HistoricBridges.org - National Bridge Inventory Data Sheet

2013 Inventory

The National Bridge Inventory contains data submitted by state transportion departments to the Federal Highway Administration in coded format.
Form Interface Design: www.historicbridges.org. Data Conversion Assistance By www.bridgehunter.com. None of the involved parties make any guarantee of accuracy.

Basic Information

Washington [53]	Pierce County [053]	Tacoma [70000]	2.5 N JCT I-5	47-15-38.00 = 47.260556	122-25-11.00 = -122.419722

0006069A0000000	Highway agency district: 3	Owner: City or Municipal Highway Agency [04]	Maintenance responsibility: City or Municipal Highway Agency [04]		
Route: 50950		STATE ROUTE 509	Toll: On free road [3]	Features intersected: PUYALLUP WATERWAY RR	

Design - main	Steel [3]	Design - approach		Kilometerpoint	187 km = 115.9 mi
3	Truss - Thru [10]	6	Mixed types [20]	Year built: 1911	Year reconstructed: N/A [0000]
				Skew angle: 0	Structure Flared:
				Historical significance	Bridge is not eligible for the NRHP. [5]

Total length	174.3 m = 571.9 ft	Length of maximum span	49.1 m = 161.1 ft	Deck width, out-to-out	12.8 m = 42.0 ft	Bridge roadway width, curb-to-curb	7.3 m = 24.0 ft
Inventory Route, Total Horizontal Clearance	12.2 m = 40.0 ft	Curb or sidewalk width - left	1.8 m = 5.9 ft	Curb or sidewalk width - right	1.8 m = 5.9 ft		

Deck structure type	Open Grating [3]
Type of wearing surface	
Deck protection	
Type of membrane/wearing surface	

Weight Limits

Bypass, detour length	Method to determine inventory rating	Load Factor(LF) [1]	Inventory rating	17.1 metric ton = 18.8 tons	
0.3 km = 0.2 mi	Method to determine operating rating	Load Factor(LF) [1]	Operating rating	27.9 metric ton = 30.7 tons	
	Bridge posting	20.0 - 29.9 % below [2]	Design Load		

Functional Details

Average Daily Traffic	2400	Average daily truck traffi	0 %	Year	2010	Future average daily traffic	5097
Year	2034						
Road classification	Other Principal Arterial (Urban) [14]	Lanes on structure	2	Approach roadway width	19.5 m = 64.0 ft		
Type of service on bridge	Highway-pedestrian [5]	Direction of traffic	2 - way traffic [2]	Bridge median			
Parallel structure designation	No parallel structure exists. [N]						
Type of service under bridge	Waterway [5]	Lanes under structure	0	Navigation control			
Navigation vertical clearanc	0 = N/A	Navigation horizontal clearance	0 = N/A				
Minimum navigation vertical clearance, vertical lift bridge		Minimum vertical clearance over bridge roadway	5.11 m = 16.8 ft				
Minimum lateral underclearance reference feature	Feature not a highway or railroad [N]						
Minimum lateral underclearance on right	0 = N/A	Minimum lateral underclearance on left	0 = N/A				
Minimum Vertical Underclearance	0 = N/A	Minimum vertical underclearance reference feature	Feature not a highway or railroad [N]				
Appraisal ratings - underclearances	N/A [N]						

Repair and Replacement Plans

Type of work to be performed

Replacement of bridge or other structure because of substandard load carrying capacity or substantial bridge roadway geometry. [31]

Work done by	Work to be done by contract [1]		
Bridge improvement cost	354000	Roadway improvement cost	35000
Length of structure improvement	174.3 m = 571.9 ft	Total project cost	531000
Year of improvement cost estimate	2013		
Border bridge - state		Border bridge - percent responsibility of other state	
Border bridge - structure number			

Inspection and Sufficiency

Structure status	Posted for load [P]	Appraisal ratings - structural	Basically intolerable requiring high priority of corrrective action [3]
Condition ratings - superstructure	Serious [3]	Appraisal ratings - roadway alignment	Equal to present desirable criteria [8]
Condition ratings - substructure	Poor [4]	Appraisal ratings - deck geometry	Basically intolerable requiring high priority of replacement [2]
Condition ratings - deck	Poor [4]		

Scour	Bridge foundations determined to be stable for assessed or calculated scour conditions; field review indicates action is required. [4]
Channel and channel protection	Bank is beginning to slump. River control devices and embankment protection have widespread minor damage. There is minor stream bed movement evident. Debris is restricting the channel slightly. [6]

Appraisal ratings - water adequacy	Equal to present desirable criteria [8]	Status evaluation	Structurally deficient [1]
Pier or abutment protection		Sufficiency rating	9.8

Culverts	Not applicable. Used if structure is not a culvert. [N]
Traffic safety features - railings	
Traffic safety features - transitions	
Traffic safety features - approach guardrail	
Traffic safety features - approach guardrail ends	

Inspection date	June 2013 [0613]	Designated inspection frequency	24 Months
Underwater inspection	Unknown [Y60]	Underwater inspection date	August 2009 [0809]
Fracture critical inspection	Every two years [Y24]	Fracture critical inspection date	June 2013 [0613]
Other special inspection	Not needed [N]	Other special inspection date	

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Basic Information

Washington [53]	Pierce County [053]	Tacoma [70000]	Puyallup River Crossing	47-15-38.00 = 47.260556	122-25-11.00 = -122.419722

88140000000000	Highway agency district: 3	Owner: City or Municipal Highway Agency [04]	Maintenance responsibility: City or Municipal Highway Agency [04]		
Route: 50950		East 11th Street	Toll: On free road [3]	Features intersected: Milwaukee Way	

Design - main: Steel [3]		Design - approach: Concrete continuous [2]		Kilometerpoint: 188 km = 116.6 mi	
52	Girder and floorbeam system [03]	6	Slab [01]	Year built: 1930	Year reconstructed: N/A [0000]
				Skew angle: 0	Structure Flared:
				Historical significance: Bridge is not eligible for the NRHP. [5]	

Total length: 664.8 m = 2181.2 ft	Length of maximum span: 49.1 m = 161.1 ft	Deck width, out-to-out: 15.8 m = 51.8 ft	Bridge roadway width, curb-to-curb: 12.2 m = 40.0 ft
Inventory Route, Total Horizontal Clearance: 12.2 m = 40.0 ft	Curb or sidewalk width - left: 1.8 m = 5.9 ft	Curb or sidewalk width - right: 1.8 m = 5.9 ft
Deck structure type: Concrete Cast-in-Place [1]			
Type of wearing surface: Monolithic Concrete (concurrently placed with structural deck) [1]			
Deck protection: Unknown [8]			
Type of membrane/wearing surface:			

Weight Limits

Bypass, detour length: 0.3 km = 0.2 mi	Method to determine inventory rating: Load Factor(LF) [1]	Inventory rating: 17.1 metric ton = 18.8 tons
	Method to determine operating rating: Load Factor(LF) [1]	Operating rating: 27.9 metric ton = 30.7 tons
	Bridge posting: Equal to or above legal loads [5]	Design Load:

Functional Details

Average Daily Traffic	2400	Average daily truck traffi	0 %	Year	2012	Future average daily traffic	5000
Year	2030						
Road classification	Other Principal Arterial (Urban) [14]	Lanes on structure	2	Approach roadway width	19.5 m = 64.0 ft		
Type of service on bridge	Highway-pedestrian [5]	Direction of traffic	2 - way traffic [2]	Bridge median			
Parallel structure designation	No parallel structure exists. [N]						
Type of service under bridge	Highway-railroad [4]	Lanes under structure	16	Navigation control	Not applicable, no waterway. [N]		
Navigation vertical clearanc	0 = N/A	Navigation horizontal clearance	0 = N/A				
Minimum navigation vertical clearance, vertical lift bridge		Minimum vertical clearance over bridge roadway	99.99 m = 328.1 ft				
Minimum lateral underclearance reference feature	Highway beneath structure [H]						
Minimum lateral underclearance on right	0.3 m = 1.0 ft	Minimum lateral underclearance on left	0.3 m = 1.0 ft				
Minimum Vertical Underclearance	4.62 m = 15.2 ft	Minimum vertical underclearance reference feature	Highway beneath structure [H]				
Appraisal ratings - underclearances	Basically intolerable requiring high priority of corrrective action [3]						

Repair and Replacement Plans

Type of work to be performed

Bridge rehabilitation because of general structure deterioration or inadequate strength. [35]

Work done by	Work to be done by contract [1]		
Bridge improvement cost	1248000	Roadway improvement cost	125000
Length of structure improvement	664.8 m = 2181.2 ft	Total project cost	1872000
Year of improvement cost estimate	2013		
Border bridge - state		Border bridge - percent responsibility of other state	
Border bridge - structure number			

Inspection and Sufficiency

Structure status	Posted for load [P]	Appraisal ratings - structural	Meets minimum tolerable limits to be left in place as is [4]
Condition ratings - superstructure	Poor [4]	Appraisal ratings - roadway alignment	Equal to present desirable criteria [8]
Condition ratings - substructure	Fair [5]	Appraisal ratings - deck geometry	Equal to present minimum criteria [6]
Condition ratings - deck	Poor [4]		

Scour	Bridge not over waterway. [N]
Channel and channel protection	Not applicable. [N]

Appraisal ratings - water adequacy	N/A [N]	Status evaluation	Structurally deficient [1]
Pier or abutment protection		Sufficiency rating	40.5

Culverts	Not applicable. Used if structure is not a culvert. [N]
Traffic safety features - railings	
Traffic safety features - transitions	
Traffic safety features - approach guardrail	
Traffic safety features - approach guardrail ends	

Inspection date	June 2013 [0613]	Designated inspection frequency	24	Months

Underwater inspection	Not needed [N]	Underwater inspection date	
Fracture critical inspection	Not needed [N]	Fracture critical inspection date	
Other special inspection	Not needed [N]	Other special inspection date	

BRIDGE INSPECTION REPORT

Ver Date: 01/27/2014 Agency: TACOMA

Status: Released Printed On: 10/03/20 Program Mgr: Roman G. Peralta

Bridge No. 5098 Page: 1/13 **Structure Type** SLS STrus SG CS

Bridge Name E. 11th STREET Truss **Route** 50950 **Location** 2.5 N JCT I-5

Structure ID 0006069A **MilePost** 1.16 **Intersecting** PUYALLUP WATERWAY RR

Inspector's Signature ALP IDent# Co-Inspector's Signature CAM

3		Structural Adqcy	(657)	N		Pier/Abut/Protect	(679)	1911		Year Built	(332)
2		Deck Geometry	(658)	4		Scour	(680)	0		Year Rebuilt	(336)
9		Underclearance	(659)	7		Retaining Walls	(682)	31		Oper Rating	(551)
2		Operating Level	(660)	9		Pier Protection	(683)	19		Inv Rating	(554)
8		Alignment Adqcy	(661)	0		Bridge Rails	(684)	P		Open Close	(293)
8		WaterwayAdqcy	(662)	0		Transition	(685)	1609		Vert Over Deck	(360)
4		Deck Overall	(663)	0		Guardrails	(686)	0000		Vert Under	(374)
6		Drains Condition	(664)	0		Terminals	(687)	N		Vert Und Code	(378)
3		Superstructure	(671)	N		Revise Rating	(688)	0.00		Asphalt Depth	
2		Number Utilities	(675)			Photos Flag	(691)	35		Speed Limit	
4		Substructure	(676)	Y		Soundings Flag	(693)				
6		Chan/Protection	(677)			Measure Clearance	(694)				
9		Culvert	(678)								

Inspections Performed

IT	NT	HRS	Date	Rep Type
Y	24	6.0	06/26/2013	Routine
Y	24	18.0	06/26/2013	Fract Crit
D	24	2.5	09/19/2013	Underwater
				Special
Y	12	0.5	06/26/2013	Interim
				Equipment
				Damage
				Safety
				Short Span

Total: 1.0

Suff Rating: 9.83 SD 9.83 SD

BMS Elements

Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	16160	SF	10000	5000	1000	160
28	Steel Deck Open Grid	6440	SF	0	5990	400	50
35	Concrete Deck Soffit	5720	SF	0	5000	500	220
91	Steel Riveted Girder	918	LF	0	638	180	100
113	Steel Stringer	798	LF	0	598	100	100
126	Steel Thru Truss	532	LF	0	25	282	225
133	Truss Gusset Plates	88	EA	76	0	6	6
152	Steel Floor Beam	560	LF	0	156	300	104
212	Concrete Submerged Pier Wall	160	LF	0	100	60	0
214	Concrete Web Wall between Columns	120	LF	0	108	12	0
215	Concrete Abutment	42	LF	42	0	0	0
220	Concrete Submerged Pile Cap/Footing	4	EA	2	0	2	0

227	Concrete Submerged Pile/Column	8	EA	2	0	6	0
234	Concrete Pier Cap / Crossbeam	234	LF	0	196	38	0
266	Concrete Sidewalk & Supports	4280	SF	2210	0	1976	94
310	Elastomeric Bearing	3	EA	1	0	2	0
311	Moveable Bearing (roller, sliding, etc)	9	EA	6	0	3	0
313	Fixed Bearing	17	EA	7	0	10	0
321	Concrete Roadway Approach Slab	2	SF	0	1	1	0
330	Metal Bridge Railing	1144	LF	686	0	208	250
340	Metal Pedestrian Railing	532	LF	0	500	20	12
355	Damaged Bolts or Rivets	14	EA	6	1	7	0
357	Pack Rust	31	EA	1	30	0	0
361	Scour	8	EA	5	2	1	0
362	Impact Damage	2	EA	0	0	1	1
402	Hot Poured and/or Premolded Joint Filler	520	LF	0	0	520	0
407	Steel Angle Header	160	LF	120	0	40	0
901	Red Lead Alkyd Paint System	72800	SF	0	42500	30300	0
905	Coal Tar Epoxy Paint System	1000	SF	0	1000	0	0

Notes

0	The bridge is oriented from the west to the east with the west abutment being closest to downtown Tacoma. Span 1 is on the west side of the Puyallup River. Bridge 5098 consists of Piers 1 throu 9. The trusses in Span 4, 5, and 6 were originally set up for a lift span in Span 5 - these were built in 1911. The counterweight towers in Spans 4 and 6 were cutoff in 1930, and the approaches were rebuilt. Spans 2 through 8 are over the Puyallup River.

9	Underwater inspection of the Puyallup R RR OC CS2748 Bridge was conducted by Echelon Engineering on September 19, 2013. Piers 3-9 were located in the channel at the time of the inspection. Based on the observed condition, the inspected substructure components are in generally fair to poor condition. All underwater elements appear to be in overall fair to poor condition. Investigation of the concrete surfaces found them to have sustained numerous spalls, cold joint deterioration and heavy velocity abrasion of the areas exposed to flow (up to 8 inches deep). The areas of greatest deterioration were noted on the surfaces within the intertidal zone. Inspection of the web walls also noted several significant spalls, vertical cracks and areas of form void and deterioration along the horizontal cold joints. Many of the damaged areas exhibit exposed reinforcing and brittle concrete which can be "pried" and "flaked" off with a screwdriver. Additionally, portions of the Pier 3 and Pier 9 footings, as well as the entire Pier 8 footing were found to be exposed. The maximum vertical exposure of the Pier 3 and Pier 9 footings was measured at ~1.4 and ~7.1 feet respectively. The maximum measured distance taken at Pier 8 from the top of the footing to the mudline was ~15.4 feet resulting in a mudline elevation of ~El. -3.4 ft. and indicating that scour and undermining are present at the upstream end of this footing. Due to the presence of timber debris, diving and tactile confirmation was not possible. No exposure of the footings on Piers 4, 5, 6 or 7 was found. Moderate debris build-up was evident at the upstream end of Piers 3, 4, 5, 7 and 8. The channel bottom is composed of transient sand and mud and the channel profile in the vicinity of the bridge can change dramatically between inspections. Local scour is evident in the vicinity of the columns and the timber debris. Areas of aggradation and degradation of the channel bottom are evident when compared to the conditions reported in the 2008 underwater inspection report. We recommend that the timber debris be removed from around the affected piers and that additional inspection of the Pier 8 footing be conducted to determine if the timber foundation piling have been exposed. Due to the saline wedge that travels up river during high tides, these piling may be subjected to marine borer infestation and loss of cross section. Additionally, based on the apparent undermining of Pier 8 we recommend that the footing be analyzed for the current loading conditions and specifically for overturning. Based on the observed conditions, it is recommended that underwater inspection be conducted on a 24-month frequency, as well as conducting Post-event underwater inspections after periods of flooding and other significant occurrences such as earthquake.
12	There is wear down to aggregate in the wheel lines with scattered aggregate pop-outs. There is approximately 1" differential in planes at the west approach end. Span 2: Two drain grates missing, north side. REPAIR #10018 is for the following: Span 2: concrete deck is leaching onto the floorbeam. Span 3: concrete deck is leaching onto the floorbeam. Span 4: Concrete spalling with exposed rebar, photo #40. Span 6: Concrete spalling with exposed rebar in bridge deck, photo #41. Span 7: Concrete spalling. Span 8: West bound lane concrete patch missing, 4'x10"x3" exposed rebar, photo #65. Pier 9: Missing steel patch over removed RR track, south track.

28	Steel Open Grid Deck located in truss Span 5. Inspectors identified several locations with broken welds and missing grids as marked with red or yellow paint, see photos #16, #59, #60, #61, and #120. REPAIR #10002. A few of the steel deck open grid 'W'-section supports have cracked welds at the bases: (photo #7. REPAIR #10005) FB0, sixth support east of FB0 at Stringers 1D and 1E. FB1, first and sixth supports east of FB1 at Stringer 2F. FB6, fourth support east of FB6 at Stringer 7E, photo #119. Several of the deck support beam webs are cracked over support stringers , photo #123. REPAIR #10001. Deck support beam webs also have several areas that are completely corroded through, photo #9 and #123. REPAIR #10001. Span 5, near FB0 end deck support between stringers D through F has a fully corroded web, with a 4" length of bottom flange snapped of at stringer E. See photo #139 REPAIR #10001. Span 5, above FB0, bolts in the grid deck support block to floor beam top flange connection are missing or near completely corroded away. Span 5, 2nd deck transverse support, counting east from FB0, has heavy top flange section loss and holes in the web from the south truss to stringer E.
35	Span 1: Has delaminations up to 2 ft. x 6". Span 2: South edge has a few spalls that are typically 8" x 4" x 1/2" deep with 6" of exposed rebar. Span 2: Has scattered short rebars exposed due to lack of cover at the floor beams. Span 4: Near the south edge has several delaminations and spalls with exposed rebars that are typically 8" x 4" x 1/2" deep. Span 6: Spall 2 ft. x 10" x 1.5" deep with 24" exposed rebar. Span 6, longitudinal cracking with displacement along the north side walk edge, near full span length. It appears there has been some kind of movement at pier 7, which could be related. Monitor. See photos #145 and #146, Cracking and displacement appears not to have been noted previous to 2013. Span 7: North edge has a 6 ft. x up to 2 ft. x 2" deep spall with 5 ft. of exposed rebar and ten exposed stirrups, see photo #91. REPAIR #10025. Span 8: North edge has several spalls with exposed rebars. Span 8: Soffit between Girders 8A and 8B has a 5 ft. x 4 ft. plywood form in place. Spans 8, 19 thru 21, 40, and 41 (north edge) and Spans 37 thru 40 (south edge): The east approach spans have many transverse rusty leaching cracks and scattered shallow delaminations at the stringer and girder top flanges. At the exterior stringers there are fillet spalls up to 10ft. long along with narrow delaminations and spalls with exposed rebars that are typically 8" x 4" x 1/2" deep.
91	There are three lines of steel riveted girders, each supported by a column. Girder 2C at the bottom flange cover plate has 1/4" of pack rust. Girder 8A at the bottom flange cover plate has 3/8" of pack rust, see photo #85.

Bridge No.	5098	Page: 5/13		**Structure Type**	SLS STrus SG CS
Bridge Name	E. 11th STREET Truss	**Route**	50950	**Location**	2.5 N JCT I-5
Structure ID	0006069A	**MilePost**	1.16	**Intersecting**	PUYALLUP WATERWAY RR

113	There are six lines of steel stringers in the truss. The truss stringer seats are typically bent down about 1" due to pack rust, photo #131. Span 5, stringer 7E, has a support base plate broken along the transverse welds. The grid deck is painted red above this stringer as a location aid. Span 5, at FB0, stringer seats are heavily corroded. Span 5, north exterior sidewalk stringer adjacent to truss, heavy bottom flange and web section loss. Since the supporting floor beam has such significant section loss, the stringer bearing load is bending the floor beam top flange.

126	The Steel Thru Truss is located in Spans 4, 5, and 6. The truss members have areas of heavy section loss, pack rust, holes in gusset plates, and rusted out rivets, all are due to the age of the structure, lack of timely painting, lack of maintenance, and location above saltwater. The truss has some impact damage to verticals, diagonals, and sway frames, some of which have been heat straightened. The following lists areas where fracture critical members have up to 100% section loss: NORTH TRUSS Span 5: Member L1-L2, at L1 - Vertical leg of north top angle flange. Member L1-L2, at L2 - Vertical leg of south bottom angle flange. Member L2-L3, at L2 - All (4) bottom chord horizontal angle flanges. Member L3-L4, at L3 - Both bottom chord top angles. Member L4-L5, at L4 - All (4) bottom chord horizontal angle legs, bottom tie plate and (14) rivet heads. Member L4-L5, at L5 - North top horizontal angle flange. Member L5-L6, at L5 - All (4) bottom chord horizontal angle flanges, and top tie plate. Member L5-L6, at L6 - All (4) bottom chord horizontal angle flanges. Member L6-L7, at L6 - All bottom chord top horizontal angle flanges. SOUTH TRUSS Span 5: Member L1-L2, at L1 - Top north horizontal angle leg. Member L1-L2, at L2 - Bottom north horizontal angle leg. Member L2-L3, at Splice - Both interior web splice plates. Member L4-L5, at L5 - South bottom horizontal angle flange. Member L5-L6, at L5 - All (4) bottom chord horizontal angle flanges. The following are a few specific areas of note in 'non' fracture critical members: Span 4: L0, south truss significant section loss in the gusset plate along the diagonal. Several corrosion holes. See photo #141. REPAIR #10019. Up to 3/4" of pack rust along both gusset plate to member seams, (5) total rivets distressed. Span 5: At U3 - Upper sway brace over the westbound lane is missing the top flange. At U4 - Sway brace over the westbound lane has a similar defect. These two locations represent the worst cases of several, see photo #26. REPAIR #10011. L3-U3 - inside channel at 13 ft. above deck has section loss of 30% on the web, see photo #127. South truss, U1, 3/4" pack rust between the gusset plates and the member, causing 3/4" deflection along the plate edge, to 3" back. Stressing rivet line. Span 6: South truss, span 6, at L2, 3/4" pack rust between the exterior gusset plate and member with 1/8" section loss to gusset plate and member. Sim along the interior gusset plate, 1/2" pack rust and 1/8" section loss to gusset plate and member. Deficiencies in Verticals and Sways in Span 4 at Pier 5 and Span 6 at Pier 6 were ignored in this report. These were used as tower supports for the abandoned counterweight and gate supports for the now stationary Lift Span 5, please note the Span 5 verticals at Piers 5 and 6 are still load bearing compression members.

133	Significant section loss and/or deformation in several gusset plates due to pack rust and laminar corrosion. Section loss in critical areas, up to 50 percent of plate thickness. Non-Fracture critical truss notes: North truss Span 4, L2-U2, the vertical member flanges are corroded to a knife edge, behind the upper cantilevered floor beam ties. North Span 5 at L3 - The south vertical gusset has (2) corrosion hole up to 2" in diameter.
152	Many of the floor beams have heavy laminar rust in the top flanges, rusted rivet heads at bottom rivet line, a few locations of rust pack in vertical stiffeners, and knife edging of the lateral gussets. The floor beams located in the truss spans are considered fracture critical. See the fracture critical report for all deficiencies. Several significant deficiencies are listed below: Significant section loss in the top flanges and tie plates over the trusses. In some cases up to 100% loss, see photo # 140, REPAIR #10004. Span 4, the web of FB0 is rusted through horizontally along a line 10" below the top flange over the majority of the member, see photo #118. REPAIR #10004. Span 6, FB2, there has been some movement at this pier. It is not clear what has moved. The span 7 girder end knife plate type bearing sits between upper and lower chair style bearings that are mounted to the floor beam. The horizontal plate in the upper chair bearing is bending around the girder end knife plate, see photo #142 and #143. Additionally the adjacent floor beam web has bowed 1" over its height. See photo #144. Also the pier cap and web wall below are cracked. REPAIRS #10033 and #10034. This damage has not been reported in prior inspection reports. Floor beams in remaining spans. Span 2, FB1 over Girder 2C, on the east face, there is a 7-1/2" horizontal crack, see photo #101. No change noticed in 2009. REPAIR #10006.
212	The Concrete Submerged Pier Walls are located at Piers 2, 3, 8, and 9. Pier 8 on the west face has a 4 ft. vertical rebar exposed due to lack of cover. Pier 8 is abraded at the waterline and per the underwater inspection report has eroded concrete with several rebars exposed on the south face from the footing upward 6 ft., see photo #32. Pier 8 on the NW has a 6 ft. x 4 ft. x 2" deep spall/delamination near the base, see photo #90. Pier 9 has vertical leaching cracks and on the east face and has a fire spall 6 ft. x 4 ft. x 4" deep with exposed rebar.
214	Concrete Web Walls are located at Piers 4, 5, 6, and 7. Pier 4 east face has a 1/2" open vertical crack near the bottom of the wall, see photo #87. Span 4: pier 4 has a 2' concrete wall in the web bottom. The Pier 6 west face near the south end has several delaminations up to 4 ft. x 3 ft. and also has a spall 3 ft. x 1 ft. x 2" deep with two exposed rebars. The Pier 7 south end of web wall near the top of the west face has an 18" diameter x 4" deep spall with 12" of exposed rebar. The Pier 7 near the bottom of the east face has an 8 ft. long x up to 3/4" wide vertical crack and an 18" x 10" x 5" deep spall. The Pier 7 web wall at the bottom on the east face near the south end has a 4 ft. x full width x 12" spall. Pier 7 under notes for floor beam, see span 6 floor beam 2 notes for additional cracking in pier 7 wall. Span 8: pier 9 has a vertical crack on the west face.
215	The west concrete abutment has a few hairline cracks.

220	Defects are above footings. 06/14/2011: exposed pile cap at piers 8 & 9, see photos #135, 136.
227	Piers 4, 5, 6, and 7 have two outside concrete submerged columns with a web wall between. See attached dive report for additional photos. The Piers 4, 6, and 7 columns are abraded at the water line up to 6" deep and have eroded concrete just below web wall up to 8" deep, see photo #86. Columns 7A and 7B at the tops have hairline to narrow vertical leaching cracks.
234	The concrete pier caps at the ends have heavy leaching and hairline to narrow pattern cracks. All the truss piers have hairline to narrow vertical leaching cracks. The Pier 4 cap on the west side near the center has an 18" x 5" x 5" deep lower edge spall. The Pier 7 cap soffit at the anchor bolt locations has spalls that are typically 8" diameter x 2" deep. The Pier 7 cap on the north end of the west side has narrow cracks and an 18" x 6" triangular delamination. Pier 7, under floor beam notes, see the notes for span 6, floor beam 2, for more cap comments.
266	The concrete sidewalk outside edges have vertical cracks with exposed rebars. The sidewalk top surfaces and soffits, especially in the east approach spans have hairline transverse cracks, delaminations, and narrow spalls with exposed rebars. The curbs, especially on the north side of the approach spans, have narrow spalls up to full height with vertical rebars exposed due to lack of cover. The soffits at the slab spans have widespread spalling and delaminations. Specific defects noted: NW sidewalk approach has a 5/8" 'toe tripper'. SW sidewalk approach has an 1-1/2" 'toe tripper', see photo #57. REPAIR #10027. Span 2 south soffit has a 12" x 8" delamination. Truss spans sidewalk supports have up to 1" of pack rust between the channels, see photo #92. Span 4 north edge at a bent pedestrian rail post has a wide crack. See element note 340. Exposed rebar in sidewalk soffit north of floorbeam 2. Exposed rebar in sidewalk soffit between stringers A&B, north side at floorbeam 3. Span 4: sidewajk brace missing two rivets at its connection with Floorbeam 3 on north side at Pier 5. Pier 5 north sidewalk outrigger has two missing rivets at the truss connection. Span 6 north sidewalk top flange channels are rusted to a knife edge.
310	The west abutment elastomeric bearings are live load bearings only. Bearing 1A has a keeper plate but is not working effectively. The bearing has rotated counterclockwise and extends 1/2" past the top plate at the SW, NE, and SW corners. The pad extends 1" past the top plate at the NW corner, see photo #3. Bearing 1C pad is gone and replaced with a wood 2 x 8 and a steel shim that is falling out, see photo #129. REPAIR #10015.
311	STRINGER BEARINGS: Pier 2 rocker bearings are tilted to the expansion direction and are within bearing design limits. Pier 5 north side angle plate has two popped rivets due to pack rust swelling, see photo #96. Span 5 L7b, south pin retainer nut missing.

313	Verify bearing notes are accociated with the correct locations, during next inspection, 2013. Bearing 3B SW nut has 1/4" of laminar rust. Bearing 4A web plate is rusted through. The SE anchor nut has an 1-1/2" gap, see photo #98. Bearing 4B south side anchor nuts are gapped up to 1" and have about 40% section loss. Span 5, L0b, south pin retainer nut missing. One bearing anchor rod bolt is severed. Bearing 5A, both bearing pin retainer nuts are missing. Piers 5, 6, and 7 bearing anchor bolts have up to 50% section loss. Bearing 6A vertical plate is rusted through, see photo #93. Bearing 6B vertical stiffener plates and the row of bottom rivets have up to 50% section loss. Span 6, South L0, vertical stiffener plates and the row of bottom rivets have up to 100% section loss, painted over. Bearing anchor rods have 40% loss near their bases, painted over. Pier 7 NE bracket bearing grout pads are missing, see photo #89. Bearings 7A, 7B, and 7C, supporting Span 7, all have about 1" of pack rust distorting the top plates, see photo #88. Bearing 7C SE nut has a 1" gap. 06/14/2011: Pier 7 bearing pads have pack rust.
321	The west approach slab has about 250 sf. of failed patching that is up to 1-1/2" thick at the abutment joint.
322	The west approach ACP ramp is worn and spalled out 1" deep in the wheel lines, see photo #22. REPAIR #10009.
330	The Metal Bridge Rail is generally in poor condition, many areas of the chain link are torn or distorted. The rail posts near the angle connections are typically rusted with up to 50% section loss and up to 1" of pack rust, see photo #70. REPAIR #10021. Several of the rail posts are missing rivets. Some of these missing rivets have been replaced with bolts, see photo #110. REPAIR #10021. Specific problems are as follows: Span 7 (south), Pier 11 (south), and Pier 12 (north) rails all have 3" x 1" rust holes near the bases. REPAIR #10021. Span 7 south chain link is detached, see photo #63. REPAIR #10021. Span 7 north rail is bent 1 ft., see photo #64. REPAIR #10021. Span 8 north rail post is bent 6" over 3 ft. and has detached chain link,see photo #66. REPAIR #10021. 06/14/2011: Sidewalk handrail damaged at Bent 9, south side. Sidewalk handrail damaged at span 8, north side. The sidewalk railing vertical supports have pack rust entire truss structure.
340	The metal pedestrian railings are located in the Truss Spans 4, 5, and 6. The Span 4 north rail post has been pushed out 1 ft., the rail angles have buckled at the sidewalk connection, see photos #49 and #95. North handrail paint peeling. North & south handrails do not meet current code. Span 10: north handrail damage with no warning system. Span 4: pedestrian handrail impact damage north side. 06/14/2011: Handrail damage at Pier 10 with no warning sign, see photo #137.
355	Damaged and/or missing rivets in steel riveted girders, in the steel thru truss, in the sidewalk outriggers, and in steel bridge rail. 06/14/2011: Span 5: sway bracing between girders 2 and 3 has pack rust along top cord.
357	Pack rust on bridge. See element notes 91, 126, 266, 311, 313, and 330.
361	The Puyallup River is tidally influenced. Piers 2 through 9 are considered to be in ordinary high water. Woody debris continues to collect on all piers in the water, see photo #52. REPAIR #10014. Pier 3 footing had a maximum vertical exposure of 0.9 ft. in the northwest corner. Pier 8 footing has previously been reported as being undermined. The 2009 underwater inspection found no undermining but it had full height vertical exposure on the SE corner of 9.3 ft., see photo #83. See element note 9. REPAIR #10012. Pier 9 footing has 1 ft. of vertical exposure at the NW corner, see photo #84.
362	Many of the steel through truss sway braces have sustained traffic impacts and have been heat straightened. 06/14/2011: Impact damage at west portal, pier 5.

402	All the pourable seals leak. Pier 2 joint seal is pushed down over a 6 ft. length. In the eastbound lane there is a 12" x 2" x 1/2" deep spall. Pier 3 joint seal is pushed down over the entire eastbound lane and over half of the westbound lane. Span 6 joint seal is pushed down over the entire eastbound lane and over half of the westbound lane. This joint has two 'D' spalls that are about 8" x 4" x 1" deep.
407	The steel angle header joints are located at the west abutment, Pier 4, Pier 5, and Pier 6. West abutment steel angle header joint near the centerline is missing a section of riser bar, see photo #56. Pier 4 joint vertical steel surfaces have up to 1/4" thick laminar rust. See attached spreadsheet for joint measurements.
660	According to the 2007 load rating performed by KPFF Consulting Engineers the AASHTO 1 rating is 0.70 (17.3 Tons), the AASHTO 2 rating is 0.74 (26.6 Tons), and the AASHTO 3 rating is 0.85 (34 Tons). The birdge has been posted, see photo #130. REPAIR #10024, verified 2009.
663	The NBI Deck code is a '74 due to condition of grid deck and soffit spalling of concrete spans.
664	Many of the drains are plugged. The drain ends are typically rusted through. Span 2 on the north side is missing two drain grates, see photo #58. REPAIR #10020.
671	The NBI Superstructure code is a '3' due to the significant section loss in the truss bottom chords and in the east approach spans steel stringers above the bearings. Also based on the condition of some of the fracture critical members such as the 4" crack in the weld in Member U3-M3.5.
675	The south overhang has a 16" diameter water line that extends from the west abutment to Span 10. The north overhang has eighteen 4" diameter PVC conduits that extend from the west abutment to Span 10. In Span 5 three of these PVC conduits are disconnected, see photo #97. REPAIR #10022.
676	The NBI Substructure code is a '4' due to the Piers 3, 8, and 9 exposed footings as well as due to the submerged column and pier wall spalls with exposed reinforcement.
677	The east bank directly south of the bridge is eroded over a 30 ft. length. The remainder of the channel has well vegetated banks.
680	Per the City of Tacoma, have pile supported piers.
682	The retaining walls are located at the west end of the bridge. Both retaining walls have a few hairline vertical cracks.
684	The bridge rails have not been crash tested and do not meet current standards.
685	There are no transitions.
686	The metal bridge rails extend beyond the bridge.
687	There are no terminals.
688	A load rating was performed in 2007, copy is attached to the 'Files' tab.
901	This bridge has a history of severe rusting problems. It is evident that the most recent paint job (1988) was applied over rusted areas without proper preparation. This allowed further corrosive action to continue unabated. Rust is prevalent at the connections. Failure of paint protection is especially evident inside the bottom chords at the panel points, and in the web of FB0 in Span 4.
905	The coal tar epoxy paint system was installed over several of the east approach spans girders and stringers. These spans were above the old railroad lines.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10009	0	J		11/19/03		

10027	0	J	11/05/07
10001	1	B	11/27/00
10002	1	B	11/27/00
10004	1	B	11/27/00
10005	1	B	11/27/00
10011	1	B	11/19/03
10012	1	B	11/19/03
10014	1	B	11/22/05
10016	1	B	11/23/05
10019	1	B	11/23/05
10021	1	B	11/05/07
10023	1	B	11/05/07
10029	1	B	06/26/13
10030	1	B	06/26/13
10031	1	B	06/26/13
10032	1	B	06/26/13
10033	1	B	06/26/13
10035	1	B	06/26/13
10015	2	B	11/23/05
10018	2	B	11/23/05
10020	2	B	11/05/07
10022	2	U	11/05/07
10025	2	B	11/05/07
10006	M	B	08/07/11

10034 M B 06/26/13

Inspections Performed and Resources Required

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
Routine	06/26/13		24	6.0	DRS	G0604	ALP	

Resources	Use	Hour	Min	Req	Max	Notes
Flagging	LA					Contact Dan Soderlind at 253-591-5263 of the City of Tacoma to set up flagging. In 2009 the bridge was closed for the inspection.
Safety Issues	TRAN		TRAN	TRAN	TRAN	There is a transient camp near the west abutment. See photo #53.

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
Fracture Critical	06/26/13		24	18.0	DRS	G0604	ALP	Odd year inspections are full fracture critical inspections.

Resources	Use	Hour	Min	Req	Max	Notes
UBIT	50	14.00	30	50	60	UB50 only for truss. Truss too tight for 62 (30 ft. only if 50 ft. is unavailable). UB62 is preferred for the east approach bridge which is approximately 1/2 mile long.
Bucket	BK	3.50	BK	BK	BK	Bucket truck used for inspection of truss members above the deck. It is also needed to access Span 49 (Milwaukee Ave.) due to power lines close to the south edge. The UB62 may be used on the east approach only to reach the south edge.
Flagging	LA					Contact Dan Soderlind at (253) 591-5263 of the City of Tacoma to set up flagging. In 2009 the bridge was closed for the inspection.
Scheduling Restrictions	TRFC					The bridge can be closed from 9:00 am to 3:00 pm weekdays
Third Party Notification	OT		OT	OT	OT	For access into the Maersk terminal contact Marvin Ferreira, security manager at 253-680-4416 (office) or 253-377-1321 (cell). Contact him even if you do not land in the secured area (Spans 12 through 30). The Maersk parking lot at the east end of the east approach does not require contacting Maersk security. In 2007 Maersk security assisted with traffic control at Spans 12, 26, 31, and 32.
Safety Issues						Power lines to the south of the truss need to be shut down to safely deploy off the south side. Contact Dan Soderlind at (253) 591-5263 of the City of Tacoma. Use UB62 for the Port of Tacoma section (east approach) to reach the south side with no power cut.

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
Underwater	09/19/13	D	24	2.5	SDS	G9912	EBV	Echelon Engineering performed the underwater inspection on 9/19/2013.

Resources	Use	Hour	Min	Req	Max	Notes

Bridge No. 5098 Page: 13/13 **Structure Type** SLS STrus SG CS

Bridge Name E. 11th STREET Truss **Route** 50950 **Location** 2.5 N JCT I-5

Structure ID 0006069A **MilePost** 1.16 **Intersecting** PUYALLUP WATERWAY RR

Interim	06/26/13	12	0.5	ALP	G0507	Interim inspection created for even year inspections of the bottom chords and approach span floor beams. Increase frequency to 24 months after 2014 inspection.

Resources	Use	Hour	Min	Req	Max	Notes

Informational	12/27/13		1.0	ALP	CAM	Informational created to update notes and several bms elements.

Resources	Use	Hour	Min	Req	Max	Notes

BRIDGE INSPECTION REPORT

Ver Date: 01/22/2014 Agency: TACOMA

Status: Released Printed On: 10/03/20 Program Mgr: Roman G. Peralta

Bridge No. 5098A Page: 1/6 **Structure Type**

Bridge Name 11th St. Viaduct **Route** 50950 **Location** Puyallup River Crossing

Structure ID 08814000 **MilePost** 1.17 **Intersecting** Milwaukee Way

Inspector's Signature ALP IDent# G0507 Co-Inspector's Signature

4		Structural Adqcy	(657)	N		Pier/Abut/Protect	(679)	1930	Year Built	(332)	
6		Deck Geometry	(658)	N		Scour	(680)	0	Year Rebuilt	(336)	
3		Underclearance	(659)	7		Retaining Walls	(682)	31		Oper Rating	(551)
5		Operating Level	(660)	9		Pier Protection	(683)	19		Inv Rating	(554)
8		Alignment Adqcy	(661)	0		Bridge Rails	(684)	P		Open Close	(293)
9		WaterwayAdqcy	(662)	0		Transition	(685)	9999		Vert Over Deck	(360)
4		Deck Overall	(663)	0		Guardrails	(686)	1502		Vert Under	(374)
6		Drains Condition	(664)	0		Terminals	(687)	H		Vert Und Code	(378)
4		Superstructure	(671)	Y		Revise Rating	(688)	0.00		Asphalt Depth	
2		Number Utilities	(675)			Photos Flag	(691)	35		Speed Limit	
5		Substructure	(676)	N		Soundings Flag	(693)				
9		Chan/Protection	(677)			Measure Clearance	(694)				
9		Culvert	(678)								

Inspections Performed

IT	NT	HRS	Date	Rep Type
Y	24	10.0	06/26/2013	Routine
				Fract Crit
				Underwater
				Special
Y	12	0.5	06/26/2013	Interim
				Equipment
				Damage
				Safety
				Short Span

Total: 1.0

Suff Rating: 40.46 SD 40.46 SD

BMS Elements

Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	82560	SF	80560	0	2000	0
13	Bridge Deck Surface	4840	SF	4005	50	700	85
35	Concrete Deck Soffit	93000	SF	83000	0	5000	5000
38	Concrete Slab	4840	SF	4830	0	10	0
90	Steel Rolled Girder	6750	LF	6750	0	0	0
91	Steel Riveted Girder	600	LF	378	0	0	222
113	Steel Stringer	9644	LF	9319	0	0	325
152	Steel Floor Beam	5148	LF	4881	0	238	29
202	Steel Pile/Column	134	EA	133	0	1	0
205	Concrete Pile/Column	8	EA	0	8	0	0
210	Concrete Pier Wall	80	LF	70	0	10	0
219	Concrete Cantilevered Span Abutment	1	LF	1	0	0	0

221	Concrete Pile Cap/Footing	140	EA	140	0	0	0
231	Steel Pier Cap/Crossbeam	2444	LF	2444	0	0	0
234	Concrete Pier Cap / Crossbeam	312	LF	309	0	3	0
266	Concrete Sidewalk & Supports	28756	SF	20876	0	7524	356
311	Moveable Bearing (roller, sliding, etc)	72	EA	55	0	5	12
321	Concrete Roadway Approach Slab	1200	SF	1000	0	200	0
330	Metal Bridge Railing	4356	LF	3329	35	792	200
357	Pack Rust	32	EA	7	10	15	0
408	Steel Sliding Plate	240	LF	100	50	90	0
705	Bridge Luminaire Pole and Base	10	EA	6	0	0	4
901	Red Lead Alkyd Paint System	277200	SF	214700	37500	25000	0

Notes

0	Interim inspection created to monitor distressed stringer ends and beam seats. The bridge is oriented from the west to the east with the west abutment being closest to downtown Tacoma. This structure was originally 67 spans long, starting from span 1 on the west side of the river and ending at span 67 on the east side of the river. In April of 2010 the single structure was separated into two separate structures, 5098 and 5098. For convenience the original span numbering was kept: 5098 starts on the east side of the river with span 1 and finishes on the west side of the river with span 8. 5098a starts with span 9 and finishes with span 65. The last span is cantilevered. This report documents 5098a Span 9 is over the tribal boat launch. Span 11 is over a local road. Span 12 is over a busy port access road. Spans 13 through 30 are over Maersk secured property. Spans 26, 31, and 32 are over Maersk access roads (Spans 31 and 32 over parking lot access). Span 49 is over Milwaukee Ave.
12	Generally wore down to aggregate in the wheel lines. Narrow to wide transverse cracks over the piers Patches where the light rail has been pulled out of the interior lanes, see photo #42.
13	Bridge Deck Surface: For slabs spans 57 through 62. Heavy cracking through out surface. Failing patches where the light rail has been pulled out of the interior lanes, see photo #127. REPAIR #10018.
35	Numerous concrete spalls on bottom soffit in spans 12 thru 51, see photo #128. Numerous small to medium sized delams throughout the deck soffit. Span 36, between girders A and B, there is a heavily corroded drain pipe that is near failure and could fall. Should be removed.

38	Concrete Slab: Spans 57 through 62. Slab edges have hairline vertical and pattern leaching cracks. At the thicker slab locations there is heavy leaching with stalactites. Span 59 soffit, at the south edge near Pier 60, there are two spalls with exposed rebars, the largest spall is 4 ft. long x 12" wide x 1" deep with 3 ft. of exposed rebar, see photo #77. REPAIR #10025.
90	Steel Rolled Girders: Spans 9-32 Spans 34-48 Spans 50 -56 Rolled girders have surface rust in a few locations.
91	Steel Riveted Girders: Spans 33 and 49. There are three lines of steel riveted girders, each supported by a column. High impact damage to Girder C Span 49 at Milwaukee Way, see photo #131. Previous to the 2013 report it appears there has been no mention of a high load hit to girder 33A, however there is a reference to a high load hit to girder 33A in repair #10001, made in 2007. A high load hit has bent the girder 33A flange and web approximately 5" to the south along a 40' length near midspan. No cracking in the girder itself was observed. A vertical angle iron stiffener was cracked along the full length of its valley. If not previously done, analysis of the girder is required to determine loss of capacity. Girder 33A is a exterior girder and due to the lane restrictions above, may not get heavy live load.
113	There are six main lines of steel stringers and two smaller stringer lines below each sidewalk edge. The expansion ends of many stringers directly above the movable bearings have severe section loss in the last one foot of each stringer, up to 100%. Piers 22, 31, 34, 37, 41, 45, and 48: The vertical legs of the stringer expansion end saddle supports are riveted to clip angles, which connect to the floor beams. There is significant section loss in the vertical saddle legs and thick pack rust between the vertical saddle legs and the clip angles. This significantly reduces the capacity of the stringer to floor beam connection. In some cases the stringer connection has no capacity and the deck appears to be spanning. See photos #23 and #24. REPAIR #10000. Bent 22, span 22, all stringers, up to 1" of pack rust between the saddle vertical legs and clip angle connections, 2 of 6 rivets connecting each saddle leg to clip angle are distressed, at each stringer. See picture #134. Bent 22, stringer 22b, the stringer end material that would bear on the saddle has 100% section loss. Both saddle legs have 5/32" of 7/16" thickness remaining. Bent 31, span 30, all stringers, up to 1/2" of pack rust between the saddle vertical legs and clip angle connections, stressing riveted connection. Bent 34, Stringer 34b, one vertical saddle leg is severed from its clip angle connection. Saddles at 34c, d, and e are also heavily corroded with up to 60% section loss. Bent 37, Stringer 37b, one vertical saddle leg is severed from its clip angle connection 1. The stringer end material that would bear on the saddle has 100% section loss. See picture #133 Bent 41 Stringer 41B, one vertical saddle leg is severed from its clip angle connection, the other side has 75% section loss. Vegetation growing at its saddle support, which is typical at many locations, see photo #130. Bent 45, stringer 45c, 75% section loss to thickness of both vertical saddle legs.
152	Some of the floor beams have heavy laminar rust in the top flanges, rusted rivet heads at bottom rivet line, a few locations of rust pack in vertical stiffeners, and knife edging of the lateral gussets.
202	The steel columns have a few minor scrapes. Many of the grout pads on the pedestals are spalled. Column 22C at the base has a traffic hit with a flange bent 4" out of plane, see photo #107.

205	Column 14c, the south anchor bolt is bent from a impact to the column in the lower sw corner. No other distress was observed. Column 16c, minor edge spalling. Columns below the end slab spans are not visible and are not counted in the BMS quantities.
210	The Piers 57 and 58 pier walls have hairline vertical cracks. Pier 57 north end is cracked with heavy leaching.
219	The east abutment is a concrete cantilevered span abutment.
221	There are concrete pedestal footings underneath all the steel columns and at Piers 55 and 56.
231	There are 52 ft. steel pier caps located at 47 piers. All the steel caps in the top flanges have surface rust.
234	The concrete pier caps at the ends have heavy leaching and hairline to narrow pattern cracks. All the truss piers have hairline to narrow vertical leaching cracks.
266	The concrete sidewalk outside edges have vertical cracks with exposed rebars. The sidewalk top surfaces and soffits have hairline transverse cracks, delaminations, and narrow spalls with exposed rebars. The curbs have narrow spalls up to full height with vertical rebars exposed due to lack of cover. The soffits at the slab spans have widespread spalling and delaminations. Specific defects noted: Sidewalk Stringer 11A has a high load impact in two places with the bottom flange bent up to 3" over 7 ft. and a 9" web tear, see photos #109 and #25. Piers 37 north and south and the Pier 41 north sidewalk stringers on the east sides have less than 2" x 2" support areas. The gusset connections and guide bolts located at other expansion locations are not connected at these piers, see photos #36, #37, #50 and #51. REPAIR #10016. REPAIR #10028. Piers 59, 60, and 61 south sidewalk supports on the west faces have spalls with vertical rebars exposed due to lack of cover, see photo #76. Span 61 south exterior concrete stringer has a 3 ft. x 3" x 2" deep lower edge spall with 3 ft. of exposed rebar.
311	SLIDING BEARINGS: The stringer ends at joints have sliding bearings with saddle supports. Many of these supports have rusted through and have popped rivets, see element 113, REPAIR #10000. The girder end bearing hold down bolts have undersized or failed washers, see photo #126. Pier 11 laminar rust around the guide bolts and in the front edges. Bearing 12A has loose hold down bolts. Bearing 22A has lost a hold down bolt, see photo #108. Bearing 41C has lost a hold down bolt and has a failed washer on the remaining bolt, see photo #125.
321	The west approach slab has about 250 sf. of failed patching that is up to 1-1/2" thick at the abutment joint.
330	The Metal Bridge Rail is generally in poor condition, many areas of the chain link are torn or distorted. The rail posts near the angle connections are typically rusted with up to 50% section loss and up to 1" of pack rust, see photo #70. REPAIR #10021. Several of the rail posts are missing rivets. Some of these missing rivets have been replaced with bolts, see photo #110. REPAIR #10021. Specific problems are as follows: Span 9 north rail post is bent outward 18", see photo #68. REPAIR #10021. Pier 12 south rail near the base has a 13" vertical crack in the 6" x 3" x 1/2" angle supporting the rail post, see photo #82. REPAIR #10021. Span 33 south rail has 2 x 4's installed over a 35 ft. length, see photos #73 and #112. REPAIR #10021. Pier 43 south post is bent clockwise about 8", see photo #74. REPAIR #10021. 06/13/2011: Span 11 at Pier 12 high impact damage for 12', see photo #129.
357	Pack rust on bridge. See element notes 91, 126, 266, 311, 313, and 330.

408	Most of the joint steel sliding plates have welded pieces at the former light rail locations. All joints need repair, see photo #132. REPAIR #10004. Pier 9 joint in the eastbound left lane has 7" of header broken at a former light rail location, see photo #67. Pier 22 joint in the westbound lane has 7" of header missing at a former light rail location, see photo #69. Pier 31 joint in the eastbound lane has 6" of riser bar missing, see photo #72. Pier 48 joint in the eastbound lane has a 10" x 4" patch and a similar sized spall that is 1/2" deep. See attached spreadsheet for joint measurements.
705	The Pier 24 south luminaire north flange is cracked at the sidewalk level, see photo #111. REPAIR #10003. The Pier 35 south luminaire north flange is cracked at the sidewalk level, see photo #38. REPAIR #10003. The Pier 37 south luminaire on the east web at the sidewalk level is missing an anchor nut and has a rusted through NE flange, see photo #113. REPAIR #10003. The Pier 41 north luminaire at the sidewalk edge is missing the east flange horizontal anchor bolt. The remaining anchor bolt has about 50% section loss, see photos #39 and #104. REPAIR #10003.
901	Areas of surface rusting on most members, significant paint deterioration stringer ends, their supports, and adjacent floor beam areas.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10000	1	B		11/19/03		
10001	1	B		11/05/07		
10002	1	B		11/05/07		
10005	1	B		06/26/13		
10006	1	B		06/26/13		
10007	1	B		06/26/13		
10008	1	B		06/26/13		
10003	2	B		11/23/05		
10004	2	B		06/13/11		

Inspections Performed and Resources Required

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
Routine	06/26/13		24	10.0	DRS	G0604	ALP	As of April 2010 bridge 5098 has been divided into two bridges. Bridge 5098 consists of piers 1 through 9. Bridge 5098A consists of all remaining piers.Inspection should cover both bridges at one time.

Resources	Use	Hour	Min	Req	Max	Notes
Flagging	LA					Contact Dan Soderlind at 253-591-5263 of the City of Tacoma to set up flagging. In 2009 the bridge was closed for the inspection.
Safety Issues	TRA N					

Bridge No. 5098A Page: 6/6 **Structure Type**

Bridge Name 11th St. Viaduct **Route** 50950 **Location** Puyallup River Crossing

Structure ID 08814000 **MilePost** 1.17 **Intersecting** Milwaukee Way

Interim	06/26/13	12	0.5	ALP	G0507	Interim inspection created for even year inspections of the stringer to floorbeam connections located below deck joints. Change interim inspection frequency to 24 months after 2014 inspection.

Resources	Use	Hour	Min	Req	Max	Notes

Informational	01/07/14		1.0	ALP	G0507	Informational created to update notes

Resources	Use	Hour	Min	Req	Max	Notes