241		
19	GREENER	1367	Y	2007
20	SCHOLLS FERRY	1418	Y	2008
21	FERN FLAT	1372		
22	PADGETT	1311		
23	DAIRY CREEK	1366		
24	FINNIGAN HILL	1230		
25	SEWELL	1317		
26	GREENVILLE	1284		
27	ROY	1298		
28	EVERS	1294		
29	MOUNT RICHMOND	1263		
30	PARSON	1278		
31	CORNELIUS PASS	1343		
32	STRINGTOWN	1281		
33	CEDAR CANYON	1289		
34	086th	1206		
35	185th	1238		
36	PHILLIPS	1345		
37	MEACHAM	1364		
38	MOUNT RICHMOND	1265		
39	PLUMLEE	1262		
40	VANDERSCHUERE	1226		
41	OLD HWY 47	1269		
42	BEAL	1295		
43	GASTON	1243		
44	198th	1214		
45	ROY	1302		

Priority Ranking	Road Name	Bridge #	Scheduled Replacement?	Proposed Replacement Date
46	HOBBS	1309		
47	JARRELL	1354		
48	HAHN	1363		
49	MINTER BRIDGE	1232		
50	PORTER	1296		
51	B	00459		
52	OLD HWY 47	1405		
53	REILING	1293		
54	229th	1237	Y	TBD
55	SCOTCH CHURCH	1314		
56	FERN FLAT	1371		
57	SOUTH	1266		
58	227th	1323		
59	KILLIN	1383		
60	B	00736A		
61	CEDAR CANYON	1287		
62	TIMBER	1388		
63	205th	1327		
64	PARSON	1387		
65	TURK	1374		
66	DAIRY CREEK	1361		
67	CORNELIUS-SCHEFFLIN	1303		
68	ROCK CREEK	1338		
69	REIN	1220		
70	JACKSON SCHOOL	1315		
71	170th	1333		
72	FISHER	1380		
73	OLD HWY 47	1403		
74	PONGRATZ	1379		
75	BOHMANN	1203		
76	COCHRAN	1394		
77	SODA SPRINGS	1274		
78	SPRING HILL	1255		
79	RIVER	1422	Y	2008
80	VANDERSCHUERE	1228		
81	CORNELIUS PASS	1326	Y	TBD
82	SODA SPRINGS	1273		
83	OLD CORNELIUS PASS	1344		
84	WALKER	1337		
85	CORNELIUS PASS	1325		
86	JENKINS	1335		
87	MOUNTAINDALE	1360		
88	192nd	1239		
89	OLD HWY 47	1406		
90	LAURELWOOD	1242		

Washington County
Bridge Replacement Prioritization

Priority Ranking	Road Name	Bridge #	Scheduled Replacement?	Proposed Replacement Date
91	JACKSON QUARRY	1349		
92	GROVELAND	1416		
93	VERNONIA	1417C		
94	092nd	1204		
95	CORNELL	19185C		
96	UEBEL	1362		
97	MOUNTAINDALE	1358		
98	COLLINS	1425		
99	WEST UNION	1339		
100	MURTAUGH	19190		
101	CORNELL	19186C		
102	197th	1329		
103	DOBER	1240		
104	BROOKWOOD	19187		
105	SELL	1375		
106	WEST SHORE	1402		
107	COLLINS	1424		
108	PONGRATZ	1377		
109	FISHER	1381		
110	SEIFFERT	1225		
111	EVERS	1297		
112	STRINGTOWN	18738		
113	GALES CREEK	1275		
114	SHADYBROOK	1353		
115	STALEY	1382		
116	185th	1341		
117	TIMBER	1390		
118	BUTNER	1400		
119	West Union	1351		
120	JAY	1409		
121	OREGON	19059		
122	185th	1330C		
123	185th	1340		
124	WEST SHORE	1401		
125	GREEN MOUNTAIN	1373		
126	FERN HILL	1249		
127	ROY ROGERS	1217		
128	MCCORMICK HILL	1229C		
129	STRINGTOWN	1280		
130	OBERS	1218		
131	SPRING HILL	1256		
132	SUSBAUER	1310		
133	BROOKWOOD	1423		
134	RITCHEY	1258		
135	NORTHRUP	18840		

Priority Ranking	Road Name	Bridge #	Scheduled Replacement?	Proposed Replacement Date
136	COCHRAN	1393		
137	CLAPSHAW HILL	18951		
138	LABROUSSE	1219		
139	FERN FLAT	18741		
140	FERN FLAT	18739		
141	TIMBER	20124		
142	CEDAR CANYON	1290		
143	TIMBER	19034		
144	GREENVILLE	18034		
145	MURRAY	1408		
146	OLD HWY 47	1407		
147	SCHOLLS FERRY	1420		
148	RODERICK	1279		
149	GOLF COURSE	17997		
150	HORNECKER	1313		
151	MOUNT RICHMOND	1264		
152	PADGETT	1312		
153	ROY ROGERS	19192		
154	ROY ROGERS	19191		
155	GERMANTOWN	19033		
156	MURRAY	1355		
157	MURTAUGH	19786		
158	ROY ROGERS	19032		
159	185th	1331		
160	VERNONIA	20296		
161	BARNES	20304		
162	CEDAR CANYON	18035		
163	065th	1211		
164	HARRINGTON	1300		
165	MIDWAY	1227		
166	BASELINE	19878		
167	HARRINGTON	1299		
168	GEIGER	1250		
169	TIMBER	20297		
170	MINTER BRIDGE	19193		
171	BASELINE	19189		
172	MINTER BRIDGE	19194		
173	BASELINE	19884		
174	FARMINGTON	20069		
175	PIHL	1376		
176	GOLF COURSE	1246		
177	LAFOLLETT	19853		
178	MURRAY	19188		
179	PARSON	1277		
180	ROOD BRIDGE	19619		

Note: Pedestrian Structures are not included in the prioritization matrix

Facts and Figures

<u>Element</u>	<u>Road</u>	<u>Bridge #</u>	<u>Measurement</u>
Longest Multi-Span	Rood Bridge Rd	19619	680 ft (6 spans)
Longest Single Span	Minter Bridge Rd	19194	211 ft
Shortest	Conzelman Rd & Long Rd	1222 / 1307	11 ft
Widest	Murray Blvd*	1355 + 1337	93 ft
Narrowest	Collins Rd	1424 / 1425	16 ft
Oldest	Old Hwy 47	1404 / 1407	1921
Busiest (highest average daily traffic)	Scholls Ferry Rd	1420	~44,000 ADT
Largest Distance between two bridges**	65 th Ave / Vernonia Rd	1211 / 20296	37.5 miles
Highest (above sea level)	Cochran Rd	1394	1120 ft
Lowest (above sea level)	065 th Ave	1211	110 ft
Road with most bridges	Old Hwy 47	--	6

*These two structures are built side-by-side which results in a single bridge.

**As the crow flies

147: The number of bridges in the National Bridge Inventory (NBI)

40: The number of bridges that are classified as "non-NBI"

*2006 American Public Works Association – Oregon Chapter
Transportation Project of the Year
The Phillip Harris Bridge on Farmington Road*

