

HistoricBridges.org - National Bridge Inventory Data Sheet

2013 Inventory

The National Bridge Inventory contains data submitted by state transportation 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]	0.2 N JCT I-5	47-14-35.47 = 47.243186	122-24-18.48 = -122.405133
86563000000000	Highway agency district	3	Owner	City or Municipal Highway Agency [04]	Maintenance responsibility
City or Municipal Highway Agency [04]					
Route	3246		PUYALLUP AVENUE	Toll	On free road [3]
Features intersected	RAILROAD				
Design - main	Steel [3]	Design - approach		Kilometerpoint	1461 km = 905.8 mi
1	Truss - Thru [10]	0	Other [00]	Year built	1925
				Year reconstructed	N/A [0000]
				Skew angle	43
				Structure Flared	
				Historical significance	Bridge is not eligible for the NRHP. [5]
Total length	59.7 m = 195.9 ft	Length of maximum span	59.7 m = 195.9 ft	Deck width, out-to-out	14 m = 45.9 ft
Bridge roadway width, curb-to-curb	11 m = 36.1 ft	Inventory Route, Total Horizontal Clearance	11 m = 36.1 ft	Curb or sidewalk width - left	1.5 m = 4.9 ft
Curb or sidewalk width - right	1.5 m = 4.9 ft	Deck structure type	Concrete Cast-in-Place [1]		
Type of wearing surface	Monolithic Concrete (concurrently placed with structural deck) [1]				
Deck protection					
Type of membrane/wearing surface					

Weight Limits

Bypass, detour length	Method to determine inventory rating	Allowable Stress(AS) [2]	Inventory rating	29.7 metric ton = 32.7 tons
0.5 km = 0.3 mi	Method to determine operating rating	Allowable Stress(AS) [2]	Operating rating	49.5 metric ton = 54.5 tons
Bridge posting	20.0 - 29.9 % below [2]	Design Load	MS 18 / HS 20 [5]	

Functional Details

Average Daily Traffic	17800	Average daily truck traffi	5	%	Year	2010	Future average daily traffic	32000	Year	2030
Road classification	Other Principal Arterial (Urban) [14]		Lanes on structure	3		Approach roadway width	11 m = 36.1 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	Railroad [2]		Lanes under structure	0		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	4.29 m = 14.1 ft			
Minimum lateral underclearance reference feature	Railroad beneath structure [R]									
Minimum lateral underclearance on right	6.9 m = 22.6 ft					Minimum lateral underclearance on left	0 = N/A			
Minimum Vertical Underclearance	7.19 m = 23.6 ft		Minimum vertical underclearance reference feature	Railroad beneath structure [R]						
Appraisal ratings - underclearances	Superior to present desirable criteria [9]									

Repair and Replacement Plans

Type of work to be performed

Work done by

Bridge improvement cost

0

Roadway improvement cost

0

Length of structure improvement

0 m = 0.0 ft

Total project cost

0

Year of improvement cost estimate

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 corrective action [3]
Condition ratings - superstructure	Serious [3]	Appraisal ratings - roadway alignment	Equal to present desirable criteria [8]
Condition ratings - substructure	Fair [5]	Appraisal ratings - deck geometry	Basically intolerable requiring high priority of replacement [2]
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	17.6
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	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]	0.2 N JCT I-5	47-14-35.48 = 47.243189	122-24-18.58 = -122.405161
85011000000000	Highway agency district	3	Owner	City or Municipal Highway Agency [04]	Maintenance responsibility
City or Municipal Highway Agency [04]					
Route	3246	PUYALLUP AVENUE	Toll	On free road [3]	Features intersected
PUYALLUP RIVER					
Design - main	Steel [3]	Design - approach		Kilometerpoint	1485 km = 920.7 mi
3	Truss - Thru [10]	0	Other [00]	Year built	1925
				Year reconstructed	N/A [0000]
				Skew angle	43
				Structure Flared	
				Historical significance	Bridge is not eligible for the NRHP. [5]
Total length	232.9 m = 764.1 ft	Length of maximum span	76.8 m = 252.0 ft	Deck width, out-to-out	14 m = 45.9 ft
Bridge roadway width, curb-to-curb	11 m = 36.1 ft	Inventory Route, Total Horizontal Clearance	11 m = 36.1 ft	Curb or sidewalk width - left	1.5 m = 4.9 ft
Curb or sidewalk width - right	1.5 m = 4.9 ft	Deck structure type	Concrete Cast-in-Place [1]		
Type of wearing surface	Monolithic Concrete (concurrently placed with structural deck) [1]				
Deck protection					
Type of membrane/wearing surface					

Weight Limits

Bypass, detour length	Method to determine inventory rating	Allowable Stress(AS) [2]	Inventory rating	29.7 metric ton = 32.7 tons
0.5 km = 0.3 mi	Method to determine operating rating	Allowable Stress(AS) [2]	Operating rating	49.5 metric ton = 54.5 tons
Bridge posting	Equal to or above legal loads [5]	Design Load	MS 18 / HS 20 [5]	

Functional Details

Average Daily Traffic	17800	Average daily truck traffi	5	%	Year	2010	Future average daily traffic	26879	Year	2035
Road classification	Other Principal Arterial (Urban) [14]		Lanes on structure	3		Approach roadway width	11 m = 36.1 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	4.34 m = 14.2 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	Work done by	Work to be done by contract [1]		
Bridge rehabilitation because of general structure deterioration or inadequate strength. [35]	Bridge improvement cost	387000	Roadway improvement cost	39000
	Length of structure improvement	232.9 m = 764.1 ft	Total project cost	581000
	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	Satisfactory [6]	Appraisal ratings - deck geometry	Basically intolerable requiring high priority of replacement [2]
Condition ratings - deck	Fair [5]		
Scour	Bridge foundations determined to be stable for assessed or calculated scour condition. [5]		
Channel and channel protection	Bank protection is in need of minor repairs. River control devices and embankment protection have a little minor damage. Banks and/or channel have minor amounts of drift. [7]		
Appraisal ratings - water adequacy	Equal to present desirable criteria [8]	Status evaluation	Structurally deficient [1]
Pier or abutment protection		Sufficiency rating	41.9
Culverts	Not applicable. Used if structure is not a culvert. [N]		
Traffic safety features - railings			
Traffic safety features - transitions	Not applicable or a safety feature is not required. [N]		
Traffic safety features - approach guardrail	Not applicable or a safety feature is not required. [N]		
Traffic safety features - approach guardrail ends	Not applicable or a safety feature is not required. [N]		
Inspection date	June 2013 [0613]	Designated inspection frequency	24 Months
Underwater inspection	Unknown [Y60]	Underwater inspection date	September 2008 [0908]
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]	0.2 N JCT I-5	47-14-35.47 = 47.243186	122-24-18.46 = -122.405128
86562000000000	Highway agency district 3	Owner City or Municipal Highway Agency [04]	Maintenance responsibility	City or Municipal Highway Agency [04]	
Route 3246		PUYALLUP AVENUE	Toll On free road [3]	Features intersected	RAILROAD
Design - main	Steel [3]	Design - approach		Kilometerpoint	1512 km = 937.4 mi
1	Truss - Thru [10]	0	Other [00]	Year built	1925
				Year reconstructed	N/A [0000]
				Skew angle	0
				Structure Flared	
				Historical significance	Bridge is not eligible for the NRHP. [5]
Total length	35.7 m = 117.1 ft	Length of maximum span	35.4 m = 116.1 ft	Deck width, out-to-out	14 m = 45.9 ft
Bridge roadway width, curb-to-curb	11 m = 36.1 ft	Inventory Route, Total Horizontal Clearance	11 m = 36.1 ft	Curb or sidewalk width - left	1.5 m = 4.9 ft
Curb or sidewalk width - right	1.5 m = 4.9 ft	Deck structure type	Concrete Cast-in-Place [1]		
Type of wearing surface	Monolithic Concrete (concurrently placed with structural deck) [1]				
Deck protection					
Type of membrane/wearing surface					

Weight Limits

Bypass, detour length	Method to determine inventory rating	Allowable Stress(AS) [2]	Inventory rating	29.7 metric ton = 32.7 tons
0.5 km = 0.3 mi	Method to determine operating rating	Allowable Stress(AS) [2]	Operating rating	49.5 metric ton = 54.5 tons
Bridge posting	20.0 - 29.9 % below [2]	Design Load	MS 18 / HS 20 [5]	

Functional Details

Average Daily Traffic	14000	Average daily truck traffi	5	%	Year	2010	Future average daily traffic	32000	Year	2030
Road classification	Other Principal Arterial (Urban) [14]		Lanes on structure	3		Approach roadway width	11 m = 36.1 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	Railroad [2]		Lanes under structure	0		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	4.29 m = 14.1 ft			
Minimum lateral underclearance reference feature	Railroad beneath structure [R]									
Minimum lateral underclearance on right	7.8 m = 25.6 ft					Minimum lateral underclearance on left	0 = N/A			
Minimum Vertical Underclearance	8.53 m = 28.0 ft		Minimum vertical underclearance reference feature	Railroad beneath structure [R]						
Appraisal ratings - underclearances	Superior to present desirable criteria [9]									

Repair and Replacement Plans

Type of work to be performed

Work done by

Bridge improvement cost

0

Roadway improvement cost

0

Length of structure improvement

0 m = 0.0 ft

Total project cost

0

Year of improvement cost estimate

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 corrective action [3]
Condition ratings - superstructure	Serious [3]	Appraisal ratings - roadway alignment	Equal to present desirable criteria [8]
Condition ratings - substructure	Satisfactory [6]	Appraisal ratings - deck geometry	Basically intolerable requiring high priority of replacement [2]
Condition ratings - deck	Fair [5]		
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	20.3
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	Every two years [Y24]	Fracture critical inspection date	June 2013 [0613]
Other special inspection	Not needed [N]	Other special inspection date	

BRIDGE INSPECTION REPORT

Ver Date: 08/27/2014

Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16A

Page: 1/8

Structure Type

Bridge Name PUYALLUP RIVER BRIDGE A

Route 03246

Location 0.2 N JCT I-5

Structure ID 08656300

MilePost 9.08

Intersecting RAILROAD

Inspector's Signature ALP

IDent# G0507

Co-Inspector's Signature

										Inspections Performed				
3		Structural Adqcy (657)	N		Pier/Abut/Protect (679)	1925	Year Built (332)	IT	NT	HRS	Date	Rep	Type	
2		Deck Geometry (658)	N		Scour (680)	0	Year Rebuilt (336)	Y	24	2.0	06/24/2013	Routine		
8		Underclearance (659)	9		Retaining Walls (682)	13	Oper Rating (551)	Y	24	8.0	06/24/2013	Fract Crit		
2	0	Operating Level (660)	9		Pier Protection (683)	10	Inv Rating (554)					Underwater		
8		Alignment Adqcy (661)	0		Bridge Rails (684)	P	Open Close (293)					Special		
9		WaterwayAdqcy (662)	0		Transition (685)	1401	Vert Over Deck (360)	Y	12	8.0	06/22/2014	Interim		
4		Deck Overall (663)	0		Guardrails (686)	2307	Vert Under (374)					Equipment		
6		Drains Condition (664)	0		Terminals (687)	R	Vert Und Code (378)					Damage		
3		Superstructure (671)	Y		Revise Rating (688)	0.00	Asphalt Depth					Safety		
0		Number Utilities (675)			Photos Flag (691)	30	Speed Limit					Short Span		
5		Substructure (676)			Soundings Flag (693)									
9		Chan/Protection (677)			Measure Clearance (694)									
9		Culvert (678)												
										Total: 8.0				
										Suff Rating:	4.00	SD	4.00	SD

BMS Elements							
Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	7156	SF	7000	0	156	0
35	Concrete Deck Soffit	7156	SF	7000	0	156	0
113	Steel Stringer	2545	LF	1745	0	700	100
126	Steel Thru Truss	400	LF	0	0	0	400
133	Truss Gusset Plates	46	EA	29	0	5	12
152	Steel Floor Beam	463	LF	312	0	151	0
210	Concrete Pier Wall	124	LF	108	0	16	0
234	Concrete Pier Cap / Crossbeam	124	LF	124	0	0	0
266	Concrete Sidewalk & Supports	1980	SF	20	0	980	980
311	Moveable Bearing (roller, sliding, etc)	2	EA	0	0	0	2
313	Fixed Bearing	2	EA	0	0	2	0
340	Metal Pedestrian Railing	395	LF	395	0	0	0

BRIDGE INSPECTION REPORT

Ver Date: 08/27/2014

Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16A	Page: 2/8	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE A	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656300	MilePost 9.08	Intersecting RAILROAD

357	Pack Rust	30	EA	15	15	0	0
362	Impact Damage	3	EA	2	0	1	0
402	Hot Poured and/or Premolded Joint Filler	324	LF	0	0	324	0
408	Steel Sliding Plate	51	LF	0	0	51	0
415	Bolt Down Panel - Molded Rubber	51	LF	51	0	0	0
901	Red Lead Alkyd Paint System	30000	SF	15000	7500	7500	0

Notes

0	Interim required in even years for the floor system, the bottom chords, and the cracked angle at U2 south. Bridge orientation is west to east with west being towards Tacoma. The quantities for columns, caps, and expansion joints at Piers 1 and 2 are included for this bridge. SDOT A62 able to penetrate truss openings. Bucket truck or climbing best methods for accessing uppers. New floor beam numbering system is adopted in 2013. See Floor beam numbering file under the files tab.																												
1	Steel truss is fracture critical. Overall, inspection is difficult since bottom chord has been painted with a thick biturine paint coat which is heavily cracked. See attached fracture critical report and drawings for details.																												
11	Load Rating: Gusset plates done by David Evans and Associates. Gusset plates are weak link. <table><tr><td>Truck</td><td>RF</td><td>Tons</td><td>Controlling Point</td></tr><tr><td>AASHTO 1</td><td>0.57</td><td>14.2</td><td>Gusset plates at L9N</td></tr><tr><td>AASHTO 2</td><td>0.60</td><td>21.6</td><td>Gusset plates at L9N</td></tr><tr><td>AASHTO 3</td><td>0.69</td><td>27.6</td><td>Gusset plates at L9N</td></tr><tr><td>NRL</td><td>0.36</td><td></td><td>Gusset plates at L9N</td></tr><tr><td>OL-1</td><td>0.43</td><td></td><td>Gusset plates at L9N</td></tr><tr><td>OL-2</td><td>0.40</td><td></td><td>Gusset plates at L9N</td></tr></table> All the F16 bridges are posted at 10 tons maximum. Posting is due to update to rating for this structure.	Truck	RF	Tons	Controlling Point	AASHTO 1	0.57	14.2	Gusset plates at L9N	AASHTO 2	0.60	21.6	Gusset plates at L9N	AASHTO 3	0.69	27.6	Gusset plates at L9N	NRL	0.36		Gusset plates at L9N	OL-1	0.43		Gusset plates at L9N	OL-2	0.40		Gusset plates at L9N
Truck	RF	Tons	Controlling Point																										
AASHTO 1	0.57	14.2	Gusset plates at L9N																										
AASHTO 2	0.60	21.6	Gusset plates at L9N																										
AASHTO 3	0.69	27.6	Gusset plates at L9N																										
NRL	0.36		Gusset plates at L9N																										
OL-1	0.43		Gusset plates at L9N																										
OL-2	0.40		Gusset plates at L9N																										
12	Deck has transverse cracks and is worn to aggregate with medium scaling and several pop outs. The entire deck panel at floor beam 6 bounces under traffic. The concrete fillet/sill that would normally sit on top of the supporting stringers below, have deteriorated along the last 3' along the tops of stringers C thru F. The deck has minimal to no support in this area and is the cause of the deck deflection. Though it appears this unsupported condition has been here for several years without failure, local failures are possible.																												

BRIDGE INSPECTION REPORT

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Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16A	Page: 3/8	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE A	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656300	MilePost 9.08	Intersecting RAILROAD

35	Soffit: Generally has transverse leaching cracks through out. There are delaminations and spalls, up to 2" deep with exposed reinforcing, along the interfaces with the floor beams and stringers (Photo #1). Bay 1: Deck soffit is spalling above stringer K. FB4, Bay 4: Deck soffit is spalling in between stringers L&M at floor beam. FB5, Bay 6: Deck soffit is spalling in between stringers I-J&K. FB6, Bay 6: If ever present, sill/shims above stringers C thru F have deteriorated and no longer provides bearing, allowing the deck to flex downward 1/4". FB6, Bay 7 If ever present, sill/shims above the end 3' of stringers E, D, and H have deteriorated and no longer provides bearing. It also may be that its pack rust along the top of the floorbeam top flange that has lifted the deck. FB7, Bay 7: Deck soffit is spalled with exposed rebar between stringers F&G. FB5 and FB6, south side: The road deck has spalled to a hole with deck draining thru at connection to sidewalk soffit. The north sidewalk has separated from the road deck letting water & debris leach onto steel members below. Verify location during 2014 inspection.
113	Bottom flanges are knife edged with pack rust at the floorbeam construction seats. FB2: Stringer H has a hole through the web at top (Photo #76). Top flanges on east side of floorbeam are knife edged. FB2, Bay 3: Stringers F, G&H are rusting at connection with floorbeam. FB4, Bay 4: Stringers are rusting on top flange (stringers G, H, I, J & K). FB4, Bay 5: All stringers tops are corroded for 2' from end. FB4, Bay 5: Ends of stringers G, H, I & J are rusted away. FB5, Bay 5: Pack rust folding stringer seat angles down at stringers F and G. FB5, Bay 5: Stringers F, G, H & I are knife edged, rusted approximately 2'. FB5, Bay 5: Stringers F&G have rusting to bottom web. FB5, Bay 6: Stringers D thru H all are rusting – some to knife edge. FB6: Stringer top flanges are knife edged. Bay 6: If ever present, sill/shims above stringers C thru F have deteriorated and no longer provides bearing, allowing the deck to flex downward 1/4". Similare condition in Bay 7 above stringers E, D, and H. It also may be that its pack rust along the top of the floorbeam top flange that has lifted the deck. FB7, Bay 7 Stringer H has rusted thru to a hole. FB7, Bay 9 Stringer L has rust thru top flange. FB7, Bay 9 stringer Ends C, D & E are rusted. FB8, Bay 7: Stringer G web on the top of floorbeam has 3" x 3" area with 100% section loss above the floorbeam connection (Photo #30). Deck is spalled and lifted at this location. FB10, Bay 11 stringers rusting at connection (surface rust). FB12: Stringers E&F have top flange rusting at connection with floorbeam.

BRIDGE INSPECTION REPORT

Ver Date: 08/27/2014

Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16A	Page: 4/8	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE A	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656300	MilePost 9.08	Intersecting RAILROAD

126	Bridge cleaned 2/16/2010. REPAIR #10006 verified. Debris is starting to accumulate again and there is vegetation growing at various truss joints, see photo #107, REPAIR #10014. Non FC members are documented below. See attached FC report and drawings for the remainder of the truss members. NON- FRACTURE CRITICAL WEB AND TOP CHORD MEMBERS: Pitting at sidewalk level where dirt and moisture have been trapped. Surface rust throughout many of the members. L2M1 north near sidewalk has a 2-1/4" in 2 ft. bend in the member from impact. L4U4 north bent towards south 2.5" over length by plumb bob (Photo #95). L0U1 south has a 6" x 2" tear from traffic impact (Photo #14). U2 south top of top chord has 1" of pack rust between plates (Photo #54). L4U4 south at L4 has 0.274 of 5/16" remaining in south leg of SE angle. L6U6 south bent north 3" and east 1" over length by plumb bob (Photo #102). UPPER BRACING: West portal has two angles broken over center lane (Photo #96). East portal has one angle torn with multiple high load knicks (Photo #99). REPAIR #10011. LOWER BRACING: L0 south: lateral gusset is knife edged (Photo #62). L2 south: lateral gusset is knife edged. Bracing angle from L2 south to L6 north is holed through (Photo #85). L4 south: lateral gusset is holed through. Bracing angle from L4 south to L8 north is holed through (Photo #83). Bracing angle L4 south to L4 north is holed through (Photo #84). L5 south: lateral gusset is knife edged. L6 south: lateral gusset is knife edged and mostly gone. Bracing angle from L6 south to L6 north is holed through (Photo #73). L7 south: lateral gusset warped from pack rust. L8 south: lateral gusset is knife edged and holed through at lateral connection. L9 south: lateral gusset is knife edged. L0 north: bottom gusset and rivets are deteriorating at joint, see photo #108. L2 north: lateral gusset is knife edged. Bracing angle from L2 north to FB0 is no longer connected (Photo #93 and #109). L3 north: lateral gusset is knife edged. L4 north: lateral gusset is knife edged. Bracing angle from L4 north to L4 south is holed through (Photo #75). L5 north: lateral gusset is knife edged (Photo #56). L6 north: lateral gusset is knife edged. Bracing angle from L6 north to L6 south is holed through (Photo #80). L8 north: lateral gusset is knife edged. REPAIR #10003. General rusting at bottom gusset at bottom angles of bottom chord, see photos #110, 111.
133	Significant section loss in several gusset plates due to pack rust and laminar corrosion. Section loss in critical areas, up to 50 percent of plate thickness. See the Fracture Critical Inspection Report and Supplementary Fracture Critical Drawings.

BRIDGE INSPECTION REPORT

Ver Date: 08/27/2014

Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No.	F16A	Page:	5/8	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE A	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656300	MilePost	9.08	Intersecting	RAILROAD

152	FB1: At L1N truss connection, bottom flange is knife edged at gusset plate. FB2: Pack rust in top flange with deck lifting. East side top flange angle has ~1/2 section gone at midspan. FB0: Gusset plate above south bearing is rusting. Connection of floor beam to bottom chords of North & South trusses are rusting (typical numerous locations). Bottom gusset plate is knife edged at sway brace joint L2N. Sway brace is rusted thru at L2N. FB2, Bay 3: Top of floor beam has pack rust between stringers F&G. Top of floor beam rusting midspan. FB4: West side top flange midspan has 0.32" of 9/16" (by ultrasound) remaining over 4" of angle width between Stringers F and J (Photo #63). East side is similar. FB4, Bay 4: Rivet heads are gone between stringers I&K. Sway brace at L4N is holed thru from rust. FB4: South half of top flange has moisture damage. FB5, Bay 5: Top flange rusting away, see photo #112. Pack rust folding stringer seat angles down at stringers F and G. Sway brace south end at L4S 90% rusted thru. FB6: Has deck lifting from pack rust on both sides. West side top flange angle has 0.29" of 9/16" (~1/2 section) remaining at midspan. Cannot measure cover plate. 3/16" section loss to web at connection for stringers F & G. L6N, Bay 6: Sway brace in is 60% rusted thru. Gusset plate is compromised. FB7, Bay 7: Upper flange rusting at stringers E-F-G&H. Sway brace under L6S is 90% rusted away, rivet heads are missing. Bottom gusset plate at L6S is rusted away. FB7, Bay 8: Top flange is rusted between stringers C-D&E. FB10: Gusset plate supporting north fixed bearing is corroded 50%. Pack rust along south half of bottom flange, with 2" width gone along midspan 10'. Top south corner of FB10 is rusting. FB12: Is rusting between stringers F-G&H, see photo #113.
210	Pier walls have vertical hairline cracks. East side of Pier 2 has a 16 ft. x 30" x 3" spall with exposed rebar (Photo #10) and a . The reinforcing is heavily corroded and has up to 100% section loss.06/18/2011: West pier top has dirt accumulation. Pier spalled concrete exposed rebar. East side pier 2: 10' spalled, 8' exposed rebar. Center of pier has vertical crack approximate 5' extending from top down 5. Exposed vertical rebar at upper part of pier 2, south side.
234	
266	Top: Transverse cracks. Longitudinal cracking at the base of the curbs (Photo #49). Delaminations and spalls throughout the length of the bridge. Sidewalk at L9N has transverse crack. Sidewalk edge is spalling south side midspan between L1S and L2S. South edge of sidewalk has spalled at handrail brace between L3S&L4S. Spalled sidewalk with exposed rebar between L2S&L3S. South edge of sidewalk has spalled at numerous locations, see photo #115. Bottom: Most of the angle brackets mounted to the web members of truss supporting the sidewalk are heavily corroded (Photo #103). Tension angles for the sidewalk outrigger brackets have pack rust between plates. L7 north: Sidewalk support angle on column above L7N is 95% rusted away. L8 north: Shear plate for sidewalk outrigger has 2" x 1" hole at top of plate (Photo #69). L8 north: Sidewalk support angle on column above L8N is 80% rusted away. L9 north: Sidewalk support angle on column above L9N 100% rusted away. Separation of sidewalk from deck, see photo #114. L4 south: Shear plate for sidewalk outrigger has hole at top of plate (Photo #86). L6 south: Shear plate for sidewalk outrigger has similar hole at top of plate.
311	Roller nests are corroded and frozen (Photos #18 and #19). REPAIR #10004. Heavy corrosion to the anchor bolts and nuts. The spaces between the rollers in each nest are solidly and completely filled with corroded rocker remnants and debris. Significant section loss to the rockers. Repairs or replacement are urgent/essential to restore their intended capacity for movement.
313	Heavy corrosion to the anchor bolts and nuts. Northeast abutment bearing pad has debris and vegetation. Southeast abutment bearing pad has debris and vegetation.
340	Pack rust exists on lower portion of handrail supports, numerous locations, both north and south side.
357	Pack rust throughout. See elements 113, 126, 152, and 266.

BRIDGE INSPECTION REPORT

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Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16A	Page: 6/8	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE A	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656300	MilePost 9.08	Intersecting RAILROAD

362	See element note 126. Numerous high load impact damage to east and west portals. L1 and U1 is holed from impact damage 4' above road surface.
402	Deck panels are rocking causing joint seal to be broken. The joints are leaking and rusting the floorbeams. REPAIR #10012.
408	Sliding plate joint at Pier 2 is broken and bounces under traffic in north lane (Photo #36). REPAIR #10002. There are D-spalls along the joint. Joint measured at the south fogline: Year Pier 2 Joint Temp Time 2013 1-3/8" 60° 1:30pm 2011 1-1/2" 58° 6:30pm 2010 1-5/8" 50° 12:00pm 2008 1-7/8" 45° 10:30am 2006 1-7/8" 35° 8:30am
415	Bolt down panel joint at Pier 1. The rubber is torn in couple locations. Joint measured at the south fogline: Year Pier 1 Joint Temp Time 2013 1-1/4". 60°F 1:30pm 2011 1-7/16". 58°F 6:30pm 2010 1-9/16" 50°F 12:00pm 2008 1-1/2" 45°F 10:30am 2006 1-1/2" 35° 8:30am.
660	Bridge currently posted at 18T, 28T, and 36T (Photo #70).
663	Deck coded a "4" due to unsupported lengths at floorbeam L6N to L4S, between girders C thru G.
671	Superstructure coded "3" due to the poor condition of the truss. See element 126 and attached FC report.
676	Substructure Overall is coded "5" due to the condition of Pier 2. See element 210.
688	Last rating was performed in 2009 and reflects the lowest rating of all the F16 structures. A structure specific rating should be created and added to the bridge file. Rating should be reviewed for increased deterioration in elements 113, 126, 133, and 152. Due to the amount of section loss from corrosion, recomend rating gusset plates. See attached FC report and Supplemental FC drawings. REPAIR #10009.
694	Bridge posted at 14'-03" (Photo #71). Vertical clearance was measured at 14'-01" in 2005, the bridge should be posted at 13'-10". REPAIR #10010.
901	Above the deck: Rust blooms on ~25% of surface area. Peeling paint on ~25% of surface area. Below the deck: Panel point paint has failed. Floorbeam and stringer paint at deck joints has failed. The rest of the floor system and bottom chord paint has failed over ~25% of surface area. REPAIR #10005.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10010	0	V		12/07/05		
10002	1	B		11/17/00		
10003	1	B		11/17/00		

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Bridge Name	PUYALLUP RIVER BRIDGE A	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656300	MilePost	9.08	Intersecting	RAILROAD

10004	1	B	11/17/00
10005	1	B	11/17/00
10008	1	B	12/13/04
10012	1	B	10/30/07
10014	1	B	06/18/11
10015	1	B	06/24/13
10016	1	B	06/24/13
10017	1	B	06/24/13
10018	1	B	06/24/13
10011	2	B	11/28/06

Inspections Performed and Resources Required

<u>Report Type</u>	<u>Date</u>	<u>IT</u>	<u>Frq</u>	<u>Hrs</u>	<u>Insp</u>	<u>CertNo</u>	<u>Coinsp</u>	<u>Note</u>
Routine	06/24/13		24	2.0	DRS	G0604	ALP	
Resources			Use	Hour	Min	Req	Max	Notes
Fracture Critical	06/24/13		24	8.0	DRS	G0604	ALP	
Resources			Use	Hour	Min	Req	Max	Notes
UBIT			60					SDOT Aspen A62. Interior panel points can be accessed, UBIT will swing into adjacent lane during deployment and retraction.
Bucket		BK	3.50					Climbing or a lift/bucket truck can be used to access upper truss members.
Flagging		UP	3.00					Railroad flagging required for 5 lines of BNSF tracks (3 mainlines and 2 switchyard) and 1 line of UP track. Bill to: Dan Soderland 747 Market St. #520 Tacoma, WA 98402
Flagging		BN	11.50					Railroad flagging required for 5 lines of BNSF tracks (3 mainlines and 2 switchyard) and 1 line of UP track. Bill to: Dan Soderland 747 Market St. #520 Tacoma, WA 98402
Scheduling Restrictions		TRF C			TRFC	TRFC	TRFC	9:00 a.m. to 4:00 p.m.

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Bridge No. F16A

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Structure Type

Bridge Name PUYALLUP RIVER BRIDGE A

Route 03246

Location 0.2 N JCT I-5

Structure ID 08656300

MilePost 9.08

Intersecting RAILROAD

Interim 06/22/14 12 8.0 ALP G0507

Interim inspection on even years to monitor advanced corrosion of truss bottom chord members and gusset plates. Only changes made to report as a result of the 6/22/2014 interim inspection were to the gusset plate element condition states, the visual fc report, and the supplementary fc drawings, and changes made only to lower chord elements.

Resources

Use Hour Min Req Max

Notes

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Bridge No. F16B

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Structure Type

Bridge Name PUYALLUP RIVER BRIDGE B

Route 03246

Location 0.2 N JCT I-5

Structure ID 08656400

MilePost 9.12

Intersecting TERRAIN

Inspector's Signature ALP

IDent# G0507

Co-Inspector's Signature

										Inspections Performed				
3	2	Structural Adqcy (657)	N		Pier/Abut/Protect (679)	1925	Year Built (332)	IT	NT	HRS	Date	Rep	Type	
2		Deck Geometry (658)	N		Scour (680)	0	Year Rebuilt (336)	Y	24	10.0	06/25/2013	Routine		
9		Underclearance (659)	9		Retaining Walls (682)	55	Oper Rating (551)					Fract Crit		
2		Operating Level (660)	9		Pier Protection (683)	33	Inv Rating (554)					Underwater		
8		Alignment Adqcy (661)	0		Bridge Rails (684)	D	Open Close (293)					Special		
9		WaterwayAdqcy (662)	0		Transition (685)	9999	Vert Over Deck (360)	Y	24	4.0	06/21/2014	Interim		
6		Deck Overall (663)	0		Guardrails (686)	0000	Vert Under (374)					Equipment		
6		Drains Condition (664)	0		Terminals (687)	N	Vert Und Code (378)					Damage		
5		Superstructure (671)	Y		Revise Rating (688)		Asphalt Depth					Safety		
0		Number Utilities (675)			Photos Flag (691)	35	Speed Limit					Short Span		
3	2	Substructure (676)	N		Soundings Flag (693)			Total: 4.0						
9		Chan/Protection (677)			Measure Clearance (694)									
9		Culvert (678)						Suff Rating:	20.57	SD	7.00	SD		

BMS Elements							
Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	21382	SF	0	21367	15	0
35	Concrete Deck Soffit	21382	SF	21000	380	2	0
110	Concrete Girder	2970	LF	2000	830	131	9
205	Concrete Pile/Column	55	EA	44	5	0	6
210	Concrete Pier Wall	213	LF	189	0	24	0
234	Concrete Pier Cap / Crossbeam	126	LF	106	0	20	0
266	Concrete Sidewalk & Supports	5940	SF	5890	0	50	0
312	Concealed Bearing or Bearing System	50	EA	15	15	18	2
331	Concrete Bridge Railing	1188	LF	1165	0	23	0
360	Bridge Movement	12	EA	0	10	2	0
402	Hot Poured and/or Premolded Joint Filler	90	LF	80	0	10	0
407	Steel Angle Header	450	LF	360	0	80	10

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Bridge No. F16B	Page: 2/10	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE B	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656400	MilePost 9.12	Intersecting TERRAIN

705	Bridge Luminaire Pole and Base	5	EA	3	0	2	0
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Notes

0	The bridge is oriented from the west to the east. The west end of Span 1 is supported by Pier 2 of Bridge F16A and is counted as Pier 1 for this structure. The east end of Span 13 is supported by Pier 1 of Bridge F16. See File #1 for bridge layout. The columns, cap, and expansion joints at the west end of Span 1 and the east end of Span 13 are not included in the quantities for this bridge. This bridge was approved for replacement funds at the 2001 Fall BRAC meeting. No replacement date has been confirmed as of the 2011 inspection. Interim Inspection: Monitor the shoring and bearing of the girders at Pier 10 and the cracking in the girders at the bearings at Pier 12. Monitor movement of bronze bearings overhanging at Bearings 4B and 5C. (Notes 110, 205, 312, and 360) REPAIRS #10004, 10005, 10006, and 10007 Monitor bridge movement, each span is rotating clockwise. Measure at top of south barrier, see note 360.
11	All the F16 bridges are posted at 10 tons maximum. Posting is due to update to rating for F16A. Prior bridge posting was 18T (AASHTO1), 28T (AASHTO2), and 36T (AASHTO3). (Photo #37) Bridge needs its own load rating. Substructure reduced to a 2 (2014). The column type supports installed in 2000 at bent 10 to provide additional girder support are permanent repairs. The deterioration in the original columns, most specifically column E, is significant enough that the girders are reliant on the additional supports. The additional supports do not have near the strength of the original columns and therefore need to be evaluated for strength. The existing load rating should be updated and should include the substructure at bent 10.
12	Deck has mud ball voids, transverse cracks, is worn to aggregate in the wheel lines, and has areas of scale. Scaling is heaviest in Spans 1, 2 and 5. Numerous drainage grates are plugged all along structure.
35	Soffit near Pier 5 and the north face of Girder 4D has an 18" exposed bar due to lack of cover.
110	Girders have vertical and diagonal hairline cracks throughout. Girders also have many delaminations and shallow spalls with exposed rebar due to lack of cover, approximately 105 sq. ft. (Photo #26). Many of the girders are spalled over the bearings (Photo #32). Girders 1C and 1D, diaphragm between Girders 1C and 1D at Pier 2 has a lower edge spall 5 ft. long x 3" x 2" with 5 ft. of exposed rebar. Pier 2, Girder A, has concrete spalling exposed vertical rebar south side, 20' cast from Pier 2. Girder 3E, several spalls on the south face, the largest is 37" x 16" x 2" with 52" of exposed rebar (Photo #25 and #39). Girders 4A & 4B, spalling concrete exposed rebar north face. Girders 4B and 4C, diaphragm between Girders 4B and 4C at Pier 5 has an edge spall that is 4 ft. x 1 ft. x 3" with 3 ft. of exposed rebar. Girder 4E, three spalls with exposed rebar north face. Girders 4D and 4E, diaphragm between Girders 4D and 4E at Pier 5 has 1 ft. diameter x 3" edge spall with 1 ft. of exposed rebar. Girder 5A, at pier 5, 12"x12" spall w/exposed rusting stirrups and 6" of longit steel, 5% section loss. Girder 5C, spalling concrete exposed rebar north face mid span. Girder 6E, on the north face of the web near Pier 6, has an 18" x 6" x 2" spall with exposed rebar.

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Bridge No.	F16B	Page:	3/10	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE B	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656400	MilePost	9.12	Intersecting	TERRAIN

Girder 7E exposed rebar spalling concrete north face at column.

Girders 8D and E, diaphragms have spalling with exposed bars, cracking and delaminations in diaphragms between remaining girders.

Girders 10A thru 10E have decreased support due to significant cracking in the girder end diaphragms and the top of the columns. See column notes and photos.

Girder 10e in span 10 has settled. Picture M1-3 taken in 2000 just after the support repairs where added shows steel exposed in a large column spall just under the girder haunch. The steel in the photo is straight. That same steel in photos SI-40 (2011) and photo SI-50 (2014) shows the same steel in a buckled condition. In addition more of the girder end has spalled since the original repairs. The girder has settled and may be putting more load into the timber columns than intended. Analysis of the support system is warranted.

Girders 12A, B, & C have cracking at west end at connection with column.

Pier 12, girder haunches over Pier 12 are spalled with exposed rebar and have vertical cracks open to 1/2" (Photo #35). REPAIR #10006.

Pier 12, Girder E, cracking from intermediate diaphragm down cap beam north face.

Girders 13A - E, at pier 13, have spalling concrete at sliding bearing plates span 13.

Girder 13A, has spalling concrete exposed rebar south face.

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Bridge No.	F16B	Page:	4/10	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE B	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656400	MilePost	9.12	Intersecting	TERRAIN

205 There is a significant amount of cracking and delamination in the tops of the pier 10 columns and their diaphragms. When compared to previous pictures, it appears that the degree of cracking and delamination has increased, 2013. Likely causes are water penetration and or vibration from traffic. Temporary timber and steel angled supports are in place at bent 10, it appears the supports or support pads have shrunk/moved as there are significant gaps between either the grout pads or elastomeric pads, and the bottom face of the girders they are supporting. Due to the increased cracking and delamination in the columns and diaphragms, the pier 10 support system should be re-evaluated for strength. Increased shoring may be necessary.

Some of these supports are in need of re-shimming. See pictures #46 thru #49. Between the time of the field inspection and the time this report was written and entered into BridgWorks, the supports have been re-shimmed. See pictures .

Columns have vertical leaching cracks at the top and small corner spalls near the base.

Column 3D, on the southeast edge near the top, has a 37" x 7" x 3" spall with 3 ft. of exposed rebar (Photo #23).
Column 3E has a 12" x 4" x 2" spall at the base and an 18" x 10" x 1-1/2" spall at mid-height on the southeast corner.

Column 6C, se corner is cracking/delaminating aprox 3/4 height and 3" back from surface/edge.

Column 4B has two spalls on the southwest corner near the base, the largest is 18" x 6" x 2".

Column 8D, near the top on the northwest corner, has a 12" x 4" x 2" spall with 4" of exposed rebar.

Column 9B, near the top on the northwest corner, has a 1 ft. diameter x 3" spall with 8" of exposed rebar.
Column 9C, near the top on the northeast corner, has a 20" x 16" x 3" spall with exposed rebar.

The Pier 10 columns have temporary shoring due to cracked and spalling concrete under the bearings.

Columns 10A and 10C are shored with 10" square structural steel tubes (Photo #9). There are gaps between the elasto pads and the girder, may need shimmed.

Columns 10B, 10D, and 10E are shored with untreated 14" x 14" timber posts supported on steel brackets, which are bolted to the column bases (Photo #8). The timber posts have checks up to 9/16" wide. Checks have increased in width and now measure up to 3/4", 2013.

Column 10A, span 10 side, column area supporting girder has a vertical crack extending from the diaphragm to the base of the girder haunch. The column face is cracked and delaminated from the base of the girder haunch to 59" down from the haunch.

Column 10C, near the top on the south face, has a large vertical delam with a crack open to 3/8" (Photo #4 and #4a) cracking and delamination has increased here, 2013. now extending from the base of the girder haunch to 90" down from the haunch. The northwest corner, just below the bearing, has a 12" x 6" x 4" spall (Photo #5).

Column 10D, just below the bearing on the southwest corner, has a 55" x 18" x 12" spall with 25" of exposed rebar (Photo #29). Temporary timber support with grout pad, gap between the grout pad and the girder, needs shimmed.

Column 10E, just below the bearing on the east face, has a 36" x 24" x 10" spall with 30" of exposed rebar (Photo #3 and #3a), spalling has increased here, 2013. Temporary timber support with grout pad, gap between grout pad and girder, needs shimmed.

Pier 10E , has spalled concrete with buckling of rebar, see photo #40.

Pier 12 vertical leaching cracks below the girder seats.
Pier 12, Columns D & E have cracking in close proximity to girder. Monitor girder E, consider temporary repairs similar to bent 10, see picture #35a.

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Structure ID	08656400	MilePost	9.12	Intersecting	TERRAIN

210	Piers 2, 3, 6, 7 and 8 all have pier walls under the columns. Pier walls have hairline map cracking and shallow corner spalls near the base. General note: in several spans, webwall and column were not visible due to storage of various material and vegetation, see photo #44, 45, REPAIR #10008. Vegetation needs to be removed from several piers. Lower Pier 1 wall has spalling concrete, exposed rebar east side. Pier 2 wall has delaminations and spalls on the east face near the ground line (Photo #22). Pier 2 has accumulation of dirt. Pier 3 wall has delaminations and spalls on the west face, the largest is 45" x 12" x 1-1/2" with 37" of exposed rebar below Column D. Span 6 has a stock pile of gravel under it with the pier walls acting as supports. The walls in this location are scrapped from blades and buckets.
234	Pier caps have delaminations and shallow spalls with exposed rebar due to lack of cover. Caps also have small bottom corner spalls throughout. Some of the caps have debris build-up along the top. Pier 2 cap has spalled concrete with exposed rebar between columns C & D, see photo #41. Pier 4 cap has accumulation of dirt. Pier 5 cap has spalled concrete between girders A – B – C with 12" of xpsd stirrups. Accumulation of 1' of dirt along top. East face has concrete spalling with exposed rebar 36" long vertical. Pier 6 cap has diagonal leaching cracks.
266	Sidewalk surface has light scale and hairline map cracking. Curbs have some scrapes and spalls, the largest is 4 ft. x full height x 4". Soffit has transverse, pattern, and diagonal leaching cracks. Pier 4 north sidewalk support, on the north face, has an 8" diameter x 1/2" spall. Pier 6 south sidewalk edge beam near Pier 6 has a 52" x 3" x 1-1/2" lower edge spall with 52" of exposed rebar (Photo #28).

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Bridge Name	PUYALLUP RIVER BRIDGE B	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656400	MilePost	9.12	Intersecting	TERRAIN

312	Concealed bronze rocker bearings are located at Piers 2 through 9, 11, and 13. Many of the rockers have slid and overhang the bearing plates, monitor, specific measurements are as follows: 2D rocker overhangs the concrete girder 2-1/4", 2-3/8" in 2013. 2E rocker overhangs the concrete girder 1-1/2", 1-5/8" in 2013. 3B rocker overhangs the concrete girder 1", 1" in 2013. 3C rocker overhangs the concrete girder 2-1/2", 2-1/2" in 2013. 4B rocker overhangs the concrete girder 8-5/8", photo #42, 8-5/8" in 2013. (Bearing are 16" wide per plan.) REPAIR #10002. 4C rocker has walked 1-3/4" to the north, 2011, 1-3/4" in 2013. 4D rocker has walked 1-1/8" to the north, 2011, 1-1/8" in 2013. 5A rocker has walked 1/2" to north in 2011, 3/4" in 2013. 5B rocker overhangs the concrete girder 2", 2-1/8" to the north in 2011, 2-3/16" in 2013. 5C rocker overhangs plate 6-3/4" (Photo #1), 6-1/2" to the north in 2011, 6-1/2" in 2013. (Bearing are 16" wide per plan.) REPAIR #10002. 5D rocker overhangs plate 1-7/16", 1-1/4" to the north in 2011, 1-5/8" in 2013. 5E rocker overhangs the plate 1-11/16", 1-11/16" in 2013. The top plate is torn and deformed along the west quarter of the south face. 6C rocker overhangs the concrete column 1-1/4", 1" to the north in 2011, 1-1/4" in 2013. 6D rocker overhangs the concrete column 2-1/2". Also has walked 1-3/4" to the north, 2011. Same in 2013. 6E rocker overhangs the concrete column 1". Also has walked 1/2" to the north, 2011 Same in 2013. 7B rocker overhangs the concrete column 2", 2-1/8" in 2013. 7C rocker overhangs the concrete column 1", 1-1/8" in 2013. 7D rocker overhangs the concrete column 1/2", 1/2" in 2013 7E rocker overhangs the concrete column 7/8", 7/8" in 2013. 8A rocker overhangs the concrete column 1/8". Also has walked 1-1/4" to the north, 2011. Same in 2013 8B rocker overhangs the concrete column 1-3/4", 2" to north in 2011, 1-3/4" in 2013. 8C rocker overhangs the concrete column 1-5/8", 1/2" to north in 2011, 11/16" in 2013. 8D rocker overhangs the plate 1-7/8", 1-7/8" in 2013 13D rocker has walked 1" to the north, 2011, 1-1/4" in 2013.
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331 Concrete bridge rails have exfoliating concrete and spalls with exposed rebar along the base, spalling is most prominent at the expansion joints. Rails are offset at the piers (Photo #34).

North Rail:

Span 2, north, rail spalled concrete at handrail.

Pier 3, north rail, inside face at Pier 3 has 2 ft. of exposed rebar.

Span 6, north rail, spall with 2.5ft of xpsd rebar.

Span 7, north rail, spall with 2.5ft of xpsd rebar.

Span 13, north rail, inside face is spalled and has 6 ft. of exposed rebar.

South Rail

Span 3, south side, spalling with 3ft of longit xpsd rebar.

Span 4, south rail, spalled concrete with exposed rebar at lower handrail.

Span 7, south rail, spall with 2.5ft of xpsd rebar.

Span 8, south rail, near pier 9, spall with 2.5ft of xpsd rebar.

Pier 5, south rail, outside face near Pier 5 has a 3 ft. x 6" delamination.

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Bridge No. F16B	Page: 8/10	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE B	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656400	MilePost 9.12	Intersecting TERRAIN

360	The bridge spans have rotated clockwise at nearly every span. Measurements are taken from the top of the south barrier (Photo #34). REPAIR #10005: 2007: Pier 2: 15/16". Pier 3: 1-5/8". Pier 4: 2". Pier 5: 1-1/2". Pier 6: 2". Pier 7: 2". Pier 8: 2-3/16". Pier 9: 1-7/8". Pier 10: 9/16". Pier 11: 1-1/2". Pier 12: 11/16". Pier 13: 5/8". 2008: Pier 2: 7/8". Pier 3: 1-1/2". Pier 4: 2". Pier 5: 1-3/8". Pier 6: 1-7/8". Pier 7: 1-7/8". Pier 8: 2-1/8". Pier 9: 1-3/4". Pier 10: 1/2". Pier 11: 1-1/4". Pier 12: 1/2". Pier 13: 5/8". 2009: Pier 2: 7/8". Pier 3: 1-1/2". Pier 4: 2". Pier 5: 1-3/8". Pier 6: 2". Pier 7: 2". Pier 8: 2-1/4". Pier 9: 1-7/8". Pier 10: 1/2". Pier 11: 1-1/2". Pier 12: 5/8". Pier 13: 5/8" 06/20/2011: Handrail measurements: 62 degrees, 2:30 PM, measured at top of concrete handrail. Pier 2: 1". Pier 3: 2". Pier 4: 2-1/4". Pier 5: 2-1/2". Pier 6: 2-1/2". Pier 7: 2". Pier 8: 2-1/4". Pier 9: 2". Pier 10: 0". Pier 11: 1-3/4". Pier 12: 1/2". Pier 13: 3/4". 2013: South rail, 70 degrees, 5:30 pm. Pier 2: 15/16". Pier 3: 1-5/8". Pier 4: 1-7/8". Pier 5: 1-3/8". Pier 6: 2-1/8". Pier 7: 1-15/16"". Pier 8: 2-1/8". Pier 9: 1-3/4". Pier 10: 3/8". Pier 11: 1-7/16". Pier 12: 5/8". Pier 13: 5/8". 2014: South rail, 60 degrees, 4:30 pm. Pier 2: 15/16". Pier 3: 1-1/2". Pier 4: 1-7/8". Pier 5: 1-3/8". Pier 6: 2". Pier 7: 1-7/8"". Pier 8: 2-1/8". Pier 9: 1-3/4". Pier 10: 3/8". Pier 11: 1-3/8". Pier 12: 5/8". Pier 13: 1/2". 06/20/2011: Pier 2 girder E has rotated 1-3/8" towards north. Pier 8 girder B has rotated 1-5/8" toward north. Pier 8 girder A has rotated 1-1/2" to the north. Pier 8 girder D has rotated 1-1/2" to the north. Pier 8 girder E has rotated 1-3/8" to the north. Pier 9 girder A has rotated 2" to the north. Pier 9 girder B has rotated 1-3/4" to the north. Pier 9 girder C has rotated 2" to the north. Pier 9 girder D has rotated 1-7/8" to the north. Pier 9 girder E has rotated 2" to the north. Pier 10 girder B has rotated 1-3/4" to the north. Pier 10 girder C has rotated 1-1/2" to the north. Pier 10 girder D has rotated 1-1/2" to the north. Pier 14 girder A has rotated 1/2" to the north. Pier 14 girder B has rotated 1/4" to the north. Pier 14 girder C has rotated 3/8" to the north. Pier 14 girder D has rotated 3/8" to the north.
402	Joints at Piers 10 and 12 are full of dirt.

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Bridge Name PUYALLUP RIVER BRIDGE B	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656400	MilePost 9.12	Intersecting TERRAIN

407	Steel angle header joints have no glands. Pier 2 angle headers are loose. REPAIR #10001. Pier 3 does not have any angle headers (Photo #36). REPAIR #10001. Pier 13 Steel angle headers are completely gone at the joint, see photo #43. The joints are measured at the south fogline. YEAR PIER 2 PIER 3 PIER 4 PIER 5 PIER 6 PIER 7 PIER 8 PIER 9 PIER 11 PIER 13 TEMP TIME 2004 1-1/4" 1-1/4" 2-1/4" 2-1/8" 2-1/4" 2-1/8" 2-1/8" 1-7/8" 2-1/8" 1-7/8" 40 ° F 8:30 am. 2006 1-3/8" 1" 2-1/8" 2" 2-1/8" 2" 2-1/8" 1-3/4" 2" 1-7/8" 45 ° F 1:00 pm. 2008 1-1/8" N/A 2-3/16" 1-3/4" 2-1/4" 2" 2-1/8" 1-3/4" 2" 1-7/8" 50° F 10:00 am . 2011: 1-1/4" 3" 1-7/8" 2" 2-3/8" 1-7/8" 2" 1-3/4" 1-7/8" 1-3/4". 60° F, 1:00 pm. 2013: 1-1/4" 1-1/4" 2-1/4" 1-7/8" 2-3/8" 2" 2-1/8" 1-3/4" 1-7/8" 1-1/4" 1-7/8". 75° F, 5:30 pm.
671	Superstructure code is a "5" due to the extensive cracks, delaminations, spalls, and exposed rebar throughout the girders.
676	Substructure code is a "3" due to the condition of the columns and lack of shoring. The shoring at Pier 10 is considered temporary.
681	
688	Bridge F16 was separated into 6 structures in 2002, each requires its own rating.
705	The luminaires on the south sidewalk at Pier 5 and in Span 10 have both been damaged (Photos #16 and #18). The Luminarie in Span 10 has 1" of cracked weld at the base and is torn. REPAIR #10007. Luminaire pole south sidewalk in span 10 has impact damage.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10001	1	B		11/17/00		
10002	1	B		10/28/02		
10004	1	B		11/29/06		
10007	1	B		12/07/09		
10009	1	B		09/20/13		
10010	1	B		09/20/13		
10011	1	B		09/20/13		
10008	2	B		06/20/11		
10005	M	B		11/29/06		
10006	M	B		11/29/06		

Inspections Performed and Resources Required

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
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Bridge Name	PUYALLUP RIVER BRIDGE B	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656400	MilePost	9.12	Intersecting	TERRAIN

Routine	06/25/13	24	10.0	DRS	G0604	ALP	
Resources		Use	Hour	Min	Req	Max	Notes
UBIT		50	2.00	50	60	60	SDOT A62 can deploy off the south side and reach all.
Flagging		LA	2.00		LA		Contact Dan Soderlind at 253.591.5263 to arrange for flagging.
Scheduling Restrictions		TRF C					Traffic Window: 9:00 a.m. to 4:00 p.m.
Interim	06/21/14	24	4.0	ALP	G0507		Interim inspection created for even year inspections of the bent 10 and 12 girders diaphragms, columns, and repairs.
Resources		Use	Hour	Min	Req	Max	Notes
Sticky Notes							
Creator	Created	Table Reference		Notes			
Sargent Engineers Inc/	08/21/2014	NBI					

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Bridge No. F16	Page: 1/10	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE	Route 03246	Location 0.2 N JCT I-5
Structure ID 08501100	MilePost 9.23	Intersecting PUYALLUP RIVER

Inspector's Signature ALP IDent# G0507

Co-Inspector's Signature SCO

										Inspections Performed				
4		Structural Adqcy (657)	N		Pier/Abut/Protect (679)	1925	Year Built (332)	IT	NT	HRS	Date	Rep	Type	
2		Deck Geometry (658)	5		Scour (680)	0	Year Rebuilt (336)	Y	24	4.0	06/27/2013	Routine		
9		Underclearance (659)	9		Retaining Walls (682)	55	Oper Rating (551)	Y	24	30.0	06/27/2013	Fract Crit		
5		Operating Level (660)	9		Pier Protection (683)	33	Inv Rating (554)	D	60	2.0	09/19/2013	Underwater		
8		Alignment Adqcy (661)	0		Bridge Rails (684)	P	Open Close (293)					Special		
8		WaterwayAdqcy (662)	N		Transition (685)	1403	Vert Over Deck (360)					Interim		
5		Deck Overall (663)	N		Guardrails (686)	0000	Vert Under (374)					Equipment		
8		Drains Condition (664)	N		Terminals (687)	N	Vert Und Code (378)					Damage		
4		Superstructure (671)	Y		Revise Rating (688)	0.00	Asphalt Depth					Safety		
3		Number Utilities (675)			Photos Flag (691)	40	Speed Limit					Short Span		
6		Substructure (676)			Soundings Flag (693)									
7		Chan/Protection (677)			Measure Clearance (694)									
9		Culvert (678)												
										Total: 1.0				
										Suff Rating: 41.87 SD 41.87 SD				

BMS Elements							
Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	27540	SF	27032	500	8	0
35	Concrete Deck Soffit	27540	SF	27000	0	540	0
113	Steel Stringer	9828	LF	8000	900	900	28
126	Steel Thru Truss	1528	LF	1000	200	300	28
133	Truss Gusset Plates	432	EA	402	0	30	0
152	Steel Floor Beam	1914	LF	1800	100	6	8
205	Concrete Pile/Column	4	EA	0	4	0	0
214	Concrete Web Wall between Columns	4	LF	3	1	0	0
227	Concrete Submerged Pile/Column	4	EA	0	4	0	0
234	Concrete Pier Cap / Crossbeam	240	LF	200	0	40	0
266	Concrete Sidewalk & Supports	7640	SF	4640	0	3000	0
311	Moveable Bearing (roller, sliding, etc)	6	EA	0	0	0	6

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Structure ID	08501100	MilePost	9.23	Intersecting	PUYALLUP RIVER

313	Fixed Bearing	6	EA	6	0	0	0
340	Metal Pedestrian Railing	1528	LF	998	0	530	0
355	Damaged Bolts or Rivets	1	EA	1	0	0	0
357	Pack Rust	25	EA	1	4	20	0
361	Scour	2	EA	1	1	0	0
362	Impact Damage	1	EA	0	1	0	0
402	Hot Poured and/or Premolded Joint Filler	1008	LF	0	0	1008	0
408	Steel Sliding Plate	212	LF	106	0	106	0
901	Red Lead Alkyd Paint System	160000	SF	78000	2000	80000	0

Notes

0	BRIDGE ORIENTATION: The bridge is a skewed three span thru truss oriented west to east, west side is closet to Tacoma. The north and south trusses are mirror images of each other. FLOORBEAM ORIENTATION: With respect to the roadway and deck, each span has two skewed floorbeams (one at each pier) and fifteen perpendicular floorbeams (thirteen full deck-width and two half deck-width). The skewed floorbeams are Floorbeams 0 at the west and 16 at the east. The half deck-width floorbeams span from mid-span of the skewed floorbeams to the truss and are numbered Floorbeams 1 at the west and 15 at the east. The full deck-width floorbeams span between the trusses and are numbered Floorbeams 2 through 14, west to east indicating the south truss connection/north truss connection respectively. See FC layout sheets for further information. STRINGER ORIENTATION: There are thirteen lines of steel stringers (A through M). Stringers A through F are located between Floorbeams 0 and 1. Stringers H through M are located between Floorbeams 15 and 16. See FC layout sheets for further information. The quantities for the columns, caps and expansion joints at Piers 1 and 4 are included for this bridge. SDOT A62 able to penetrate truss openings. Power lines along the north side prohibit deployment, all deployments are from the south side. Bottom chord members L0L1 and L1L2 on the north in Spans 2 and 3 cannot be accessed due to the skew. They can be accessed by climbing or lif/bucket truck and lower road for Span 1 and climbing on Piers 2 and 3. Lift/bucket truck or climbing best methods for accessing uppers.
1	Steel truss is fracture critical. Heavy debris and pigeon guano build-up inhibits inspection at many lower chord panel points. See attached fracture critical report for details.
9	Underwater inspection of the Puyallup River Bridge was conducted by Echelon Engineering on September 19, 2013. Piers 2 and 3 were located in the channel at the time of the inspection. Based on the observed condition, all inspected substructure components appear sound. No evidence of any cracking, spalling or other significant deterioration of the underwater concrete elements was noted. Minor abrasive scale (i.e. 1/2 to 3/4 inch deep) was found on all surfaces exposed to flow. Several openings in the Pier 2 web wall were noted where large square timbers, that had been cast into the concrete, have deteriorated and are now missing. Although minor spalling of the edges was evident, no rust bleeding, exposed reinforcing or other significant damage was found to be associated with these openings. Inspection of the Pier 3 web wall noted minor deterioration of the horizontal cold joints. Additionally, exposure of the Pier 2 footing was found at the upstream end of the pier (i.e. max. vertical height of ~1.2 ft.). No exposure of the foundation piles was encountered. No exposure of the Pier 3 footing was evident. Minor to moderate debris build-up was noted at the upstream end of both piers. Although localized scour was found in the area of the debris build-up, no significant general or localized scour patterns were identified. Conditions appear similar to that reported in the 2008 underwater inspection report.

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Structure ID 08501100	MilePost 9.23	Intersecting PUYALLUP RIVER

12	Concrete Deck: Joints at even floor beams, continuous over odd floor beams, where transverse cracks are visible. All spans are worn to aggregate with transverse cracks and many mud ball voids up to 2" diameter x 1" deep. Span 1: Near floor beam 3 has a 3 sq. ft. area of 1/8" deep scale in the left eastbound lane, right wheel line. Span 2: Near floor beam 6, near south truss, 2'x2' delam. Between floor beams 7 and 8 has 2 sq. ft. of scaling. Span 3: Between floor beams 14 and 15 has 3 sq. ft. area of 1/8" deep scale in the right eastbound lane, right wheel line.
35	Concrete soffit: Many short hairline transverse leaching cracks. Interface with top flanges and concrete is spalling throughout deck. Scattered exposed longitudinal rebar in south side of the deck near the bottom chord. The edges at even numbered floor beams typically have spalls at the joints. Vegetation is growing through some of the spalled joints. SPAN 1: FB3, east side, spalling between stringer A – B & C. Between FB 5 and FB6, soffit cracking mid span from stringers F – G – H & I. FB8, east side, spalling between stringers G & H. FB10, west side, spalling between stringers F – G & H. At FB15, spalling in south curb line. At L13 south, spalling, 18" x 6" x up to 3" deep with exposed steel flat plates, see photo 53. SPAN 2: FB12, west side, spalling in deck soffit between stringers H and I. SPAN 3: FB2, west side, spalling between stringers B & C. FB4, west side, spalling concrete with exposed rebar between stringers H & I. FB10, west side, spalling between stringers L & M, see photo #76. FB10, east side, spalling between stringers E & F with exposed rebar. FB12, east side, spalling between stringers E & F and G & H. At L13 south, spalling, 18" x 6" x up to 3" deep with exposed steel flat plates.
113	Steel stringers have pack rust formed at many stringer connections. See photos 37 (Span 1) and 63 (Span 3). One third of the stringer top flanges and webs have up to 30% section loss due to laminar rust. The stringer erection angles are bent down as much as 3/4" typically on south side. The stringer end top flange section loss is affecting bearing area for the deck. At some locations the deck is free floating. SPAN 1: FB0, stringers F, G, and H, end 1' of top flange has laminar corrosion with 50% section loss. FB1, stringers F, G, and H, end 1' of top flange has laminar corrosion with 50% section loss. FB4, west side, stringers F – G – H & I, end 1' of top flange has heavy laminar corrosion with up to 75% section loss. Stringer H, end 3' of bottom flange has 50% section loss. FB4, east side, stringer 5G has total section loss at connection to FB4. FB5, stringer G, end of web holed through near top flange FB6, west side, stringers F – G – H & I have 25% section loss for 2 linear ft. FB8, west side, stringers E – F – G & H top have heavy laminar top flange corrosion, see photos 49. FB8, east side, stringer G, end 1' of top and bottom flanges have laminar corrosion with 75% section loss. FB10, east side, stringers D – E – F – G & H rusting. FB14, east side, stringers E – F & G rusting top. SPAN 2: FB0, stringers F - J, end 2' of top flange has laminar corrosion with 75% section loss, some movement of deck above under vehicle traffic. FB2, stringers, M, I, and J, end 2' of top flange has laminar corrosion with 80% section loss, 4" diameter hole in the stringer I web end, over the

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clip angle connection.

FB4, stringers, F - I, end 2' of top flange has laminar corrosion with up to 50% section loss, also along end 2' of web there is a 2" tall strip of 3/16" deep section loss adjacent to the top and bottom flanges. Stringer H also has rusting with 50% Section loss to bottom flange, see photo #77.

FB6, west side, stringers, E - I, end 2' of top flange has laminar corrosion with 50% section loss. Stringers G, H, and I, end 2' of web there is a 2" tall strip of 1/8" deep section loss adjacent to the top and bottom flanges.

FB8, west side, stringers D through K have top flange corrosion.

Stringers F and G, end 2' of top flange have 100% section loss and deck is floating above, moves under traffic.

Stringer I, end 2' of top flange has 50% section loss

Stringers E, F, and G, end 2' of bottom flange has laminar corrosion with 50% section loss, also along end 2' there is a 2" tall strip of 1/16" deep section loss adjacent to the top and bottom flanges, see photo 52.

FB8, stringer K end 2' rusted.

FB10, east side, stringers D - H, end 1' of top flange has laminar corrosion with 50% section loss, see photo 51. Additionally, stringer webs G, F, and H have 100% section loss along end 4" above clip angle connections.

FB12, west side, stringers G-J, end 2' of top flange has laminar corrosion with 50% section loss. Stringer I, end 1' of bottom flange has laminar corrosion with 25% section loss. Stringers H-J along end 2' of web, have a 2" tall strip of 1/16" deep section loss adjacent to the top and bottom flanges.

FB12, east side, stringers C and D, end 1' of top flange has laminar corrosion with 25% section loss.

FB12, west side, stringers F - K, end 2' of top flange has laminar corrosion with 50% section loss, see photo 51. Additionally, stringer webs F - L have 100% section loss along end 2" above clip angle connections.

SPAN 3:

FB0, stringers G - H & I rusting top flange.

FB2, west side, stringers D through J, end 2' of top flange has laminar corrosion with 10% section loss.

FB2, east side, stringer A, end 1' of top and bottom flange has laminar corrosion with 20% section loss. Stringers D, E, G along end 2' of web, have a 2" tall strip of 1/8" deep section loss adjacent to the top and bottom flanges. Stringer G, end 6" of web has 80% section loss above the clip angle connection.

FB4, west side, stringers G through K, end 2' of top flange has laminar corrosion with 25% section loss.

FB4, east side, stringers B through I rusting top flange.

FB6, west side, stringers F - J, end 2' of top flange has laminar corrosion with 15% section loss.

Stringer 6E near mid-span is bent 1/2" over a 6" length.

FB8, west side, stringers G through L, end 2' of top flange has laminar corrosion with 15% section loss.

FB8, east side, stringers C - F rusting top flange.

FB10, east side, stringers E thru J rusting top flange. Stringers F - H have top flange 1/4" rusted away.

FB12, west side, stringer G&H rusting top flange.

FB12, east side, stringers A-B-C have some rust. Stringers D - F, end 2' of top flange has laminar corrosion with 15% section loss.

FB14, west side, stringers G - K, end 2' of top flange has laminar corrosion with 15% section loss.

FB14, east side, stringers D-H, end 2' of top flange has laminar corrosion with 15% section loss.

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Bridge Name	PUYALLUP RIVER BRIDGE	Route	03246	Location	0.2 N JCT I-5
Structure ID	08501100	MilePost	9.23	Intersecting	PUYALLUP RIVER

126	Steel thru truss: Significant guano and debris build-up inside of the lower chords at splices and panel points, inhibits inspection of the interior face of the chord and web/splice/gusset plate members. See photo 64 of L4, south truss in Span 3. REPAIR #10013. Seam rust and pack rust up to 1/2" thick typically at several of the truss members and connections, which is causing distortions of the gusset plates. Typically there is 5% section loss in the members at the connections. Many of the gussets have up to 50% section loss. Most of the following notes pertain to Non Fracture Critical members, see the fracture critical (FC) report in the files tab for specifics regarding the FC tension members. Span 1: South Truss: L11M11 18" above the roadway has impact damage with a torn NE angle. See photos 57 and 58. Non-FC Member. REPAIR #10025 L12M12 inside vertical gusset at L10 has laminar rust with up to 25% section loss over a 6" diameter area. Non-FC Member. See photo 73. North Truss: L11M11 SW flange is bent. Non-FC Member. Span 2: South Truss: L4M4 vertical gussets have laminar rust; this is typical at many vertical gussets. Non-FC Member. M5U5 connection has a missing rivet head on SE side of flange on inside of connection. See photo 75. Non-FC Member. North Truss: L0M1 SW flange is bent. Non-FC Member. M3U3 has impact damage to the southwest flange which is bent west 6" and rotated clockwise with respect to plan view. The M3 connection has two sheared rivets and the angle is torn through to the second row of rivets and across the first leg of angle and stops at a rivet in the second leg. See photos 68 and 69. REPAIR #10026. Non-FC Member. Span 3: South Truss: L4 to M5 ripple at south east corner of member, 6" above sidewalk sway 10 is bent 12" to the west (see 2009 inspection report). North Truss: L4M5 SE flange is bent inward near sidewalk level. Non-FC Member. L6M7 SE flange is bent at curb level and NE and NW flanges are bent about 2 ft. above sidewalk. Non-FC Member. UPPER SWAY BRACES: Each span has a west and east portal and six intermediate sway braces numbered 2, 4, 6, 8, 10 and 12 according to their connection at the south truss. The bottom gusset connections at all portals have up to 1/2" of pack rust and up to 50% section loss in the plates. There is high load damage to all portals and sways mostly over westbound lane; some specific defects are noted below. Span 1 West portal flange is bent 2" in several places. See photo 70. Measured 14'-9" clearance at south fog line, Sways 2, 4 and 6 have flanges bent 1" to the west and east. Sway 8 flange is bent 1" to the west and 2" to the east. Sway 10 flange is bent 1" to the west bent and over left eastbound lane. Span 2 west portal flange is bent 1" west. Sways 2, 4, 6, 8 and 10 have flanges bent 1" to the west. Span 3 west portal flanges are bent 1" to the west. Sways 2 and 4 have flanges bent 1" to the west. Sway 6 is bent 2" to the west. Sway 8 is bent 6" to the west over westbound lane. Sway 10 is bent 12" to the west and up 2". Sway 12 flange is bent up 2". East portal bottom angles are bent 3" to the west.
133	On average 1/16" section loss in thickness to gusset plates from corrosion. Section loss in critical areas. Significant pigeon guano and debris build-up inhibits inspection of gusset plate areas inside of the chords at many panel points. See the fracture critical report for more detail on corrosion issues.

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Bridge Name PUYALLUP RIVER BRIDGE	Route 03246	Location 0.2 N JCT I-5
Structure ID 08501100	MilePost 9.23	Intersecting PUYALLUP RIVER

152	Steel floor beams: Surface and laminar rust along bottom flanges and top flanges in places below leaking deck joints. Notes on the wind gusset plate connection between the truss, wind bracing, and floor beam bottom flanges are recorded in this sections as well. There is heavy section loss in most plates as well as pack rust between the plates and the floor beam bottom flanges. Additionally the wind plates are holding a significant amount of dirt and debris, cause corrosion to the plate and to the floor beam bottom flanges. Dirt and debris has fallen through the openings between the truss members and the sidewalk, down on to the top of the floor beam top flange. Debris is holding moisture and corroding the cantilevered floor beam top tension flange. See the fracture critical inspection report for additional notes on the floor beam bottom flanges. SPAN 1: FB2 at the south truss, 1/2" pack rust between the wind plate and bottom flange. FB2 at the north truss, pack rust has deformed the wind plate at the bottom flange. FB4 at the south truss, heavy corrosion to the wind plate. FB4 at the north truss, rusted through at east edge. FB6 top and bottom flanges at mid-span have laminar rust with up to 10% section loss, see photo 43. FB 8 at the north truss, S1 connection to FB has 1/2" pack rust, inside web. FB12 at the north truss, connection gusset plate rusting. SPAN 2: FB2, east face, top flange above stringers G - K, corrosion with 25% loss. FB4 at south truss, wind plate is holding debris & moisture and is knife edged at edges. FB6 at north truss, wind plate has laminar corrosion and is scalloped with 5% section loss. FB6, west face, top flange above stringers G - I, corrosion with 25% loss. FB10 at south truss, south sway brace missing two rivet heads & bottom section of angle has 50% section loss. East face, below stringers D - H, 6" diameter circle of corrosion with 1/16" deep section loss. Top flange above stringers D - H, corrosion with 25% loss. FB12 at north truss, west side sway brace rusting, angle one missing rivet head. West side, top flange above stringers F - J, corrosion with 25% loss. FB14 east face, below stringers E - I, 6" diameter circle of corrosion with 1/16" deep section loss. West face, top flange above stringers F - H, corrosion with 25% loss. SPAN 3: FB0 at south truss, 1/2" pack rust between the wind plate and bottom flange. FB2, west face, top flange above stringers D - I, corrosion with 15% loss. FB4, west face, top flange above stringers F - I, corrosion. West sway brace angle connection has 10% section loss, two rivet heads gone. FB4, east face, below stringers E, F, and G, 8" diameter circle of corrosion with 1/16" deep section loss. FB6 west face, below stringers F I, 8" diameter circle of corrosion with 1/16" deep section loss. Corrosion is associated with a deck spall, see photo #83. FB6 at Stringer 6F has some scalloping, see photo 44. FB8 top flange above stringers G - I, K and L, corrosion with 50% loss. FB10 top flange above stringers E and G, corrosion with 50% loss. FB10, at north truss, east sway brace is rusted away. FB14 top flange above stringers H and I, corrosion with 50% loss. FB16 top flange above stringers D - H, corrosion with 50% loss. Wind plate 100% section loss. Top of FB6 has pack rust between stringers G & H.
205	Concrete columns are located at Piers 1 and 4.
214	Concrete web walls are located at Piers 1, 2, 3, and 4. Web walls at Piers 2 and 3 are abraded at the water line and have hairline vertical leaching cracks. Pier 2, east face has three shallow spalls approximately 2 sq. ft. each.
227	Concrete submerged columns are located at Piers 2 and 3. The columns are abraded at the waterline with hairline vertical and horizontal leaching cracks in the columns near caps. Column 2A has a vertical spall on SW side. Pier 3 south nose has debris build up, see photo 74. REPAIR#10024.

BRIDGE INSPECTION REPORT

Ver Date: 01/22/2014

Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16	Page: 7/10	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE	Route 03246	Location 0.2 N JCT I-5
Structure ID 08501100	MilePost 9.23	Intersecting PUYALLUP RIVER

234	Pier 1: Dirt accumulation on top of Pier. Piers 2 and 3: Wind shoe bearing grout pads are typically cracked and spalled out. Pier 3, Span 3: Spall of cap beam at bearing support at FB15, see photo #84. Pier 4, Span 3: Dirt and debris on top of Pier cap. South bearing at has debris and vegetation.
266	Concrete sidewalk deck has light scale, hairline map cracking, and remnants of ACP still in areas along sidewalk. Sidewalk soffit has hairline transverse leaching cracks and scattered spalls in outside edge of south sidewalk at even numbered truss members, see photo 71. Span 1: Center stringer at FB3 south connection, spalling sidewalk soffit. Between L3 and L4 south has a 5 ft. x 4" delamination in soffit L4 north has laminar rust at the sidewalk stringer connection. Around L8M9 the sidewalk is broken due to impact damage. L10 south has an edge spall and delamination in soffit. South of FB11, Spalled concrete to the sidewalk edge Span 2: FB3, north stringer of sidewalk has rusting, also small spall of concrete soffit. L4 south sidewalk soffit has a 16" x 8" x 2" deep spall with an exposed angle bracket attached to L4M4 south. Spalling concrete sidewalk soffit at center south west stringer L12N. Sidewalk spalling at mid span between FB15 and FB16 south edge. Span 3: L6 of south truss has spalls in edges of rail posts. Spalled sidewalk edge, south side at FB8 connection. South edge of sidewalk spalling at FB12. L14 of south truss has spalls in edges of rail posts. South edge of sidewalk spalling at FB16.
311	Roller nest bearings are located at Piers 1, 2, and 3. The bearings are corroded and frozen causing the exposed ends of retainer bars to bend outward due to pack rust, see photo 36, REPAIR #10009. 2011 Notes: SPAN 1: Pier 1 south roller bearing is frozen due to accumulation of dirt. Pier 1 north roller bearing is frozen due to accumulation of dirt and vegetation, see photo #85. SPAN 2: Roller bearing is frozen rust south. Roller bearing is frozen rust north. SPAN 3: Both north and south roller bearings are frozen pier 4. The spaces between the rollers in each nest are solidly and completely filled with corroded rocker remnants and debris. Repairs or replacement are essential to restore there intended capacity for movement.
313	Fixed bearings are located at Piers 2, 3, and 4. SPAN 2: Concrete spalling at center bearing Pad Pier 3. SPAN 3: Center bearing pad pier 3 east side has concrete spalling. North and South bearings are filled with debris. Center bearing pad pier 4 west side has concrete spalling.
340	42" High metal pedestrian railing has surface rust and rust blooms throughout, especially top of rail.
355	For further details of damaged rivets, see Element 126.
357	For pack rust information in detail, see element notes 113, 121, 126 and 152 and the Fracture Critical report attached to the 'Files' tab.
361	The Puyallup River flows south to north under Span 2 and the east quarter of Span 1 and the west quarter of Span 3. The pier footings are 14 ft. deep supported on timber piles with 20 ft. penetration. Pier 2 footing at the upstream end was previously noted as having 4 feet of vertical face exposure, exposure noted during the 2013 underwater inspection indicates a reduction to 1.2 ft . Scour holes filled with timber debris are located at Pier 2 and within 5 ft. of Pier 3, see Element 9.
362	For further details of Impact damage, see element 126.
402	Poured rubber joint filler is missing and open in places causing corrosion of the floorbeams and stringers from leaking joints, see photo 37. REPAIR #10023.

BRIDGE INSPECTION REPORT

Ver Date: 01/22/2014

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Status: **Released**

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Program Mgr: Roman G. Peralta

Bridge No.	F16	Page:	8/10	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE	Route	03246	Location	0.2 N JCT I-5
Structure ID	08501100	MilePost	9.23	Intersecting	PUYALLUP RIVER

408	Steel sliding plates are located at Piers 1, 2, 3, and 4. Pier 1: Broken in the North lane with minor spalls along header, see photo 40, REPAIR #10005. Loose and clanging in the eastbound lane. Pier 2: Loose or broken near full width, clanging. Piers 3: loose and clanging in the eastbound lane. Span 3 is slightly lower than Span 2 at north end of joint. Span 3 L0 joint header is corroding at the soffit level. Pier 4: Near full width 'D' spalling. Sliding plate joints located in the sidewalks are jammed full of dirt and debris, causing the plate to jut upwards up to 1-1/2". Joints measured at south fog line: Year Pier 1 Pier 2 Pier 3 Pier 4 Time Temperature: 2013 1-3/8" 1-1/4" 1-1/4" 1" 3:00pm at fogline 65°F 2011 1-3/8" 7/8" 1" 7/8" 1:00pm at fogline 58°F 2008 1-3/4" 1-1/8" 1-1/4" 1" 10:00 pm 45°F 2006 1-3/4" 1-1/4" 1-1/2" 1-1/4" 9:40am 25°F 2004 1-5/8" 1" 1-1/4" 1-1/8" 12:45pm 55°F 2002 1-5/8" 1" 1-1/4" 1" unknown 55°F.
663	Deck Overall is coded '5' based on minor deterioration due to medium scale and minor section loss due to spalling.
671	Superstructure Overall is coded '4' due to the condition of the primary steel members. See Element notes 113, 126, and 152.
675	There are six 4" diameter PVC pipes on the south side and two 18" diameter insulated pipes on the north side. The PVC pipe has separated at several of the splice points exposing telephone lines, see photos 50 and 62, REPAIR #10020.
681	The approach roadway is coded '9'. The bridge spans between bridges F16B and F16C over its own west and east expansion joints. The transition from bridge to bridge is smooth over the expansion joints.
684	The bridge is not protected by any bridge rails.
685	Bridges on either side; F16B on the west and F16C on the east.
686	Bridge rail is continuous from bridge to bridge.
687	Bridge rail is continuous from bridge to bridge.
688	Last rating was performed in 2009 and reflects the lowest rating of all the F16 structures. A structure specific rating should be created and added to the bridge file. Review rating: The rating should be reviewed for increased deterioration in elements 113, 126, 133, and 152. Due to amount of section loss from corrosion, recommend rating for gusset plates. See element 133 and the attached FC report. REPAIRS #10028 and #10029.
694	Vertical clearance measured 14' 7-1/2" at Span 1 southwest portal in 2006; the bridge is posted 14' 3" at the west end of Bridge F16A but is not posted east of the bridge. REPAIR #10027.
901	There are rust blooms over 25% of the bridge; 10% of the metal substrate is exposed, see photo 41, REPAIR #10011.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10005	1	B		11/17/00		
10009	1	B		11/17/00		
10025	1	B		11/29/06		
10026	1	B		11/29/06		

BRIDGE INSPECTION REPORT

Ver Date: 01/22/2014

Agency: TACOMA

Status: **Released**

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No.	F16	Page:	9/10	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE	Route	03246	Location	0.2 N JCT I-5
Structure ID	08501100	MilePost	9.23	Intersecting	PUYALLUP RIVER

10027	1	B	12/18/08
10029	1	B	06/27/13
10030	1	B	06/27/13
10031	1	B	06/27/13
10011	2	B	11/17/00
10013	2	B	11/17/00
10020	2	U	11/17/00
10023	2	B	11/04/02
10028	M	B	06/27/13

Inspections Performed and Resources Required

<u>Report Type</u>	<u>Date</u>	<u>IT</u>	<u>Frq</u>	<u>Hrs</u>	<u>Insp</u>	<u>CertNo</u>	<u>Coinsp</u>	<u>Note</u>
Routine	06/27/13		24	4.0	DRS	G0604	ALP	
Resources			Use	Hour	Min	Req	Max	Notes
Fracture Critical	06/27/13		24	30.0	DRS	G0604	ALP	
Resources			Use	Hour	Min	Req	Max	Notes
UBIT			50	8.00	50	50	50	SDOT Aspen A62 is capable of reaching both bottom and upper truss elements. UBIT is the only UBIT that can be used for the inspection of the bottom chords and floor system. Power lines on the north side of the bridge prevent deployment through the north truss and the UB30 will not reach to inspect the north chord from a south deployment. Narrow lanes and tight truss panels prevent the deployment of the UB60.
Bucket		BK	3.00			BK	BK	A bucket truck is required for inspection of the upper truss members. The UBIT cannot deploy off the north side due to power lines in close proximity of the bridge and cannot reach the uppers due to the 5 ft. wide sidewalks.
Flagging		LA	12.00					City of Tacoma - Dan Soderlind 253-591-5263 (Engineer) and Ron Johnson 253-591-5276 (cell is 253-278-26 - 253-591-5338 (cell 253-606-5470).
Special Equipment		OT			OT	OT	OT	The northwest corner of the floor system and panel point L0 north at Piers 2 and 3 can be accessed by tying off to the bridge and climbing onto the piers using a D-strap.

BRIDGE INSPECTION REPORT

Ver Date: 01/22/2014

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Status: **Released**

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Program Mgr: Roman G. Peralta

Bridge No.	F16	Page:	10/10	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE	Route	03246	Location	0.2 N JCT I-5
Structure ID	08501100	MilePost	9.23	Intersecting	PUYALLUP RIVER

Scheduling Restrictions		TRF	TRFC		TRFC	9:00 A.M. to 5:00 P.M. in 2011.	
		C					
Underwater	09/19/13	D	60	2.0	SDS	G9912	EBV Echelon Engineering performed the underwater inspection on 9/19/2013.
Resources		Use	Hour	Min	Req	Max	Notes
Informational	12/16/13		1.0	ALP	G0507	SCO	Informational created to upate notes.
Resources		Use	Hour	Min	Req	Max	Notes

BRIDGE INSPECTION REPORT

Ver Date: 09/09/2013

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Program Mgr: Roman G. Peralta

Bridge No. F16C

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Structure Type

Bridge Name PUYALLUP RIVER BRIDGE C

Route 03246

Location 0.2 N JCT I-5

Structure ID 08656500

MilePost 9.38

Intersecting TERRAIN

Inspector's Signature DRS

IDent# G0604

Co-Inspector's Signature

CNS

										Inspections Performed				
										IT	NT	HRS	Date	Rep Type
5	Structural Adqcy	(657)	N	Pier/Abut/Protect	(679)	1925	Year Built	(332)		Y	24	1.0	06/27/2013	Routine
2	Deck Geometry	(658)	N	Scour	(680)	0	Year Rebuilt	(336)						
9	Underclearance	(659)	9	Retaining Walls	(682)	55	Oper Rating	(551)						Fract Crit
5	Operating Level	(660)	9	Pier Protection	(683)	33	Inv Rating	(554)						Underwater
8	Alignment Adqcy	(661)	0	Bridge Rails	(684)	A	Open Close	(293)						Special
9	WaterwayAdqcy	(662)	N	Transition	(685)	9999	Vert Over Deck	(360)						Interim
7	Deck Overall	(663)	N	Guardrails	(686)	0000	Vert Under	(374)						Equipment
7	Drains Condition	(664)	N	Terminals	(687)	N	Vert Und Code	(378)						Damage
6	Superstructure	(671)	Y	Revise Rating	(688)	0.00	Asphalt Depth							Safety
1	Number Utilities	(675)		Photos Flag	(691)	35	Speed Limit							Short Span
5	Substructure	(676)		Soundings Flag	(693)									
9	Chan/Protection	(677)		Measure Clearance	(694)									
9	Culvert	(678)												
										Total: 1.0				
										Suff Rating: 62.44 FO 62.44 FO				

BMS Elements							
Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	3402	SF	3362	20	20	0
35	Concrete Deck Soffit	3402	SF	3000	200	202	0
110	Concrete Girder	463	LF	430	20	10	3
205	Concrete Pile/Column	7	EA	0	7	0	0
234	Concrete Pier Cap / Crossbeam	36	LF	25	0	11	0
266	Concrete Sidewalk & Supports	956	SF	0	956	0	0
331	Concrete Bridge Railing	189	LF	0	188	1	0
402	Hot Poured and/or Premolded Joint Filler	36	LF	0	0	36	0

Notes	
0	Bridge is oriented from west to east between bridges F16 and F16D. The west end of Span 1 is supported by Pier 4 of Bridge F16. The east end of Span 3 is supported by Pier 1 of Bridge F16D. The columns, cap, and expansion joints at the west end of Span 1 and east end of Span 3 are not included for this bridge. See File #1 for Bridge Layout.
12	For 2013 Inspection the following note still applies. Deck is worn to aggregate and has transverse cracks. Span 2 has 20 sq. ft. of medium scale in the center lane.

BRIDGE INSPECTION REPORT

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Program Mgr: Roman G. Peralta

Bridge No. F16C	Page: 2/2	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE C	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656500	MilePost 9.38	Intersecting TERRAIN

35	Some transverse leaching cracks are noted.
110	Concrete girders are in good shape. Some cracks are visible, but overall each girder is in good condition.
205	This small bridge has only 7 columns. They are all in good condition. The column/pile cap interface has much vegetation growth and has the most deterioration, but still in good condition.
234	The concrete pier cap/cross beams are in good condition. Some spalling is noted with some exposed rebar, but overall good condition.
266	Sidewalks are in good condition. Minor cracks and scaling are noted throughout bridge.
331	Bridge rail is in good condition. Minor spalls and cracks were seen.
402	It is not clear from the inspection if a hot poured material has ever been present on this joint. The joint is unprotected and open. It appears to be functioning fine with little or no spalls. Only one joint is counted on this bridge as the other joints are attributed to F16 and F16D.
675	Utilities consist of six 4" diameter PVC pipes clustered together on the south side of the bridge. The PVC pipe has separated at several of the splice points near Pier 4.
681	The transition from bridge to bridge is smooth over the expansion joints.
685	Transitions do not exist on the bridge.
686	Guardrails do not exist on the bridge.
687	Terminals do not exist on the bridge.
688	Bridge F16 was separated into six structures. Each requires its own rating. See File #1 for bridge layout.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10000	1	B		12/01/08		
10001	2	B		06/23/11		
10002	2	B		06/23/11		

Inspections Performed and Resources Required

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
Routine	06/27/13		24	1.0	DRS	G0604	CNS	Routine bridge inspection. Inspection was performed from the ground using binoculars.
Resources	Use	Hour	Min	Req	Max	Notes		
UBIT	50	1.00	50	50	60	Aspen A62 was deployed from south side in 2011.		
Flagging	LA	1.00				Contact Dan Soderlind at 253.591.5263 to arrange for flagging.		
Scheduling Restrictions	TRF C					2011 Traffic Window: 9:00 a.m. to 4:00 p.m.		

BRIDGE INSPECTION REPORT

Ver Date: 08/27/2014

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Status: **Released**

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Program Mgr: Roman G. Peralta

Bridge No. F16D

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Structure Type

Bridge Name PUYALLUP RIVER BRIDGE D

Route 03246

Location 0.2 N JCT I-5

Structure ID 08656200

MilePost 9.40

Intersecting RAILROAD

Inspector's Signature ALP

IDent# G0507

Co-Inspector's Signature

						Inspections Performed					
						IT	NT	HRS	Date	Rep	Type
3	Structural Adqcy (657)	N	Pier/Abut/Protect (679)	1925	Year Built (332)						
2	Deck Geometry (658)	N	Scour (680)	0	Year Rebuilt (336)	Y	24	2.0	06/27/2013	Routine	
8	Underclearance (659)	9	Retaining Walls (682)	23	Oper Rating (551)	Y	24	10.0	06/27/2013	Fract Crit	
2	Operating Level (660)	9	Pier Protection (683)	14	Inv Rating (554)					Underwater	
8	Alignment Adqcy (661)	0	Bridge Rails (684)	P	Open Close (293)					Special	
9	WaterwayAdqcy (662)	0	Transition (685)	1401	Vert Over Deck (360)	Y	12	8.0	06/23/2014	Interim	
5	Deck Overall (663)	0	Guardrails (686)	2800	Vert Under (374)	Y	24	8.0	06/24/2011	Equipment	
7	Drains Condition (664)	0	Terminals (687)	R	Vert Und Code (378)					Damage	
3	Superstructure (671)	Y	Revise Rating (688)	0.00	Asphalt Depth					Safety	
1	Number Utilities (675)		Photos Flag (691)	30	Speed Limit					Short Span	
6	Substructure (676)		Soundings Flag (693)								
9	Chan/Protection (677)		Measure Clearance (694)								
9	Culvert (678)										
						Total: 8.0					
						Suff Rating: 6.00 SD 6.00 SD					

BMS Elements							
Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	4212	SF	4000	200	10	2
35	Concrete Deck Soffit	4212	SF	4000	100	100	12
113	Steel Stringer	1482	LF	1273	0	152	57
126	Steel Thru Truss	234	LF	0	0	0	234
133	Truss Gusset Plates	24	EA	10	0	10	4
152	Steel Floor Beam	272	LF	196	0	76	0
205	Concrete Pile/Column	4	EA	4	0	0	0
214	Concrete Web Wall between Columns	62	LF	60	0	2	0
234	Concrete Pier Cap / Crossbeam	90	LF	75	0	15	0
266	Concrete Sidewalk & Supports	1170	SF	1000	150	20	0
311	Moveable Bearing (roller, sliding, etc)	2	EA	0	0	0	2
313	Fixed Bearing	2	EA	2	0	0	0

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Status: **Released**

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Program Mgr: Roman G. Peralta

Bridge No. F16D	Page: 2/7	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE D	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656200	MilePost 9.40	Intersecting RAILROAD

340	Metal Pedestrian Railing	234	LF	234	0	0	0
357	Pack Rust	20	EA	10	10	0	0
362	Impact Damage	1	EA	0	0	0	1
402	Hot Poured and/or Premolded Joint Filler	180	LF	0	0	180	0
408	Steel Sliding Plate	72	LF	0	0	72	0
901	Red Lead Alkyd Paint System	15000	SF	7400	7500	100	0

Notes

0	Interim required in even years for the floor system, the bottom chords, and the delaminated deck area between Stringers C and D near FB 1. Bridge is oriented west to east. Pier 1 is closest to Tacoma. The quantities for the columns, caps, and expansion joints at Piers 1 and 2 are included for this bridge. There are six 4 inch diameter utility lines on the south side attached to the sidewalk braces. SDOT A62 able to penetrate truss openings. Power lines along the north side prohibit deployment, all deployments are from the south side. Bucket truck or climbing best methods for accessing uppers. UBIT requires a UP RR flagger for tracks below.
1	Steel truss is fracture critical. Overall, inspection is difficult since bottom chord has been painted with a thick biturine paint coat which is heavily cracked. See attached fracture critical report and drawings for details.
11	All the F16 bridges are posted at 10 tons maximum. Posting is due to update to rating for F16A.
12	Concrete deck is worn to aggregate with transverse cracks at 2ft to 3ft O.C.. Westbound lane at L1 has a 16" x 8" x 2" pothole. Several large aggregate pop outs. Minor spalling along edges along joints.
35	Transverse leaching cracks throughout. Deck fillets are spalled at the floorbeam interface. FB1, west side, Concrete deck spalling with exposed rebar between stringers C&D, see photo #75. FB1, west side, Concrete deck spalling between stringers H&L. FB2, west side of, 3 ft. x 3 ft. open cracked and delaminated area between Stringers C and D (Photo #1). REPAIR #10000. FB2, near, 3 sq. ft. of spalls with 3" of exposed rebar between Stringers B and C. FB4 north side, Minor concrete spalling between stringers A - B. FB4 and FB5, between, 4 sq. ft. of spalls along Stringer J, K, and L. FB4, west side, end 2' there is a 1/4" gap between stringer top flange and the deck. The deck flexes downward under truck traffic. FB4, west side, Minor concrete spalling between stringers H-I & J. FB4, west side, Concrete deck spalling between stringers K- L & M, REPAIR #10011.
113	Steel stringers have pack rust along the top flanges and the webs at location of poured joints FB2, pack rust along stringer top flanges and the webs, (Photo #18). FB2, west side stringers H & I have 50% section loss, stringers J & K are rusting. FB2, east side Stringers C-D-E-F&G have heavy laminar corrosion along the top flange and shim above. FB4, pack rust along stringer top flanges and the webs. FB4, west side, Stringers G-H-I&J have rusting with 25% section loss to top flange near FB4. FB4, west side Stringer M has rusting at connection to FB4.

BRIDGE INSPECTION REPORT

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Program Mgr: Roman G. Peralta

Bridge No. F16D	Page: 3/7	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE D	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656200	MilePost 9.40	Intersecting RAILROAD

126	Truss cleaned 12/16/2009. REPAIR #10005 verified 12/16/2009. NOTE: because both north and south portals are damaged and the center sway brace is destroyed this structure is lacking proper lateral support. Web and Top chord members: East portal has 1 angle torn clean through (Photo #45). Portal is pushed west. West portal has 1 leg of one angle torn through over center lane (Photo #71). Portal has numerous high impact hits, both east bound and west bound traffic, see photo #77. North lane is bent appx. 12" to the west. L1U1 north is bent 1" over 9" on the southeast corner near L1 from traffic impact. L3U3 north and south are bent inward from impact damage to the sway brace. Sway brace connection to L3U3 south is torn at the lower connection (Photo #67). Sway brace connection to L3U3 north is severed at the lower connection (Photo #68) and the upper connection (Photo #69). Sway brace also has channel torn clear through at midspan brace (Photo #70). U5-L6 north top flange on the south side is bent over 3 ft. from traffic impacts. Bottom Chord members: L1 north, lateral gusset is knife edged (Photo #52). L2 north to L0 south, lateral gusset is holed through at L2 north (Photo #44). L2 north, rivet heads deteriorating at the bottom gusset of bottom chord, see photo #76 L2 south to L0 north, lateral brace holed through at L2 south (Photo #62). L3 north lateral, gusset is knife edged (Photo #58). L4-U4 north, corrosion in the member flanges, with 1/16" section loss, at the floor beam top flange level. L4 north to L2 south, lateral brace is holed through at L4 north due to corrosion. L4-U4 south, corrosion in the member flanges, with 1/16" section loss, at the floor beam top flange level. L4 south to L2 north, lateral brace is holed through with 100% section loss at L4 south due to corrosion (Photo #31 and #78). Brace is also holed through in bottom leg with top leg rusted away at L2 north (Photo #46). L4 south to L6 north, lateral brace is missing one leg at L4 south due to corrosion (Photo #30). L4 south, lateral gusset is knife edged (Photo #32). L4 north to L6 south, lateral brace is no longer connected at L4 north due to corrosion (Photo #29). REPAIR #10001.
133	Significant section loss in several gusset plates due to pack rust and laminar corrosion. Section loss in critical areas, up to 50 percent of plate thickness. See the Fracture Critical Report and attached supplementary gusset plate drawings.
152	FB4 top flange west angle between stringers F - J has significant section loss - 0.25" remaining by ultrasound. Plan calls out 9/16" angle. Cannot access cover plate. 06/24/2011: FB0 sway brace is rusting at the south connection. a) two rivet heads have deteriorated. b) horizontal gusset plate has 25% section loss. c) the angle connector has 25% section loss. FB2 bottom flange cover plate has 100% section loss over 3" width (Photo #19). FB2 west side top flange has 25% section loss at stringer G and between stringers L & M. FB2: Bottom gusset plate at FB 2 north is rusting. 20 rivet heads have deteriorated. Sway brace at FB 2 west angle is rusted 100% gone on vertical leg, horizontal gusset is knife edged, and sway brace has 100% section loss. Sway brace at FB2 east side has 100% section loss, vertical leg of angle has 100% section loss. FB2 west side, horizontal gusset plate has 25% section loss. FB2 west side sway brace angle connection has two rivet heads deteriorated and sway brace is holed thru from rust. FB4 west side has 25% section loss at stringers G-H-I&J. FB4 bottom flange gusset plate is knife edged. FB4 south sway brace has 100% section loss west side. FB4 east side the south sway brace angle has 100% section loss and the sway brace has 100% section loss. FB4 east side the north sway brace has 100% section loss and the angle connection has 100% section loss. FB6 1/4" pack rust between the flange and web along the full length. 1/8" loss to t of the top flange along the east side. FB6 north, horizontal gusset plate to sway angle is rusting with 1/2" pack rust. FB6 south gusset plate connection with bearing assembly is rusting. FB6 south gusset plate is warped from pack rust. FB6 south end, bottom flange has 10% section loss for a 12" length. FB6 horizontal gusset plate has 75% section loss around angle connection.

BRIDGE INSPECTION REPORT

Ver Date: 08/27/2014

Agency: TACOMA

Status: Released

Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No.	F16D	Page:	4/7	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE D	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656200	MilePost	9.40	Intersecting	RAILROAD

205	Pier 1, Vegetation has grown around Pier 1. Graffiti exists on the east wall of Pier 1, REPAIR #10012, REPAIR #10013. Pier 2, Vegetation has grown around south column
214	Pier 1 west face has 3 spalled concrete with exposed rebar locations. Pier 2, Concrete web wall west face, has 2 ft. of exposed rebar due to lack of cover. Pier 2 has a 5 ft crack on the west face of the web wall, in the south half.
234	Pier 1 cap, crack in cap west side between Girders C & D, see photo #79, REPAIR #10015. Pier 1 cap has several spalls, up to 1" deep with 12" of exposed rebar. Pier 1 cap, east face, has several small delaminations.
266	Sidewalk surface has light scale and map cracking throughout. Edges have some spalls. Soffit has transverse leaching cracks. Steel support brackets have areas of pack rust that is up to 1/8" thick at some connections. Numerous handrail supports have pack rust below sidewalk south side. FB1, South sidewalk bracket has rusting to lower chord with 25% section loss in a 6 inch space. FB1, north side, upper member of handrail joint is rusting. FB 2 north side sidewalk support has up to 1 inch pack rust between members. FB2 - FB3, north side, sidewalk soffit has cracks leaching between FB2 & FB3. L3 north truss, east side, sidewalk soffit spalling. L5 north truss, sidewalk bracket has pack rust along its top member. L5 North, Shear plate for sidewalk has 2" diameter hole (Photo #27).
311	Rocker nests are frozen from corrosion, debris and vegetation. (Photo #22). REPAIR #10003. The spaces between the rollers in each nest are solidly and completely filled with corroded rocker remnants and debris. Repairs or replacement are essential to restore there intended capacity for movement. L6 south, 1/2" of pack rust between inboard bearing plate and lateral gusset (Photo #65).
313	Pier 1 north, bearing pad has debris and vegetation around it. 4 of 4 anchor rod nuts have 30% section loss. Pier 1 south, 4 of 4 anchor rod nuts missing. Horizontal tie plate has 100% section loss. L0 north, bearing plate has 1/2" of pack rust between itself and lateral gusset (Photo #33).
340	Metal pedestrian railing has rust blooms throughout. Heavy corrosion at rail post joints, worst at L1 north with 100% section loss.
357	See element notes 113, 126, 152, 266, 311, 313 and FC report.
362	See element 126.
402	Poured rubber is loose and all the joints are leaking water, especially at FB 2 and 4 (Photo #17). REPAIR #10006.

BRIDGE INSPECTION REPORT

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Program Mgr: Roman G. Peralta

Bridge No. F16D	Page: 5/7	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE D	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656200	MilePost 9.40	Intersecting RAILROAD

408	Pier 1 sliding plate is loose and banging, joints are 'D' spalled. Pier 2 8.5' section missing, remaining sliding plate is loose and banging, joints are 'D' spalled, (Photo #72). REPAIR #10002. Joints measured at south curb: YEAR WEST EAST TEMP. TIME 2013 7/8" 7/8" 70° F, 4:30 PM. 2011 1/2" 3/8" 55° F, 1:00 PM. 2009 5/8" 3/4" 50° F, 12:00pm 2008 3/4" 7/8" 45° F, 2:30pm 2006 3/8" 1-1/8" 35° F, 1:15pm.
660	Bridge currently posted at 18T, 28T, and 36T (Photo #74).
671	Superstructure coded "3" due to the poor condition of the truss. See element 126 and attached FC report.
675	Six 4" diameter PVC pipes on the south side of the bridge. The PVC pipe has separated at several of the splice points.
688	Review rating: Current rating performed in 2010. Rating should be reviewed for increased deterioration in elements 113, 126, 133, and 152. Due to amount of section loss from corrosion, recommend rating for gusset plates. See attached FC report and Supplemental FC drawings. REPAIR #10016 and #10017.
694	Clearance at the east end of F16D (easternmost truss in the corridor) and west end of F16A (westernmost truss in the corridor) is posted at 14'-3" (Photo #73). Clearance measured at 14'-01" in 2004. Clearance should be posted at 13'-10". REPAIR #10008.
901	There are rust blooms throughout and surface rust on approximately 50% of the steel (Photo #10). REPAIR #10004.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10000	1	B		11/17/00		
10001	1	B		11/17/00		
10003	1	B		11/17/00		
10004	1	B		11/17/00		
10006	1	B		11/21/02		
10008	1	V		12/11/04		
10013	1	B		06/24/11		
10016	1	B		06/27/13		
10017	1	B		06/27/13		
10018	1	B		06/27/13		
10002	2	B		11/17/00		
10011	2	B		06/24/11		

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Status: **Released**

Printed On: 10/03/20

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Bridge No. F16D	Page: 6/7	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE D	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656200	MilePost 9.40	Intersecting RAILROAD

10014 2 B	06/24/11
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10015 2 B	06/24/11
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10012 3 B	06/24/11
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Inspections Performed and Resources Required

<u>Report Type</u>	<u>Date</u>	<u>IT</u>	<u>Frq</u>	<u>Hrs</u>	<u>Insp</u>	<u>CertNo</u>	<u>Coinsp</u>	<u>Note</u>
Routine	06/27/13		24	2.0	DRS	G0604	ALP	
Resources	Use	Hour	Min	Req	Max	Notes		
Fracture Critical	06/27/13		24	10.0	DRS	G0604	ALP	
Resources	Use	Hour	Min	Req	Max	Notes		
UBIT	60	19.00	60	60	60	SDOT Aspen A62. Interior panel points can be accessed, UBIT will swing into adjacent lane during deployment and retraction.		
Bucket		BK	8.50			Cimbing or a lift/bucket truck can be used to access upper truss members. If necessary below bridge access is from the at-grade crossing about 1/4 mile south of the bridge and driving between the two tracks.		
Flagging		UP	24.00			UBIT requires flagging 2 lines of UP and Tacoma City tracks. UP RR Flagging for both railroads. Bridge crosses Port Main and Port Pass tracks. City of Tacoma arranges flagging. Bill to:Dan Soderland747 Market St. #520Tacoma, WA 98402		
Flagging		LA	30.00			City of Tacoma - Dan Soderland (253) 591-5263.		
Scheduling Restrictions		TRF C		TRFC	TRFC	TRFC	9:00 a.m. to 4:00 p.m.	
Access Issues						Advanced notice required to UP RR to drive bucket truck between RR tracks. Tacoma Rail stores cars on tracks which will prevent bucket from accessing bridge. Bridge crosses Port Main and Port Pass tracks.		
Interim	06/23/14		12	8.0	ALP	G0507	Interim inspection on even years to monitor advanced corrosion of truss bottom chord members and gusset plates. Only changes made to report as a result of the 6/23/2014 interim inspection were to the gusset plate element condition states, the visual fc report, and the supplementary fc drawings, and changes made only to lower chord elements.	
Resources	Use	Hour	Min	Req	Max	Notes		
Equipment	06/24/11		24	8.0	KN	G0308	JS	Bridge crew hours for cleaning truss entered for cost recovery. Remove inspection type after next inspection.

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Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No.	F16D	Page:	7/7	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE D	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656200	MilePost	9.40	Intersecting	RAILROAD

Resources

Use Hour Min Req Max

Notes

BRIDGE INSPECTION REPORT

Ver Date: 09/09/2013

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Printed On: 10/03/20

Program Mgr: Roman G. Peralta

Bridge No. F16E

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Structure Type

Bridge Name PUYALLUP RIVER BRIDGE E

Route 03246

Location 0.2 N JCT I-5

Structure ID 08656600

MilePost 9.42

Intersecting RAMP

Inspector's Signature DRS

IDent# G0604

Co-Inspector's Signature

CNS

						Inspections Performed					
						IT	NT	HRS	Date	Rep	Type
5	Structural Adqcy (657)	N	Pier/Abut/Protect (679)	1925	Year Built (332)	Y	24	1.0	06/27/2013	Routine	
2	Deck Geometry (658)	N	Scour (680)	0	Year Rebuilt (336)						
4	Underclearance (659)	9	Retaining Walls (682)	55	Oper Rating (551)						Fract Crit
5	Operating Level (660)	9	Pier Protection (683)	33	Inv Rating (554)						Underwater
8	Alignment Adqcy (661)	0	Bridge Rails (684)	A	Open Close (293)						Special
9	WaterwayAdqcy (662)	0	Transition (685)	9999	Vert Over Deck (360)						Interim
6	Deck Overall (663)	0	Guardrails (686)	1603	Vert Under (374)						Equipment
7	Drains Condition (664)	0	Terminals (687)	H	Vert Und Code (378)						Damage
6	Superstructure (671)	Y	Revise Rating (688)	0.00	Asphalt Depth						Safety
1	Number Utilities (675)		Photos Flag (691)	35	Speed Limit						Short Span
5	Substructure (676)		Soundings Flag (693)								
9	Chan/Protection (677)		Measure Clearance (694)								
9	Culvert (678)										
						Total: 1.0					
						Suff Rating: 56.69 FO 56.69 FO					

BMS Elements

Element	Element Description	Total	Units	State 1	State 2	State 3	State 4
12	Concrete Deck	14994	SF	-1	14983	12	0
35	Concrete Deck Soffit	14994	SF	0	14993	1	0
110	Concrete Girder	2085	LF	2004	0	81	0
205	Concrete Pile/Column	25	EA	21	0	4	0
215	Concrete Abutment	54	LF	54	0	0	0
234	Concrete Pier Cap / Crossbeam	275	LF	236	0	39	0
266	Concrete Sidewalk & Supports	4170	SF	4145	0	25	0
312	Concealed Bearing or Bearing System	25	EA	11	12	1	1
331	Concrete Bridge Railing	834	LF	828	0	6	0
362	Impact Damage	1	EA	1	0	0	0
407	Steel Angle Header	252	LF	144	0	108	0

Notes

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Program Mgr: Roman G. Peralta

Bridge No. F16E	Page: 2/3	Structure Type
Bridge Name PUYALLUP RIVER BRIDGE E	Route 03246	Location 0.2 N JCT I-5
Structure ID 08656600	MilePost 9.42	Intersecting RAMP

0	Bridge is oriented from west to east. Pier 1 is at the west end of Span 1 and is supported by Pier 2 of Bridge F16D. The columns, cap, and expansion joints at Pier 1 are not included for this bridge. See File #1 for Bridge Layout. Below Span 6 is a single lane road southbound. Below Span 7 is a single lane road northbound.
12	Deck is worn such that aggregate is exposed. Overall the deck is in good shape. There are some spalls, but no rebar is exposed. The spalls are of shallow depth.
35	Overall the soffit is in good shape. As noted on previous inspection there is a spall near Pier 4. No new spalling has occurred.
110	Overall the girders are in good shape. Previous inspections have detailed the locations of many spalls and cracks. Each of these deficiencies were reviewed and found to be of the same magnitude. No additional deficiencies were found.
205	Overall the columns are in good shape. Previous inspections have detailed the locations of many spalls and cracks. Each of these deficiencies were reviewed and found to be of the same magnitude. No additional deficiencies were found.
215	The abutment is a 6 ft. deep pier cap with 5 columns supporting the pier cap. It is in good condition with some minor cracking.
234	The pier caps are generally in good condition, but the leaking expansion joints direct storm water directly onto the pier cap. This water has caused plant growth, discoloration and deterioration.
266	Sidewalks and supports are generally in good condition. Both sidewalks end at the east end of the bridge and lead to a dirt path. Some cracks and spalls were found in both the sidewalk and supports.
312	The bearings were not inspected directly due to lack of access, however the girder/pier cap interface can be seen from an elevation view and appear in fair condition. The leaky expansion joints are corroding this element, but all bearings appear to be in fair condition.
331	The bridge rail is in good condition. Minor cracks and spalls were found throughout with one major crack (0.5 inch wide) found on the south side at span 5.
362	No change in impact damage from previous inspection.
407	The steel angle headers at each expansion joint have many deficiencies. Some of the steel angles are missing. Some make a noise when impacted by traffic which will lead to the eventual fail of the steel angle. In those places where the angle is missing the concrete edge on either side of the joint is in fair condition and does not appear to be deteriorating. Inspection records show the steel angles have been missing for 10 years and no sign of increased spalling at the joint. Recommend simply monitoring the angles for the near future.
663	Deck coded a '5' due to heavy scale.
664	Drains open directly into air below deck soffit, down face of exterior girders, and on top of pier caps.
675	Utilities consist of a power line attached to Pier 6 and extends out from both sides of the bridge to power poles.

BRIDGE INSPECTION REPORT

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Program Mgr: Roman G. Peralta

Bridge No.	F16E	Page:	3/3	Structure Type	
Bridge Name	PUYALLUP RIVER BRIDGE E	Route	03246	Location	0.2 N JCT I-5
Structure ID	08656600	MilePost	9.42	Intersecting	RAMP

681	Approach at the abutment has deteriorated such that there is a gap in the transition, but less than one inch. Approach between the bridges is smooth.
684	Bridge rails do not meet crash test standards.
685	Transitions do not meet current standards.
686	Guardrails do not meet current standards.
687	Terminals do not meet current standards.
688	Bridge F16 was separated into 6 structures. Each requires its own rating. See File #1 for Bridge Layout.

Repairs

Repair No	Pr	R	Repair Description	Noted	Maint	Verified
10000	1	B		11/04/02		
10001	2	B		12/12/04		
10004	2	B		10/30/07		
10005	2	B		06/23/11		

Inspections Performed and Resources Required

Report Type	Date	IT	Frq	Hrs	Insp	CertNo	Coinsp	Note
Routine	06/27/13		24	1.0	DRS	G0604	CNS	Routine bridge inspection.
Resources		Use	Hour	Min	Req	Max	Notes	
Bucket			0.00				If needed, bucket truck can access underneath the bridge. APP office will provide a gate opener and allow use for their parking lot below the first half of the bridge.	