

1.5.4 Krung Thon

Damage classification of members

Bridge name		004Krung Thon				Span No.										1		
		Damages of steel members				Damages of concrete members					Others					Remarks		
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements		Damages in expansion joints	Damages in cable
Upper chord member	01	a	a	a	a													
	02	a	a	a	a													
Bottom chord member	01	a	a	a	a													
	02	a	a	a	a													
Diagonal	01	a	a	a	a													
	02	a	a	a	a													
Vertical member	01	a	a	a	a													
	02	b	a	a	a													
Lateral bracing (Upper)	01	a	a	a	a													
Lateral bracing (Lower)	01	a	a	a	a													
Sway bracing (Upper)	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Stringer	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
	04	a	a	a	a													
	05	a	a	a	a													
	06	a	a	a	a													
	07	a	a	a	a													
	08	a	a	a	a													
	09	a	a	a	a													
	10	a	a	a	a													
	11	a	a	a	a													
	12	a	a	a	a													
Floor beam	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Sway bracing (Lower)	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Sway bracing (Lower)	01							a	a	a	a							
	02							a	a	a	a							
	03							a	a	a	a							
	04							a	a	a	a							
	05							a	a	a	a							
	06							a	a	a	a							
	07							a	a	a	a							
	08							a	a	a	a							
	09							a	a	a	a							
	10							a	a	a	a							
	11							a	a	a	a							
	12							a	a	a	a							
	13							a	a	a	a							
Pier	01					a	-	a						a				
	02					a	-	a						a				
Bearings	101												a					
	102												a					
	201												a					
	202												a					
Road surface											a			a				
Barriers Railings	01																a	
	02																c	
	03																	
	04																	
Expansion joints	01																a	
	02																a	

Estimation of repair quantity

Bridge name		004Krung Thon			Span No.		1		
Subject			Quantity		Remarks				
1	Span length		57.1 m		Length of 1 span				
2	Road width for pavement		11.5 m		Width for pavement area (Vehicle lane)				
3	Total road width		18.5 m		Deck width				
4	Area of bridge surface		1,056.4 m ²		Span length x Total width				
5	Area of pavement		656.7 m ²		Span length x Width for pavement				
6	Barriers & railings		01	concrete	Type of barriers & railings				
			02	concrete	Same as above				
			03	-	Same as above				
			04	-	Same as above				
7	Expansion joints		01	steel	Type of expansion joint				
			02	steel	Same as above				
8	Painting area		Total %	Number of members	Member %	Painting area	Remarks		
	Total painting area		100.0%	1	-	4,600.0 m ²			
	Main structure	52.0%	Upper chord	65.0%	33.8%	2	16.9%	780.0 m ²	Experience value
			Bottom chord	35.0%	18.2%	2	9.1%	420.0 m ²	Experience value
	Sway bracing Lateral bracing Portal frame	18.0%	Diagonal	20.0%	3.6%	2	1.8%	90.0 m ²	Experience value
			Vertical member	15.0%	2.7%	2	1.4%	70.0 m ²	Experience value
			Lateral bracing (Upper)	20.0%	3.6%	1	3.6%	170.0 m ²	Experience value
			Lateral bracing (Lower)	15.0%	2.7%	1	2.7%	130.0 m ²	Experience value
			Sway bracing (Upper)	15.0%	2.7%	1	2.7%	130.0 m ²	Experience value
			Sway bracing (Lower)	15.0%	2.7%	1	2.7%	130.0 m ²	Experience value
	Floor system	32.0%	Stringer	60.0%	19.2%	12	1.6%	80.0 m ²	Experience value
			Floor beam	40.0%	12.8%	15%	1.9%	90.0 m ²	End floor beam(15% pos.)
70%						9.0%	420.0 m ²	Intern. floor beam(70% for all)	
9	Repaired area of deck		Quantity		Remarks				
	Divided area A		81.3 m ²		13 div. Area of bridge surface / number of division				
	Area of rebar exposure		9.8 m ²		A × 0.120				
	Area of deck cracking		50.4 m ³		A × 0.620				
10	Repair quantity of substructure		Quantity		Remarks				
	Cracking, Water leakage, Free lime		5.54 m		per substructure				
	Rebar exposure		2.24 m ²		per substructure				
11	Concrete barrier		Quantity		Remarks				
	Rebar exposure		4.23 m ²		A of bridge surf. x 0.004				

Countermeasure classification of members

Bridge name		004Krung Thon				Span No.		1			
Member	No.	Damage	Damage classification		Countermeasure classification	Member	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge					Classification	Judge	
Upper chord	01	Corrosion	a	-	5	Stringer	01	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5		02	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
Bottom chord	01	Corrosion	a	-	5		03	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5	04	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Diagonal	01	Corrosion	a	-	5	05	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	a	-	5	06	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Vertical member	01	Corrosion	a	-	5	07	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	b	-	4	08	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Lateral bracing (Upper)	01	Corrosion	a	-	5	09	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Lateral bracing (Lower)	01	Corrosion	a	-	5	10	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Sway bracing (Upper)	01	Corrosion	a	-	5	11	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	a	-	5	12	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	03	Corrosion	a	-	5		Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	

Bridge name			004Krung Thon			Span No.			1		
Member	No.	Damage	Damage classification		Countermeasure classification	Member	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge					Classification	Judge	
Floor beam	01	Corrosion	a	-	5	Deck	08	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
	02	Corrosion	a	-	5		09	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
	03	Corrosion	a	-	5		10	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
Sway bracing (Lower)	01	Corrosion	a	-	5	Substructure	11	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
	02	Corrosion	a	-	5		12	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
	03	Corrosion	a	-	5		13	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a	-	5	Bearings	01	Cracking etc.	a	-	5
		Pop-outs	a	-	5			Rebar exposure	a	-	5
		Deck cracking	a	-	5			Damages in substructures	a	-	5
		Damages at anchorage of PC tendon	a	-	5			Cracking etc.	a	-	5
	02	Rebar exposure	a	-	5	02	Rebar exposure	a	-	5	
		Pop-outs	a	-	5		Damages in substructures	a	-	5	
		Deck cracking	a	-	5		101 Functional damage of bearings	a	-	5	
		Damages at anchorage of PC tendon	a	-	5		102 Functional damage of bearings	a	-	5	
	03	Rebar exposure	a	-	5	0201	Functional damage of bearings	a	-	5	
		Pop-outs	a	-	5		202 Functional damage of bearings	a	-	5	
		Deck cracking	a	-	5		01 Level difference of road surface	a	-	5	
		Damages at anchorage of PC tendon	a	-	5		Damages in pavements	a	-	5	
	04	Rebar exposure	a	-	5	Barriers Railings	01 Damages in barriers	a	-	5	
		Pop-outs	a	-	5		02 Damages in barriers	c	-	2	
		Deck cracking	a	-	5		03 Damages in barriers	-	-	-	
		Damages at anchorage of PC tendon	a	-	5		04 Damages in barriers	-	-	-	
	05	Rebar exposure	a	-	5	Expansion joints	01 Damages in expansion joints	a	-	5	
		Pop-outs	a	-	5		02 Damages in expansion joints	a	-	5	
		Deck cracking	a	-	5						
		Damages at anchorage of PC tendon	a	-	5						
	06	Rebar exposure	a	-	5						
		Pop-outs	a	-	5						
		Deck cracking	a	-	5						
		Damages at anchorage of PC tendon	a	-	5						
07	Rebar exposure	a	-	5							
	Pop-outs	a	-	5							
	Deck cracking	a	-	5							
	Damages at anchorage of PC tendon	a	-	5							

Approximate repair price for countermeasures

Bridge name		004 Krung Thon				Span No.		1		Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction		
Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Repair price (B)		Repair price (B)	Remainin g years up to counter measure cl 2	Repair price (B)	Remainin g years up to counter measure cl 2	Repair price (B)	Life cycle	
Upper chord	01	Corrosion	a	5	Repainting	780.0	m ²	3,500	2,730,000	-	-	5	-	10	2,730,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
	02	Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	-
		Corrosion	a	5	Repainting	780.0	m ²	3,500	2,730,000	-	-	5	-	10	2,730,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	-
Bottom chord	01	Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
	02	Corrosion	a	5	Repainting	420.0	m ²	3,500	1,470,000	-	-	5	-	10	1,470,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
Diagonal	01	Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
	02	Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
Vertical member	01	Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
	02	Corrosion	a	5	Repainting	70.0	m ²	3,500	245,000	-	-	5	-	10	245,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
Lateral bracing (Upper)	01	Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	170.0	m ²	3,500	595,000	-	-	5	-	10	595,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
	01	Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	170.0	m ²	3,500	595,000	-	-	5	-	10	595,000	20	
Lateral bracing (Lower)	01	Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
	Sway bracing (Upper)	01	Corrosion	a	5	Repainting	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20
			Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-
			Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-
02		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
Stringer	01	Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
	02	Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
Stringer	03	Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
	04	Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
Stringer	05	Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
	06	Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
Stringer	07	Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
	08	Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
Stringer	09	Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
	10	Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
Stringer	11	Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	
	12	Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainting	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	-	166,700	-	-	-	-	-	-	-	-	

Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (R)	Approximate repair price (R)	Approximate repair price for countermeasure classification 1 & 2 (R)	Countermeasure classification 1		Countermeasure classification 2		Planned repair & reconstruction		
											Repair price (R)	Remainin g years up to counter measure e1.2	Repair price (R)	Remainin g years up to counter measure e1.2	Repair price (R)	Life cycle	
Floor beam	01	Corrosion	a	5	Repointing	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pl.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-
Floor beam	02	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repointing	420.0	m ²	3,500	1,470,000	-	-	5	-	10	1,470,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
Floor beam	03	Missing bolts	a	5	Bolt change for splice pl.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repointing	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
Sway bracing (Lower)	01	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pl.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
Sway bracing (Lower)	02	Corrosion	a	5	Repointing	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pl.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
Sway bracing (Lower)	03	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repointing	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
Deck	01	Missing bolts	a	5	Bolt change for splice pl.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repointing	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
Deck	02	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pl.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
Deck	03	Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	50.4	m ²	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
Deck	04	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
Deck	05	Deck cracking	a	5	CFR	50.4	Pos.	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
Deck	06	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	50.4	Pos.	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
Deck	07	Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	50.4	Pos.	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
Deck	08	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
Deck	09	Deck cracking	a	5	CFR	50.4	Pos.	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
Deck	10	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	50.4	Pos.	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
Deck	11	Rebar exposure	a	5	Patching	9.8	m ²	17,500	171,500	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	50.4	Pos.	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
Deck	12	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.8	m	17,500	171,500	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
Deck	13	Deck cracking	a	5	CFR	50.4	m	22,500	1,134,000	-	-	7	-	15	1,134,000	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.8	m	17,500	171,500	-	-	7	-	15	-	30	
Substructure	01	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	
		Cracking etc.	a	5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30	
		Rebar exposure	a	5	Patching	2.24	m	17,500	39,200	-	-	7	-	15	39,200	30	
Substructure	02	Damages in substructures	a	5	Foot protection	-	m	1,750,000	-	-	-	-	-	-	-	-	
		Cracking etc.	a	5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30	
		Rebar exposure	a	5	Patching	2.24	m	17,500	39,200	-	-	7	-	15	39,200	30	
Bearings	101	Damages in substructures	a	5	Foot protection	-	m	1,750,000	-	-	-	-	-	-	-	-	
		Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
		Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
Road surface	201	Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
		Level difference of road surface	a	5	Pavement replacement	656.7	m ²	5,000	3,283,500	-	-	5	-	10	-	20	
		Damages in pavements	a	5	same as above	656.7	m ²	5,000	3,283,500	-	-	5	-	10	3,283,500	20	
Barriers	01	Damages in barriers	a	5	Patching	4.23	mf	17,500	74,100	-	-	7	-	15	74,100	30	
		Damages in barriers	a	5	Patching	4.23	mf	17,500	74,100	74,100	-	7	-	15	74,100	30	
		Damages in barriers	a	5	Patching	4.23	mf	17,500	74,100	-	-	7	-	15	74,100	30	
Expansion joints	04	Damages in expansion joints	a	5	change of steel exp.	18.5	m	133,400	2,467,900	-	-	7	-	15	2,467,900	30	
		Damages in expansion joints	a	5	change of steel exp.	18.5	m	133,400	2,467,900	-	-	7	-	15	2,467,900	30	

Damage classification of members

Bridge name		004Krung Thon										Span No.					2	
		Damages of steel members				Damages of concrete members						Others						
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints	Damages in cable	Remarks
Upper chord member	01	a	a	a	a													
	02	a	a	a	a													
Bottom chord member	01	a	a	a	a													
	02	a	a	a	a													
Diagonal	01	a	a	a	a													
	02	a	a	a	a													
Vertical member	01	b	a	a	a													
	02	a	a	a	a													
Lateral bracing (Upper)	01	a	a	a	a													
Lateral bracing (Lower)	01	a	a	a	a													
Sway bracing (Upper)	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Stringer	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
	04	a	a	a	a													
	05	a	a	a	a													
	06	a	a	a	a													
	07	a	a	a	a													
	08	a	a	a	a													
	09	a	a	a	a													
	10	a	a	a	a													
	11	a	a	a	a													
	12	a	a	a	a													
Floor beam	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Sway bracing (Lower)	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Sway bracing (Lower)	01							a	a	c	a							
	02							a	a	a	a							
	03							a	a	a	a							
	04							a	a	a	a							
	05							a	a	a	a							
	06							a	a	a	a							
	07							a	a	a	a							
	08							a	a	a	a							
	09							a	a	a	a							
	10							a	a	a	a							
	11							a	a	a	a							
	12							a	a	a	a							
	13							a	a	a	c	a						
Pier	01					a		a						a				
	02					a		a						a				
Bearings	101												a					
	102												a					
	201												a					
	202												a					
Road surface											a			a				
Barriers Railings	01															c		
	02															c		
	03																	
	04																	
Expansion joints	01																a	
	02																	

Estimation of repair quantity

Bridge name		004Krung Thon			Span No.		2		
Subject		Quantity			Remarks				
1	Span length		57.0 m			Length of 1 span			
2	Road width for pavement		11.5 m			Width for pavement area (Vehicle lane)			
3	Total road width		18.5 m			Deck width			
4	Area of bridge surface		1,054.5 m ²			Span length x Total width			
5	Area of pavement		655.5 m ²			Span length x Width for pavement			
6	Barriers & railings		01	concrete		Type of barriers & railings			
			02	concrete		Same as above			
			03	-		Same as above			
			04	-		Same as above			
7	Expansion joints		01	steel		Type of expansion joint			
			02	steel		Same as above			
8	Painting area		Total %	Number of members	Member %	Painting area	Remarks		
	Total painting area		100.0%	1	-	4,600.0 m ²			
	Main structure	52.0%	Upper chord	65.0%	33.8%	2	16.9%	780.0 m ²	Experience value
			Bottom chord	35.0%	18.2%	2	9.1%	420.0 m ²	Experience value
	Sway bracing Lateral bracing Portal frame	18.0%	Diagonal	20.0%	3.6%	2	1.8%	90.0 m ²	Experience value
			Vertical member	15.0%	2.7%	2	1.4%	70.0 m ²	Experience value
			Lateral bracing (Upper)	20.0%	3.6%	1	3.6%	170.0 m ²	Experience value
			Lateral bracing (Lower)	15.0%	2.7%	1	2.7%	130.0 m ²	Experience value
			Sway bracing (Upper)	15.0%	2.7%	1	2.7%	130.0 m ²	Experience value
			Sway bracing (Lower)	15.0%	2.7%	1	2.7%	130.0 m ²	Experience value
	Floor system	32.0%	Stringer	60.0%	19.2%	12	1.6%	80.0 m ²	Experience value
Floor beam			40.0%	12.8%	15%	1.9%	90.0 m ²	End floor beam(15% pos.)	
					70%	9.0%	420.0 m ²	Intern. floor beam(70% for all)	
9	Repaired area of deck		Quantity		Remarks				
	Divided area A		81.1 m ²		13 div. Area of bridge surface / number of division				
	Area of rebar exposure		9.7 m ²		A x 0.120				
	Area of deck cracking		50.3 m ³		A x 0.620				
10	Repair quantity of substructure		Quantity		Remarks				
	Cracking, Water leakage, Free lime		5.54 m		per substructure				
	Rebar exposure		2.24 m ²		per substructure				
11	Concrete barrier		Quantity		Remarks				
	Rebar exposure		4.22 m ²		A of bridge surf. x 0.004				

Countermeasure classification of members

Bridge name		004Krung Thon				Span No.		2			
Member	No.	Damage	Damage classification		Countermeasure classification	Member	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge					Classification	Judge	
Upper chord	01	Corrosion	a	-	5	Stringer	01	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5		02	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
Bottom chord	01	Corrosion	a	-	5		03	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5	04	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Diagonal	01	Corrosion	a	-	5	05	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	a	-	5	06	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Vertical member	01	Corrosion	b	-	4	07	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	a	-	5	08	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Lateral bracing (Upper)	01	Corrosion	a	-	5	09	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Lateral bracing (Lower)	01	Corrosion	a	-	5	10	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Sway bracing (Upper)	01	Corrosion	a	-	5	11	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	a	-	5	12	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	03	Corrosion	a	-	5		Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	

Bridge name		004Krung Thon				Span No.			2		
Member	No.	Damage	Damage classification		Countermeasure classification	Member	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge					Classification	Judge	
Floor beam	01	Corrosion	a	-	5	Deck	08	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
	02	Corrosion	a	-	5		09	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
	03	Corrosion	a	-	5		10	Rebar exposure	a	-	5
		Cracking	a	-	5			Pop-outs	a	-	5
		Missing bolts	a	-	5			Deck cracking	a	-	5
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5
Sway bracing (Lower)	01	Corrosion	a	-	5	11	Rebar exposure	a	-	5	
		Cracking	a	-	5		Pop-outs	a	-	5	
		Missing bolts	a	-	5		Deck cracking	a	-	5	
		Fracture	a	-	5		Damages at anchorage of PC tendon	a	-	5	
	02	Corrosion	a	-	5	12	Rebar exposure	a	-	5	
		Cracking	a	-	5		Pop-outs	a	-	5	
		Missing bolts	a	-	5		Deck cracking	a	-	5	
		Fracture	a	-	5		Damages at anchorage of PC tendon	a	-	5	
	03	Corrosion	a	-	5	13	Rebar exposure	a	-	5	
		Cracking	a	-	5		Pop-outs	a	-	5	
		Missing bolts	a	-	5		Deck cracking	c	-	3	
		Fracture	a	-	5		Damages at anchorage of PC tendon	a	-	5	
Deck	01	Rebar exposure	a	-	5	Substructure	01	Cracking etc.	a	-	5
		Pop-outs	a	-	5			Rebar exposure	a	-	5
		Deck cracking	c	-	3			Damages in substructures	a	-	5
		Damages at anchorage of PC tendon	a	-	5			Cracking etc.	a	-	5
	02	Rebar exposure	a	-	5	02	Rebar exposure	a	-	5	
		Pop-outs	a	-	5		Damages in substructures	a	-	5	
		Deck cracking	a	-	5		Bearings	101 Functional damage of bearings	a	-	5
		Damages at anchorage of PC tendon	a	-	5			102 Functional damage of bearings	a	-	5
	Rebar exposure	a	-	5	201 Functional damage of bearings	a		-	5		
	Pop-outs	a	-	5	202 Functional damage of bearings	a		-	5		
	03	Deck cracking	a	-	5	Road surface	01	Level difference of road surface	a	-	5
		Damages at anchorage of PC tendon	a	-	5			Damages in pavements	a	-	5
		Rebar exposure	a	-	5		Barriers Railings	01 Damages in barriers	c	-	2
		Pop-outs	a	-	5			02 Damages in barriers	c	-	2
	04	Deck cracking	a	-	5	03	Damages in barriers	-	-	-	
		Damages at anchorage of PC tendon	a	-	5		04 Damages in barriers	-	-	-	
		Rebar exposure	a	-	5		Expansion joints	01 Damages in expansion joints	a	-	5
		Pop-outs	a	-	5			02 Damages in expansion joints	-	-	-
	05	Deck cracking	a	-	5	06	Rebar exposure	a	-	5	
		Damages at anchorage of PC tendon	a	-	5		Pop-outs	a	-	5	
		Rebar exposure	a	-	5		Deck cracking	a	-	5	
		Pop-outs	a	-	5		Damages at anchorage of PC tendon	a	-	5	
	07	Rebar exposure	a	-	5	07	Rebar exposure	a	-	5	
		Pop-outs	a	-	5		Pop-outs	a	-	5	
		Deck cracking	a	-	5		Deck cracking	a	-	5	
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5	

Approximate repair price for countermeasures

Bridge name		004Kring Thon					Span No.		2		countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction			
Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (฿)	Approximate repair price (฿)	Approximate price for countermeasure classification 1 & 2 (฿)	Repair price (฿)	Remain 8 years up to countermeasure cl. 2	Repair price (฿)	Remain 8 years up to countermeasure cl. 2	Repair price (฿)	Life cycle		
Upper chord	01	Corrosion	a	5	Repaing	780.0	m ²	3,500	2,730,000	-	-	5	-	10	2,730,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	
	02	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repaing	780.0	m ²	3,500	2,730,000	-	-	5	-	10	2,730,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
	Bottom chord	01	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
			Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
			Corrosion	a	5	Repaing	420.0	m ²	3,500	1,470,000	-	-	5	-	10	1,470,000	20	
02		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
Diagonal		01	Corrosion	a	5	Repaing	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
			Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
			Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
	02	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repaing	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-		
	Vertical member	01	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	
			Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
			Corrosion	a	5	Repaing	70.0	m ²	3,500	245,000	-	-	5	245,000	10	245,000	20	
02		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-		
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-		
Lateral bracing (Upper)		01	Corrosion	a	5	Repaing	170.0	m ²	3,500	595,000	-	-	5	-	10	595,000	20	
			Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-		
			Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
	Lateral bracing (Lower)	01	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
			Corrosion	a	5	Repaing	170.0	m ²	3,500	595,000	-	-	5	-	10	595,000	20	
			Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Sway bracing (Upper)	01	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-
				Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	
				Corrosion	a	5	Repaing	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20
02			Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-		
			Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
			Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
03	Corrosion		a	5	Repaing	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20		
	Cracking		a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-			
	Missing bolts		a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-				
Stringer	01		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-		
			Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
			Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
	02	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-				
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-				
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-					
	03	Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-				
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-					
	04	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-				
		Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-					
Stringer	05	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-				
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-					
		Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20		
	06	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-				
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-					
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-						
	07	Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-					
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-						
	08	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-					
		Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20		
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-						
09	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-						
	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-							
	Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20			
10	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-						
	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-							
	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-								
11	Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20			
	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-							
	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-								
12	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-							
	Corrosion	a	5	Repaing	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20			
	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-							

Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)	Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction		
											Repair price (B)	Remaining years up to countermeasure cl 2	Repair price (B)	Remaining years up to countermeasure cl 2	Repair price (B)	Life cycle	
Floor beam	01	Corrosion	a	5	Repainting	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	-
Floor beam	02	Corrosion	a	5	Repainting	420.0	m ²	3,500	1,470,000	-	-	5	-	10	1,470,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	-
Floor beam	03	Corrosion	a	5	Repainting	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
		Fracture	a	5	Reinf. for fracture	-	-	166,700	-	-	-	-	-	-	-	-	-
Sway bracing (Lower)	01	Corrosion	a	5	Repainting	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
	02	Corrosion	a	5	Repainting	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
	03	Corrosion	a	5	Repainting	130.0	m ²	3,500	455,000	-	-	5	-	10	455,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	-	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	-	133,400	-	-	-	-	-	-	-	-	-
	Deck	01	Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30
			Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-	-
			Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	1,131,800	7	-	15	1,131,800	30
02		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-	-	
03		Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30	
04		Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-	
Deck	05	Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-		
		Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30	
	06	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-		
	07	Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30	
	08	Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-	-	
		Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-	
09	Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30		
	Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-			
	Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30		
10	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-		
	Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30		
	Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-			
11	Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30		
	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-		
	Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30		
12	Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-			
	Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	-	7	-	15	1,131,800	30		
	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	-	45,000	-	-	-	-	-	-	-	-		
13	Rebar exposure	a	5	Patching	9.7	m ²	17,500	169,800	-	-	7	-	15	-	30		
	Pop-outs	a	5	Patching & CFR	-	-	10,000	-	-	-	-	-	-	-			
	Deck cracking	c	3	CFR	50.3	m	22,500	1,131,800	-	1,131,800	7	-	15	1,131,800	30		
Substructure	01	Cracking etc.	a	5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30	
		Rebar exposure	a	5	Patching	2.24	m	17,500	39,200	-	-	7	-	15	39,200	30	
	02	Damages in substructures	a	5	Foot protection	-	m	1,750,000	-	-	-	-	-	-	-	-	
		Cracking etc.	a	5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30	
Bearings	101	Functional damage of bearings	a	5	Metal araying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
		Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
	201	Functional damage of bearings	a	5	Metal araying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
		Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	7	-	15	120,000	30	
Road surface	01	Level differences of road surface	a	5	Flasement replacement	655.5	m ²	5,000	3,277,500	-	-	5	-	10	3,277,500	20	
		Damages in pavements	a	5	same as above	655.5	m ²	5,000	3,277,500	-	-	5	-	10	3,277,500	20	
Barriers Railings	01	Damages in barriers	c	2	Patching	4.22	m	17,500	73,900	73,900	-	7	-	15	73,900	30	
		Damages in barriers	c	2	Patching	4.22	m	17,500	73,900	73,900	-	7	-	15	73,900	30	
	04	-	-	-	Patching	4.22	m	17,500	73,900	-	-	7	-	15	73,900	30	
		-	-	-	Patching	4.22	m	17,500	73,900	-	-	7	-	15	73,900	30	
Expansion joints	01	Damages in expansion joints	a	5	change of steel exp.	18.5	m	133,400	2,467,900	-	-	7	-	15	2,467,900	30	
		Damages in expansion joints	a	5	change of steel exp.	18.5	m	133,400	2,467,900	-	-	7	-	15	2,467,900	30	

Damage classification of members

Bridge name		004Krung Thon										Span No.					3	
		Damages of steel members				Damages of concrete members						Others					Remarks	
		Corrosion	Cracking	Missing bolts	Fracture	Cracking, Water leakage, Free lime	No.	Rebar exposure	Pop-outs	Deck cracking	Damages at anchorage of PC tender	Level difference of road surface	Functional damage of bearings	Damages in substructures	Damages in pavements	Damages in expansion joints		Damages in cable
Upper chord member	01	a	a	a	a													
	02	a	a	a	a													
Bottom chord member	01	a	a	c	a													
	02	a	a	c	a													
Diagonal	01	a	a	a	a													
	02	a	a	a	a													
Vertical member	01	a	a	a	a													
	02	a	a	a	a													
Lateral bracing (Upper)	01	a	a	a	a													
Lateral bracing (Lower)	01	a	a	a	a													
Sway bracing (Upper)	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Stringer	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
	04	a	a	a	a													
	05	a	a	a	a													
	06	a	a	a	a													
	07	a	a	a	a													
	08	a	a	a	a													
	09	a	a	a	a													
	10	a	a	a	a													
	11	a	a	a	a													
	12	a	a	a	a													
Floor beam	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Sway bracing (Lower)	01	a	a	a	a													
	02	a	a	a	a													
	03	a	a	a	a													
Sway bracing (Lower)	01							a	a	c	a							
	02							a	a	a	a							
	03							a	a	a	a							
	04							a	a	a	a							
	05							a	a	a	a							
	06							a	a	a	a							
	07							a	a	a	a							
	08							a	a	a	a							
	09							a	a	a	a							
	10							a	a	a	a							
	11							a	a	a	a							
	12							a	a	a	a							
	13							a	a	a	c	a						
Pier	01					a	-	a						a				
	02					a	-	a						a				
Bearings	101												a					
	102												a					
	201												a					
	202												a					
Road surface											a			a				
Barriers Railings	01																c	
	02																c	
	03																	
	04																	
Expansion joints	01																a	
	02																-	

Estimation of repair quantity

Bridge name		004Krung Thon			Span No.		3	
Subject		Quantity		Remarks				
1	Span length	65.0 m		Length of 1 span				
2	Road width for pavement	11.5 m		Width for pavement area (Vehicle lane)				
3	Total road width	18.5 m		Deck width				
4	Area of bridge surface	1,202.5 m ²		Span length x Total width				
5	Area of pavement	747.5 m ²		Span length x Width for pavement				
6	Barriers & railings	01	concrete	Type of barriers & railings				
		02	concrete	Same as above				
		03	-	Same as above				
		04	-	Same as above				
7	Expansion joints	01	steel	Type of expansion joint				
		02	steel	Same as above				
8	Painting area		Total %	Number of members	Member %	Painting area	Remarks	
	Total painting area		100.0%	1	-	5,400.0 m ²		
	Main structure	52.0%	Upper chord	65.0%	33.8%	2	16.9%	920.0 m ² Experience value
			Bottom chord	35.0%	18.2%	2	9.1%	500.0 m ² Experience value
	Sway bracing Lateral bracing Portal frame	18.0%	Diagonal	20.0%	3.6%	2	1.8%	100.0 m ² Experience value
			Vertical member	15.0%	2.7%	2	1.4%	80.0 m ² Experience value
			Lateral bracing (Upper)	20.0%	3.6%	1	3.6%	200.0 m ² Experience value
			Lateral bracing (Lower)	15.0%	2.7%	1	2.7%	150.0 m ² Experience value
			Sway bracing (Upper)	15.0%	2.7%	1	2.7%	150.0 m ² Experience value
			Sway bracing (Lower)	15.0%	2.7%	1	2.7%	150.0 m ² Experience value
	Floor system	32.0%	Stringer	60.0%	19.2%	12	1.6%	90.0 m ² Experience value
			Floor beam	40.0%	12.8%	15% 70%	1.9% 9.0%	110.0 m ² 490.0 m ²
	9	Repaired area of deck		Quantity		Remarks		
Divided area A		92.5 m ²		13 div. Area of bridge surface / number of division				
Area of rebar exposure		11.1 m ²		A x 0.120				
Area of deck cracking		57.4 m ³		A x 0.620				
10	Repair quantity of substructure		Quantity		Remarks			
	Cracking, Water leakage, Free lime		5.54 m		per substructure			
	Rebar exposure		2.24 m ²		per substructure			
11	Concrete barrier		Quantity		Remarks			
	Rebar exposure		4.81 m ²		A of bridge surf. x 0.004			

Countermeasure classification of members

Bridge name		004Krung Thon				Span No.		3			
Member	No.	Damage	Damage classification		Countermeasure classification	Member	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge					Classification	Judge	
Upper chord	01	Corrosion	a	-	5	Stringer	01	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5		02	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
Bottom chord	01	Corrosion	a	-	5		03	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	c	-	2			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5		04	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	e	-	2			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
Diagonal	01	Corrosion	a	-	5		05	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
	02	Corrosion	a	-	5		06	Corrosion	a	-	5
		Cracking	a	-	5			Cracking	a	-	5
		Missing bolts	a	-	5			Missing bolts	a	-	5
		Fracture	a	-	5			Fracture	a	-	5
Vertical member	01	Corrosion	a	-	5	07	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	02	Corrosion	a	-	5	08	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Lateral bracing (Upper)	01	Corrosion	a	-	5	09	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
Lateral bracing (Lower)	01	Corrosion	a	-	5	10	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
	Sway bracing (Upper)	01	Corrosion	a	-	5	11	Corrosion	a	-	5
			Cracking	a	-	5		Cracking	a	-	5
			Missing bolts	a	-	5		Missing bolts	a	-	5
			Fracture	a	-	5		Fracture	a	-	5
02		Corrosion	a	-	5	12	Corrosion	a	-	5	
		Cracking	a	-	5		Cracking	a	-	5	
		Missing bolts	a	-	5		Missing bolts	a	-	5	
		Fracture	a	-	5		Fracture	a	-	5	
03	Corrosion	a	-	5		Corrosion	a	-	5		
	Cracking	a	-	5		Cracking	a	-	5		
	Missing bolts	a	-	5		Missing bolts	a	-	5		
	Fracture	a	-	5		Fracture	a	-	5		

Bridge name		004Krung Thon			Span No.		3					
Member	No.	Damage	Damage classification		Countermeasure classification	Member	No.	Damage	Damage classification		Countermeasure classification	
			Classification	Judge					Classification	Judge		
Floor beam	01	Corrosion	a	-	5	Deck	08	Rebar exposure	a	-	5	
		Cracking	a	-	5			Pop-outs	a	-	5	
		Missing bolts	a	-	5			Deck cracking	a	-	5	
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5	
	02	Corrosion	a	-	5		09	Rebar exposure	a	-	5	
		Cracking	a	-	5			Pop-outs	a	-	5	
		Missing bolts	a	-	5			Deck cracking	a	-	5	
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5	
	03	Corrosion	a	-	5		10	Rebar exposure	a	-	5	
		Cracking	a	-	5			Pop-outs	a	-	5	
		Missing bolts	a	-	5			Deck cracking	a	-	5	
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5	
Sway bracing (Lower)	01	Corrosion	a	-	5	Deck	11	Rebar exposure	a	-	5	
		Cracking	a	-	5			Pop-outs	a	-	5	
		Missing bolts	a	-	5			Deck cracking	a	-	5	
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5	
	02	Corrosion	a	-	5		12	Rebar exposure	a	-	5	
		Cracking	a	-	5			Pop-outs	a	-	5	
		Missing bolts	a	-	5			Deck cracking	a	-	5	
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5	
	03	Corrosion	a	-	5		13	Rebar exposure	a	-	5	
		Cracking	a	-	5			Pop-outs	a	-	5	
		Missing bolts	a	-	5			Deck cracking	c	-	3	
		Fracture	a	-	5			Damages at anchorage of PC tendon	a	-	5	
Deck	01	Rebar exposure	a	-	5	Substructure	01	Cracking etc.	a	-	5	
		Pop-outs	a	-	5			Rebar exposure	a	-	5	
		Deck cracking	c	-	3			Damages in substructures	a	-	5	
		Damages at anchorage of PC tendon	a	-	5			Cracking etc.	a	-	5	
	02	Rebar exposure	a	-	5		02	Rebar exposure	a	-	5	
		Pop-outs	a	-	5			Damages in substructures	a	-	5	
		Deck cracking	a	-	5			Bearings	101 Functional damage of bearings	a	-	5
		Damages at anchorage of PC tendon	a	-	5				102 Functional damage of bearings	a	-	5
	03	Rebar exposure	a	-	5		201 Functional damage of bearings		a	-	5	
		Pop-outs	a	-	5		202 Functional damage of bearings		a	-	5	
		Deck cracking	a	-	5		Road surface	01 Level difference of road surface	a	-	5	
		Damages at anchorage of PC tendon	a	-	5			Damages in pavements	a	-	5	
	04	Rebar exposure	a	-	5	Barriers Railings	01 Damages in barriers	c	-	2		
		Pop-outs	a	-	5		02 Damages in barriers	c	-	2		
		Deck cracking	a	-	5		03 Damages in barriers	-	-	-		
		Damages at anchorage of PC tendon	a	-	5		04 Damages in barriers	-	-	-		
	05	Rebar exposure	a	-	5	Expansion joints	01 Damages in expansion joints	a	-	5		
		Pop-outs	a	-	5		02 Damages in expansion joints	-	-	-		
		Deck cracking	a	-	5							
		Damages at anchorage of PC tendon	a	-	5							
	06	Rebar exposure	a	-	5							
		Pop-outs	a	-	5							
		Deck cracking	a	-	5							
		Damages at anchorage of PC tendon	a	-	5							
07	Rebar exposure	a	-	5								
	Pop-outs	a	-	5								
	Deck cracking	a	-	5								
	Damages at anchorage of PC tendon	a	-	5								

Approximate repair price for countermeasures

Bridge name		004 Krung Thom				Span No		3		countermeasure classification		countermeasure classification		Planned repair & reconstruction			
Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (฿)	Approximate repair price (฿)	Approximate price for countermeasure classification 1 & 2 (฿)	Repair price (฿)	Remaining years up to countermeasure el 2	Repair price (฿)	Remaining years up to countermeasure el 2	Repair price (฿)	Life cycle	
Upper chord	01	Corrosion	a	5	Repainging	920.0	m ²	3,500	3,220,000	-	-	5	-	10	3,220,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-
	02	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-
		Corrosion	a	5	Repainging	920.0	m ²	3,500	3,220,000	-	-	5	-	10	3,220,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-
Bottom chord	01	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	133,400	133,400	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repainging	500.0	m ²	3,500	1,750,000	-	-	5	-	10	1,750,000	20	
	02	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	133,400	133,400	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	
Diagonal	01	Corrosion	a	5	Repainging	100.0	m ²	3,500	350,000	-	-	5	-	10	350,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
	02	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-		
		Corrosion	a	5	Repainging	100.0	m ²	3,500	350,000	-	-	5	-	10	350,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
Vertical member	01	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-		
		Corrosion	a	5	Repainging	80.0	m ²	3,500	280,000	-	-	5	-	10	280,000	20	
	02	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-		
Lateral bracing (Upper)	01	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
Lateral bracing (Lower)	01	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
Sway bracing (Upper)	01	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
	02	Corrosion	a	5	Repainging	150.0	m ²	3,500	525,000	-	-	5	-	10	525,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-	-		
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-		
Stringer	01	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
		Corrosion	a	5	Repainging	150.0	m ²	3,500	525,000	-	-	5	-	10	525,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
	02	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
		Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
Stringer	03	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
	04	Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
Stringer	05	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
		Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
	06	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
		Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
Stringer	07	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
	08	Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
Stringer	09	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
		Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
		Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-			
	10	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-			
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-			
		Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20	
11	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-				
	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-				
	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-				
12	Corrosion	a	5	Repainging	90.0	m ²	3,500	315,000	-	-	5	-	10	315,000	20		
	Cracking	a	5	Reinf. with steel pt.	-	Pos.	166,700	-	-	-	-	-	-				
	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-				

Member	No.	Damage	Damage classification	Countermeasure classification	Repair method	Repair quantity	Unit	Approximate unit price (b)	Approximate repair price (b)	Approximate repair price for countermeasure classification 1 & 2 (b)	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction			
											Repair price (b)	Remainin g years up to counter measure cl 2	Repair price (b)	Remainin g years up to counter measure cl 2	Repair price (b)	Life cycle		
Floor beam	01	Corrosion	a	5	Repaíning	110.0	m ²	3,500	385,000	-	-	-	5	-	10	385,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	-
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	-
Floor beam	02	Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repaíning	490.0	m ²	3,500	1,715,000	-	-	-	5	-	10	1,715,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	-
Floor beam	03	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Corrosion	a	5	Repaíning	110.0	m ²	3,500	385,000	-	-	-	5	-	10	385,000	20	
Sway bracing (Lower)	01	Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
Sway bracing (Lower)	02	Corrosion	a	5	Repaíning	150.0	m ²	3,500	525,000	-	-	-	5	-	10	525,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	
Sway bracing (Lower)	03	Fracture	a	5	Reinf. for fracture	2.0	Pos.	166,700	333,400	333,400	-	-	-	-	-	-	-	
		Corrosion	a	5	Repaíning	150.0	m ²	3,500	525,000	-	-	-	5	-	10	525,000	20	
		Cracking	a	5	Reinf. with steel pl.	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
Deck	01	Missing bolts	a	5	Bolt change for splice pt.	-	Pos.	133,400	-	-	-	-	-	-	-	-	-	
		Fracture	a	5	Reinf. for fracture	-	Pos.	166,700	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
Deck	02	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	1,291,500	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
Deck	03	Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
Deck	04	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
Deck	05	Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
Deck	06	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
Deck	07	Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
Deck	08	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
Deck	09	Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
Deck	10	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
Deck	11	Rebar exposure	a	5	Patching	11.1	m ²	17,500	194,300	-	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m ²	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
Deck	12	Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	Pos.	45,000	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m	17,500	194,300	-	-	-	7	-	15	-	30	
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
Deck	13	Deck cracking	a	5	CFR	57.4	m	22,500	1,291,500	-	1,291,500	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	m	45,000	-	-	-	-	-	-	-	-	-	
		Rebar exposure	a	5	Patching	11.1	m	17,500	194,300	-	-	-	7	-	15	-	30	
Substructure	01	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	
		Deck cracking	a	5	CFR	57.4	m	22,500	1,291,500	-	-	-	7	-	15	1,291,500	30	
		Damages at anchorage of PC tendon	a	5	CFR (upper & bottom)	-	m	45,000	-	-	-	-	-	-	-	-	-	
Substructure	02	Cracking etc.	a	5	Resin injection	5.54	m	5,000	27,700	-	-	-	7	-	15	-	30	
		Rebar exposure	a	5	Patching	2.24	m	17,500	39,200	-	-	-	7	-	15	39,200	30	
		Damages in substructures	a	5	Foot protection	-	m	1,750,000	-	-	-	-	-	-	-	-	-	
Bearings	101	Cracking etc.	a	5	Resin injection	5.54	m	5,000	27,700	-	-	-	7	-	15	-	30	
		Rebar exposure	a	5	Patching	2.24	m	17,500	39,200	-	-	-	7	-	15	39,200	30	
		Damages in substructures	a	5	Foot protection	-	m	1,750,000	-	-	-	-	-	-	-	-	-	
Road surface	01	Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	-	7	-	15	120,000	30	
		Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	-	7	-	15	120,000	30	
		Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	-	7	-	15	120,000	30	
Barriers	01	Functional damage of bearings	a	5	Metal spraying	1.0	Pos.	120,000	120,000	-	-	-	7	-	15	120,000	30	
		Level difference of road surface	a	5	Pavement replacement	747.5	m ²	5,000	3,737,500	-	-	-	5	-	10	-	20	
		Damages in pavements	a	5	same as above	747.5	m ²	5,000	3,737,500	-	-	-	5	-	10	3,737,500	20	
Railings	01	Damages in barriers	c	2	Patching	4.81	mf	17,500	84,200	84,200	-	-	7	-	15	84,200	30	
		Damages in barriers	c	2	Patching	4.81	mf	17,500	84,200	84,200	-	-	7	-	15	84,200	30	
		Damages in barriers	c	2	Patching	4.81	mf	17,500	84,200	84,200	-	-	7	-	15	84,200	30	
Expansion joints	01	Damages in barriers	c	2	Patching	4.81	mf	17,500	84,200	84,200	-	-	7	-	15	84,200	30	
		Damages in expansion joints	a	5	change of steel exp.	18.5	m	133,400	2,467,900	-	-	-	7	-	15	2,467,900	30	
		Damages in expansion joints	a	5	change of steel exp.	18.5	m	133,400	2,467,900	-	-	-	7	-	15	2,467,900	30	