

P2 Bridge Preservation - Seismic Retrofit

2009-11 Bien Priority Array

(Sorted by Priority Number)

09-11 #	Bridge Number	Bridge Name	Mile post	Width	Length	Region	Bridge Item\$'s
1	8/104N	SR 101 OC MUD BAY	20.63	30.0	186	Olympic	
1	8/104S	SR 101 OC MUD BAY	20.63	30.0	186	Olympic	
1	101/427	US 101 OC, LOST LK RD	348.08	26.0	251	Olympic	\$69,135
1	107/4	CHEHALIS R	6.83	26.0	1,302	Olympic	\$133,232
2	20/15	SNC RR OC (CMSTPP)	9.16	26.0	228	Olympic	\$83,292
3	12/114	BN RR OC (NP)	44.92	28.0	261	Olympic	\$102,102
6	5/453	SR 167 E-N RAMP OC	135.17	143.3	121	Olympic	\$613,536
7	5/455	EAST T ST SEWER OC	135.17	120.0	150	Olympic	\$526,058
8	5/437	S M ST OC	132.84	158.3	232	Olympic	\$378,565
9	5/433	S-N RAMP OC	132.26	118.0	195	Olympic	\$502,832
18	5/452E	PORTLAND AVE OC	134.87	57.0	216	Olympic	\$366,883
19	5/452W	PORTLAND AVE OC	134.87	72.0	216	Olympic	\$426,651
25	5/445W	SR7&CW RR OC (CMSTP&P)	133.71	56.0	817	Olympic	\$1,517,351
50	5/463	I-5 OC, PORTER WAY	139.06	26.0	615	Olympic	\$183,211
112	512/1	I-5 OC	0.00	80.0	211	Olympic	\$218,477
113	16/20E	SNAKE LAKE BR	1.57	68.0	492	Olympic	\$242,528
114	16/20W	SNAKE LAKE BR	1.57	68.0	512	Olympic	\$162,432
115	16/15E	UNION AVE OC	1.15	76.7	231	Olympic	
116	16/15W	UNION AVE OC	1.15	70.0	231	Olympic	
117	16/12E	CEDAR ST OC	0.62	90.3	199	Olympic	
118	16/12W	CEDAR ST OC	0.62	70.5	199	Olympic	
141	7/122	SR 512 OC	52.54	81.0	113	Olympic	\$147,274
145	99/400	I-5 OC	0.00	54.0	321	Olympic	\$366,212
146	512/19	SR 512 OC, CANYON RD	5.86	77.0	248	Olympic	\$288,365
147	512/21N	WOODLAND AVE OC	6.84	38.0	157	Olympic	\$216,579
148	512/21S	WOODLAND AVE OC	6.84	38.0	157	Olympic	\$216,832
149	512/23S	FRUITLAND AVE OC	7.22	38.0	157	Olympic	\$190,108
153	512/15N	WALLER RD OC	4.35	38.0	160	Olympic	\$120,918
154	512/15S	WALLER RD OC	4.35	38.0	160	Olympic	\$120,918
155	16/120	SR 16 OC, OLYMPIC I/C	10.74	66.0	207	Olympic	\$75,708
163	512/40N	SR 167 OC	11.99	38.0	337	Olympic	\$185,620
165	7/130	SR 7 OC, 38TH ST	57.45	69.0	512	Olympic	\$717,503
166	12/59N	BN RR OC (NP)	20.59	30.0	134	Olympic	\$167,387



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167	12/59S	BN RR OC (NP)	20.59	30.0	134	Olympic	\$157,229
168	512/13	SR 512 OC, PORTLAND AVE	3.71	28.0	131	Olympic	\$44,715
169	101/428	MILL CREEK	348.44	40.3	153	Olympic	\$96,899
171	12/25	WYNOOCHEE R	8.33	44.0	286	Olympic	\$85,800
172	12/31N	SYLVIA CR NP RY OC	9.65	33.0	1,094	Olympic	\$629,008
173	12/31S	SYLVIA CR NP RY OC	9.65	33.0	1,106	Olympic	\$638,066
174	12/34S	SR 107 OC CMSTPP RR	10.24	33.0	2,008	Olympic	\$1,164,515
175	12/34N	SR 107 OC CMSTPP RR	10.24	33.0	1,991	Olympic	\$1,150,853
176	3/15	SHERWOOD CR	20.36	26.0	147	Olympic	\$269,500
177	101/425	GOLDSBOROUGH CR & RR O	346.51	58.5	338	Olympic	\$475,585
178	101/426	MATLOCK RD OC	346.79	40.0	207	Olympic	\$140,822
179	101/430E	SKOOKUM CR NP RY OC	353.81	32.5	240	Olympic	\$303,815
180	101/430W	SKOOKUM CR NP RY OC	353.81	32.5	240	Olympic	\$303,573
184	105/104	SOUTH BAY - ELK RIVER	32.07	26.0	1,309	Olympic	\$579,744
187	105/108	JOHNS R	37.23	26.0	583	Olympic	\$473,209
188	116/5	PORTAGE CANAL	2.67	22.0	670	Olympic	\$770,484
190	16/8	SR 16 OC, S25TH ST	0.40	28.0	150	Olympic	
191	512/38	SR 512 OC, BENSTON DR	11.59	30.0	258	Olympic	\$117,898
198	5/301	216TH AVE SW OVER I-5	86.34	24.0	357	Olympic	\$193,622
199	5/304	I-5 OC, 183RD AVE SW	89.84	24.0	402	Olympic	\$436,942
200	5/309	I-5 OC, 113TH AVE SW	97.22	24.0	204	Olympic	\$111,326
221	161/10	SR 161 OVER SR 512	25.67	40.0	278	Olympic	\$159,231
223	410/31	WHITE R (STUCK R)	8.99	102.0	442	Olympic	\$712,547
225	512/29S	15TH AVE SW OC	9.84	48.9	194	Olympic	\$168,597
226	512/29N	15TH AVE SW OC	9.84	52.3	217	Olympic	\$245,355
227	512/31S	MERIDIAN ST OC	10.06	38.0	220	Olympic	\$163,636
228	512/31N	MERIDIAN ST OC	10.06	38.0	237	Olympic	\$148,676
229	167/30E	W-S RAMP OC	7.05	40.0	234	Olympic	\$150,695
230	167/34E	WEST VALLEY HWY OC	7.56	38.0	290	Olympic	\$313,291
231	167/32E	VALLEY AVE & UPRR O'XING	7.22	50.5	925	Olympic	\$1,374,142
234	512/23N	FRUITLAND AVE OC	7.22	38.0	157	Olympic	\$213,593
238	162/2	SR 410 OC	0.01	42.0	238	Olympic	\$123,761
240	101/350	MORSE CR	252.16	78.0	188	Olympic	\$149,127



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09-11 #	Bridge Number	Bridge Name	Mile post	Width	Length	Region	Bridge Item\$'s
242	410/39N	166TH AVE E OC	11.46	38.0	147	Olympic	\$97,114
245	8/7N	CLOQUALLAM CR	1.10	30.0	168	Olympic	\$97,339
246	8/7S	CLOQUALLAM CR	1.10	30.0	168	Olympic	\$97,009
248	12/117	CW RR OC (CMSTPP)	46.52	45.0	137	Olympic	\$201,306
255	12/118	US12 OVER I-5	46.57	45.0	255	Olympic	\$354,151
260	12/60S	US 12 OC	21.34	30.0	144	Olympic	\$142,780
265	410/32	SR 410 OC, LINDEN DR	9.32	28.0	218	Olympic	\$88,391
266	512/25	9TH ST SW OVER SR 512	8.37	64.0	284	Olympic	\$158,147
267	12/60N	US 12 OC	21.34	30.0	144	Olympic	\$142,824
270	121/15	I-5 OC, SR 121	7.63	28.0	204	Olympic	\$134,431
271	104/1	S-E RAMP, US 101 OC	0.02	30.0	263	Olympic	\$246,367
272	510/9	BN RR OC (NP)	6.48	32.0	191	Olympic	\$34,056
273	510/10	BN RR OC (NP)	6.63	32.0	189	Olympic	\$61,276
274	7/113	S. FORK MUCK CR	36.92	36.0	60	Olympic	\$182,441
275	7/105	MASHEL R	27.91	24.0	195	Olympic	\$36,300
276	101/310	SOL DUC R	194.30	26.0	262	Olympic	\$63,800
277	101/312	LAKE CR	198.49	26.0	132	Olympic	\$148,748
278	112/20	CLALLAM R	19.00	26.0	128	Olympic	\$120,291
279	117/1	US 101 OC, SR 117	0.00	19.0	128	Olympic	\$144,579
281	512/33	SR 512 UC 7TH	10.86	44.0	276	Olympic	\$245,636
284	101/316	SOL DUC RIVER	203.66	24.0	248	Olympic	\$63,800
285	101/314	SOL DUC RIVER #2	203.15	24.0	317	Olympic	\$246,554
286	507/116	WEYERHAEUSER RR OC	21.18	36.0	159	Olympic	\$80,322
287	101/322	SOL DUC RIVER #5	212.46	24.0	336	Olympic	\$263,010
288	101/320	SOL DUC R	211.55	24.0	306	Olympic	\$346,935
290	507/102	SKOOKUMCHUCK RIVER BR	6.10	32.0	180	Olympic	\$53,570

Total Number of Bridges = 92

Total of Bridge Item\$ = \$24,257,128

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286	507/116	WEYERHAEUSER RR OC	21.18	36.0	159	Olympic	\$80,322
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Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0006145B		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 005/433		S-N RAMP OC		5	132.26	County: Pierce
Location: 4.9 N JCT SR 512		Longitude: 122 27 44.83	Latitude: 47 13 46.06	Structure Length: 195 ft.		Out to Out Width: 121 ft.
Feature Intersected: S-N RAMP ER17		PGA (500 yr): 31.05 %g	PGA (1000 yr): 40.6% %g	Span Type: CBox		Main Spans: 3 Appr. Spans: 0
Year Built: 1960	ADT: 159711	Detour Length: 1 miles	Skew Angle: 14	Pier Type: Pier with more than two columns	Footing Type: Concrete Pile	
Year Rebuilt: 1973	Truck Pct: 15 %					



Bridge Notes:

Piers 2 and 3, each has ten 3'-0" diameter columns. Retrofit south 9 column each pier only. These columns have #4 hoops @ 12", #10 bars with 3'-8" splices (for 6 columns built in 1960) and #4 @6", #9 bars with 3'-6" splices (for 3 columns built in 1973) . Footing without top mat.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at Piers 2 and 3. (9 ea. 18 total, 3' dia.)

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank:	9
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2012
Superstructure Retrofit Status:	N			
Single Column Pier Status:	N			
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	Very Low	
C=Complete P=Partially Complet R=Required N=Not Required D=Differed X=Excluded I=In Progress		Estimated Total Bridge Item Cost: \$502,832.00 Estimated Total Retrofit Project Cost: <u>\$1,005,664.00</u>		

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0006088B		Bridge Name: S M ST OC		Route: 5	Milepost: 132.84	Region: Olympic
Bridge Number: 005/437						County: Pierce
Location: 0.5 N JCT SR 16		Longitude: 122° 27' 2.07"	Latitude: 47° 13' 49.12"	Structure Length: 232 ft.		Out to Out Width: 160 ft.
Feature Intersected: S M ST		PGA (500 yr): 31.02 %g	PGA (1000 yr): 40.5% %g	Span Type: CBox		Main Spans: 3 Appr. Spans: 2
Year Built: 1959	ADT: 188241	Detour Length: 1 miles	Skew Angle: 5	Pier Type: Pier with more than two columns		Footing Type: Spread footing
Year Rebuilt: 1989	Truck Pct: 15 %					



Bridge Notes:

Piers 2 and 3, each has nine 3'-0" diameter columns. Retrofit south 8 column each pier only. These columns have #4 hoops @ 12", #11 bars with 4'-2" splices . Footing without top mat.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

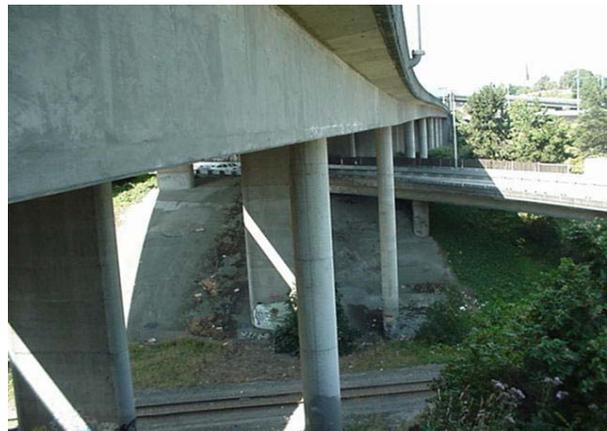
Retrofit columns at Piers 2 and 3. (8 ea. 16 total, 3' dia.)

Overall Retrofit Status:	R	Total Number of Columns:	8	09-11 Rank:	8
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:		Expected Start Year:	2012
Superstructure Retrofit Status:	N				
Single Column Pier Status:	N				
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	Very Low		

C=Complete P=Partially Complet R=Required N=Not Required D=Differed X=Excluded I=In Progress	Estimated Total Bridge Item Cost: \$378,565.00 Estimated Total Retrofit Project Cost: <u>\$757,130.00</u>
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Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0007326B		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 005/445W		SR7&CW RR OC (CMSTP&P)		5	133.71	County: Pierce
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
1.5 N JCT SR 16		122 25 54"	47 14 0"	817 ft.		58.5 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:	Main Spans: 10	
SR 7 & CMSTP&P RY		30.98 %g	40.5% %g	CBox	Appr. Spans: 0	
Year Built: 1964	ADT: 94120	Detour Length:	Skew Angle:	Pier Type:	Footing Type:	
Year Rebuilt: 1989	Truck Pct: 15 %	1 miles	0	Double Column Pier	Concrete Pile	



Bridge Notes:

Defer retrofit. Piers 2-N thru 8-N , each has a 3'-0"x 15'-0" column (built in 1964) and a 4'-0" diameter column (built in 1989).

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at Piers 2 thru 8. (1 ea. 7 total, 15'-0" x 3'-0")

Overall Retrofit Status:	P	Total Number of Columns:	09-11Rank: 25
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year: 2019
Superstructure Retrofit Status:	C		
Single Column Pier Status:	N		
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility: Very Low	

C=Complete P=Partially Complet
R=Required N=Not Required
D=Differed X=Excluded I=In Progress

Estimated Total Bridge Item Cost: \$1,517,351.00
Estimated Total Retrofit Project Cost: \$3,034,702.00

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0006792A		Bridge Name: PORTLAND AVE OC		Route: 5	Milepost: 134.87	Region: Olympic	
Bridge Number: 005/452E						County: Pierce	
Location: 1.1 N JCT SR 7		Longitude: 122° 24' 39.5"	Latitude: 47° 14' 20.1"	Structure Length: 216 ft.		Out to Out Width: 61.5 ft.	
Feature Intersected: PORTLAND AVE		PGA (500 yr): 30.96 %g	PGA (1000 yr): 40.5% %g	Span Type: PCG		Main Spans: 3 Appr. Spans: 0	
Year Built: 1962	ADT: 99714	Detour Length: 1 miles	Skew Angle: 0	Pier Type: Pier with more than two columns		Footing Type:	
Year Rebuilt: 0	Truck Pct: 15 %						



Bridge Notes:

Piers 2 and 3, each has six 3'-0" diameter columns. #3 hoops @ 12". longitudinal bars with lap splices. Footing without top mat.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at Piers 2 and 3. (6 ea. 12 total, 3' dia.). 10' excavation.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank: 18
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year: 2012
Superstructure Retrofit Status:	N		
Single Column Pier Status:	N		
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	Very Low

C=Complete P=Partially Complet

R=Required N=Not Required

D=Differed X=Excluded I=In Progress

Estimated Total Bridge Item Cost: \$366,883.00

Estimated Total Retrofit Project Cost: \$733,766.00

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0006792B		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 005/452W		PORTLAND AVE OC		5	134.87	County: Pierce
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
1.1 N JCT SR 7		122 24 39.9"	47 14 21.4"	216 ft.		75.3 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:		Main Spans: 3
PORTLAND AVE		30.96 %g	40.5% %g	PCG		Appr. Spans: 0
Year Built: 1962	ADT: 99714	Detour Length:	Skew Angle:	Pier Type:		Footing Type:
Year Rebuilt: 1990	Truck Pct: 15 %	1 miles	0	Pier with more than two columns		



Bridge Notes:

Piers 2 and 3, each has eight 3'-0" diameter columns. Retrofit south 7 columns only. These columns (built in 1962 and 1970) have either #3 hoops @ 12" or #4 hoops @ 12'. longitudinal bars with lap splices. Footing without top mat.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at Piers 2 and 3. (7 ea. 14 total, 3' dia.). 11' excavation.

Overall Retrofit Status:	R	Total Number of Columns:	09-11 Rank:	19
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2014
Superstructure Retrofit Status:	N			
Single Column Pier Status:	N			
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	Very Low	

C=Complete P=Partially Complet

R=Required N=Not Required

D=Differed X=Excluded I=In Progress

Estimated Total Bridge Item Cost: \$426,651.50

Estimated Total Retrofit Project Cost: \$853,303.00

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0006821A		Bridge Name: SR 167 E-N RAMP OC		Route: 5	Milepost: 135.17	Region: Olympic
Bridge Number: 005/453						County: Pierce
Location: 1.2 N JCT SR 7		Longitude: 122 24 27.7 "	Latitude: 47 14 22.4 "	Structure Length: 121 ft.		Out to Out Width: 150 ft.
Feature Intersected: SR 167 E-E RAMP OC		PGA (500 yr): 30.96 %g	PGA (1000 yr): 40.5% %g	Span Type: PCG		Main Spans: 3 Appr. Spans: 0
Year Built: 1962	ADT: 199429	Detour Length: 1 miles	Skew Angle: 14	Pier Type: Pier with more than two columns	Footing Type:	
Year Rebuilt: 1970	Truck Pct: 15 %					



Bridge Notes:

Piers 2 and 3, each has fourteen 3'-0" diameter columns. #3 hoops @ 12" or #4 @ 12". longitudinal bars with lap splices. Footing without top mat.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at Piers 2 and 3. (14 ea. 28 total, 3' dia.)

Overall Retrofit Status:	R	Total Number of Columns:	6	09-11 Rank:	6
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:		Expected Start Year:	2012
Superstructure Retrofit Status:	N				
Single Column Pier Status:	N				
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	High		

C=Complete P=Partially Complet
R=Required N=Not Required
D=Differed X=Excluded I=In Progress

Estimated Total Bridge Item Cost: \$613,536.00
Estimated Total Retrofit Project Cost: \$1,227,072.00

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0006979B		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 005/455		EAST T ST SEWER OC		5	135.17	County: Pierce
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
0.2 N JCT SR 167		122 24 17.2 "	47 14 21.9 "	150 ft.		124.5 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:		Main Spans: 3
EAST T ST SEWER		30.94 %g	40.5% %g	PCG		Appr. Spans: 0
Year Built: 1963	ADT: 199429	Detour Length:	Skew Angle:	Pier Type:		Footing Type:
Year Rebuilt: 1970	Truck Pct: 15 %	1 miles	99	Pier with more than two columns		Cased concrete pile



Bridge Notes:

Piers 2 and 3, each has ten 3'-0" diameter columns. #3 hoops @ 12" or #4 @ 12". longitudinal bars with lap splices. Footing without top mat.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at Piers 2 and 3. (10 ea. 18 total, 3' dia.)

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank:	7
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2012
Superstructure Retrofit Status:	N			
Single Column Pier Status:	N			
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	High	

C=Complete P=Partially Complet
R=Required N=Not Required
D=Differed X=Excluded I=In Progress

Estimated Total Bridge Item Cost: \$526,058.50
Estimated Total Retrofit Project Cost: \$1,052,117.00

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0005738B		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 008/104N		SR 101 OC MUD BAY		8	20.63	County: Thurston
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
10.1 E GRAYS HB		123 0 42	47 4 30	186 ft.		33 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:	Main Spans: 3	
US 101		29.98 %g	39.3% %g	CBox	Appr. Spans: 0	
Year Built: 1958	ADT: 16000	Detour Length:	Skew Angle:	Pier Type:	Footing Type:	
Year Rebuilt: 1981	Truck Pct: 10 %	1 miles	0	Single Column Pier		



Bridge Notes:

Piers 2 and 3, each has a 5'-0" diameter column on spread footing. Ties are #4 @ 12". Vertical #11 bars have 2'-4" lap splices at top of footing. Footings have no top mat. End piers, 1 and 4, are cantilever "L" abutments. Each abutment has two rocker bearings.

Retrofit Program Notes:

To be completed under PIN 300813A. To go to ad in 2009.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Install Col. Jacket at Piers 2 and 3. Excavate to top of Footings. Install Catcher Blocks & Transv. Restrainers at Piers 1 & 4.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank:	1
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2009
Superstructure Retrofit Status:	R	DNR Liquifaction Susceptibility: very low		
Single Column Pier Status:	R			
Multi Column Pier Status:	N			

C=Complete P=Partially Complet		Estimated Total Bridge Item Cost: \$97,938.50
R=Required N=Not Required		Estimated Total Retrofit Project Cost: <u>\$195,877.00</u>
D=Differed X=Excluded I=In Progress		

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0005738A		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 008/104S		SR 101 OC MUD BAY		8	20.63	County: Thurston
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
10.1 E GRAYS HB		123 0 42"	47 4 30"	186 ft.		33 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:	Main Spans: 3	
SR 101 MUD BAY		29.98 %g	39.3% %g	CBox	Appr. Spans: 0	
Year Built: 1958	ADT: 16000	Detour Length:	Skew Angle:	Pier Type:	Footing Type:	
Year Rebuilt: 1981	Truck Pct: 10 %	1 miles	0	Single Column Pier		



Bridge Notes:

Piers 2 and 3, each has a 5'-0" diameter column on spread footing. Ties are #4 @ 12". Vertical #11 bars have 2'-4" lap splices at top of footing. Footings have no top mat. End piers, 1 and 4, are cantilever "L" abutments. Each abutment has two rocker bearings.

Retrofit Program Notes:

To be completed under PIN 300813A. To go to ad in 2009.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Install Col. Jacket at Piers 2 and 3. Excavate to top of Footings. Install Catcher Blocks & Transv. Restrainers at Piers 1 & 4.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank:	1
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2009
Superstructure Retrofit Status:	R	DNR Liquifaction Susceptibility: very low		
Single Column Pier Status:	R			
Multi Column Pier Status:	N			

C=Complete P=Partially Complet		Estimated Total Bridge Item Cost: \$89,545.50
R=Required N=Not Required		Estimated Total Retrofit Project Cost: \$179,091.00
D=Differed X=Excluded I=In Progress		

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0007406A		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 012/114		BN RR OC (NP)		12	44.92	County: Thurston
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
6.1 E GRAYS HBR		° ' "	° ' "	261 ft.		32.6 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:	Main Spans: 5	
NP RY		26.34 %g	34.7% %g	CS	Appr. Spans: 0	
Year Built: 1964	ADT: 8500	Detour Length:	Skew Angle:	Pier Type:	Footing Type:	
Year Rebuilt: 0	Truck Pct: 14 %	2 miles	0	Single Column Pier		



Bridge Notes:

Piers 2 thru 5, each has a 4'-0" diameter column on spread footings. These columns have #4 hoops @ 12". Vertical #11 bars have 4'-2" min. lap splices at top of footing. Footing without top mat. End piers, 1 and 6 are stub "L" abutments with laminated elastomeric bearing pads.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Install Column Jacket at Piers 2, 3, 4 and 5. Excavate to top of Footings.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank:	3
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2010
Superstructure Retrofit Status:	N			
Single Column Pier Status:	R			
Multi Column Pier Status:	N	DNR Liquifaction Susceptibility:	Very Low	

C=Complete P=Partially Complet R=Required N=Not Required D=Differed X=Excluded I=In Progress	Estimated Total Bridge Item Cost: \$102,102.00 Estimated Total Retrofit Project Cost: <u>\$204,204.00</u>
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Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0005166A		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 020/015		SNC RR OC (CMSTPP)		20	9.16	County: Jefferson
Location:		Longitude:	Latitude:	Structure Length:		Out to Out Width:
9.2 E JCT US 101		122 48 58	48 5 25	228 ft.		30 ft.
Feature Intersected:		PGA (500 yr):	PGA (1000 yr):	Span Type:	Main Spans: 4	
CMSTPP RR (ABANDONED)		30.38 %g	40.1% %g	CS	Appr. Spans: 0	
Year Built: 1956	ADT: 16000	Detour Length:	Skew Angle:	Pier Type:	Footing Type:	
Year Rebuilt: 0	Truck Pct: 10 %	2 miles	0	Single Column Pier		



Bridge Notes:

Intermediate Piers, Piers 2, 3 and 4, each has a 4'-0" diameter column on spread footing. #4 hoops spaced at 12" spacing. Vertical #13 bars have 2'-10" lap splices at top of footings. Footings have no top mat. End Piers 1 and 5, each has two 2'-0" square columns on combined spread footing. Hinge at top of column.

Retrofit Program Notes:

Engineering analysis needed to determine bridge elements requiring retrofit. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Install Column Jacket at Piers 2, 3 and 4 (1 ea. 3 total, 4' dia.).
Excavate to top of Footings.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank: 2
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year: 2010
Superstructure Retrofit Status:	N		
Single Column Pier Status:	R		
Multi Column Pier Status:	N	DNR Liquifaction Susceptibility:	Very Low to Low

C=Complete P=Partially Complet R=Required N=Not Required D=Differed X=Excluded I=In Progress	Estimated Total Bridge Item Cost: \$83,292.00 Estimated Total Retrofit Project Cost: <u>\$166,584.00</u>
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Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0009121A		Bridge Name: US 101 OC, LOST LK RD		Route: 101	Milepost: 348.08	Region: Olympic
Bridge Number: 101/427						County: Mason
Location: 4.5 S JCT SR 102		Longitude: 123 6 30	Latitude: 47 11 30	Structure Length: 251 ft.		Out to Out Width: 29 ft.
Feature Intersected: US 101		PGA (500 yr): 31.09 %g	PGA (1000 yr): 40.6% %g	Span Type: PCG		Main Spans: 2 Appr. Spans: 0
Year Built: 1972	ADT: 949	Detour Length: 13 miles	Skew Angle: 0	Pier Type: Single Column Pier		Footing Type: Spread footing
Year Rebuilt: 0	Truck Pct: 10 %					



Bridge Notes:

Pier 2 is a single column pier. Column section various, 4'-6" x 4'-6" at top of pedestal. 9'-0" x 4'-6" at bottom of X-beam. Vertical #11 bars have 7'-9" lap splices at top of pedestal. #4 hoops & #4 ties @ 6". Footing has top mat. End piers, 1 and 3, are cantilever abutments.

Retrofit Program Notes:

Column and footing has improved details. Column retrofit may not require. Retrofit programmed under PIN 310122C. Engineering Analysis is underway to determine if a retrofit is required.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Install Column Jacket at Pier 2. Excavate to top of footing.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank: 1
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:
Superstructure Retrofit Status:	N		
Single Column Pier Status:	R		
Multi Column Pier Status:	N	DNR Liquifaction Susceptibility:	Very Low
C=Complete P=Partially Complet R=Required N=Not Required D=Differed X=Excluded I=In Progress		Estimated Total Bridge Item Cost: \$69,135.00 Estimated Total Retrofit Project Cost: <u>\$138,270.00</u>	

Washington State Department of Transportation Bridge Seismic Retrofit Information

Structure ID: 0005827A		Bridge Name:		Route:	Milepost:	Region: Olympic
Bridge Number: 107/004		CHEHALIS R		107	6.83	County: Grays Harbor
Location: 6.9 N JCT US 101		Longitude: ° ' " 123 36 11.2	Latitude: ° ' " 46 57 34.6	Structure Length: 1302 ft.		Out to Out Width: 32.8 ft.
Feature Intersected: CHEHALIS R		PGA (500 yr): 30.6 %g	PGA (1000 yr): 41.6% %g	Span Type: STrus CBox TTC		Main Spans: 1 Appr. Spans: 42
Year Built: 1958	ADT: 4392	Detour Length: 25 miles	Skew Angle: 0	Pier Type: Single Column Pier		Footing Type:
Year Rebuilt: 0	Truck Pct: 16 %					



Bridge Notes:

South approach spans are timber trestle spans. Piers 1 and 4, each has two 2'-6"x5'-2" columns. Columns split to two 2'-6" sq. columns at El. 12.50. #3 hoops @ 12". Piers 2 and 3 are pier walls. Piers 5 and 6, each has a 5'-0" diameter column on pile footing. #4 hoops spaced at 12" spacing. Vertical #11 bars have 2'-4" lap splices at top of footings. Footings have no top mat.

Retrofit Program Notes:

Retrofit programed under PIN 310710B. Cost estimate based on an assumption to retrofit columns with steel jackets.

Completed Retrofit Notes:

Remaining Retrofit Notes:

Retrofit columns at piers 2 and 5. (2 ea. 4 total, 30"x30" split columns). Install catcher blocks.

Overall Retrofit Status:	R	Total Number of Columns:	09-11Rank:	1
Special Br. Retrofit Status:		No. of Wet Retrofitted Columns:	Expected Start Year:	2010
Superstructure Retrofit Status:	R			
Single Column Pier Status:	R			
Multi Column Pier Status:	R	DNR Liquifaction Susceptibility:	Moderate to High	

C=Complete P=Partially Complet

R=Required N=Not Required

D=Differed X=Excluded I=In Progress

Estimated Total Bridge Item Cost: \$133,232.00

Estimated Total Retrofit Project Cost: \$266,464.00