

1.5.8 Taksin

Span No.1

Inspection result

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	
Girder	01					c	4	a			a							
	02					c	4	a			a							
Deck	01							a	a	c								
	02							a	a	a								
	03							a	a	c								
	04							a	a	c								
	05							a	a	a								
	06							a	a	c								
Pier	01					a		a										
	02					a		a										
Bearings	101												c					
	102												c					
	103												c					
	104												c					
Road surface											a							
Pavement														a				
Barriers Railings	01															c		
	02															c		
	03															a		
	04															c		
Expansion joints	01																a	
Others																		

Span No.1

Countermeasure classification of members					Bridge name	008Taksin	Span No.	1		
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	c	3	3	02	Cracking, Water leakage, Free lime	c	3	3
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	c	-	3		Deck cracking	c	-	3
	03	Rebar exposure	a		5	06	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	c	-	3		Deck cracking	c	-	3
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	a	-	5
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Bearings	101	Functional damage of bearings	c		3	103	Functional damage of bearings	c		3
	102	Functional damage of bearings	c		3	104	Functional damage of bearings	c		3
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5
Barriers Railing	01	Damages in barriers	c		2	03	Damages in barriers	a		5
	02	Damages in barriers	c		2	04	Damages in barriers	c		2
Expansion joints	01	Damages in expansion joints	a		5	-	-	-	-	-

Estimation of repair quantity

Bridge name		008Taksin		Span No.	1
Subject		Quantity	Remarks		
1	Span length	66.00 m	Length of 1 span		
2	Road width for pavement	22.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	28.00 m	Deck width		
4	Area of bridge surface	1,848.0 m ²	Span length x Total width		
5	Area of pavement	1,485.0 m ²	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
		04	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	73.9 m	A of bridge surf. x 0.040	
	Girder		37.0 m	L x 1/2 (per girder)	
9	Area of rebar exposure		Quantity	Remarks	
	Total area	A	14.8 m ²	A of bridge surf. x 0.008	
	Girder		7.4 m ²	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01,06	A	248.8 m ²	Deck width = 3.77 m	
	Area of rebar exposure		2.5 m ²	A x 0.010	
	Area of deck cracking		12.4 m ²	A x 0.050	
	03,04	A	248.8 m ²	Deck width = 3.77 m	
	Area of rebar exposure		2.5 m ²	A x 0.010	
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m ²	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		7.39 m ²	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name	008Taksin				Span No.	1	Approximate unit price (B)	Unit	Repair quantity	Repair method	Damage classification	Countermeasure classification	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction	
	No.	Damage	Repair price (B)	Remaining years up to countermeasure measure cl. 2									Repair price (B)	Remaining years up to countermeasure measure cl. 2	Approximate repair price for countermeasure classification 1 & 2 (B)	Approximate repair price (B)		Repair price (B)
Girder	01	Cracking/Water leakage/Free lime	Resin injection	c 3	37.0	m	5,000						185,000	7	15			
		Rebar exposure	Patching	a 5	7.4	m ²	17,500								7	15	129,500	30
		Damages at anchorage of PC tendon	Reinforcement with external PC tendon	a 5		Pos.	1,000,000											
	02	Cracking/Water leakage/Free lime	Resin injection	c 3	37.0	m	5,000							185,000	7	15		
Deck		Rebar exposure	Patching	a 5	7.4	m ²	17,500								7	15	129,500	30
		Damages at anchorage of PC tendon	Reinforcement with external PC tendon	a 5		Pos.	1,000,000											
	01	Pop-outs	Patching & CFR	a 5		Pos.	17,500								7	15		
		Deck cracking	CFR	c 3	12.4	m ²	22,500							279,000	12	25	279,000	50
Deck		Rebar exposure	Patching	a 5	2.5	m ²	17,500								7	15		
		Pop-outs	Patching & CFR	a 5		Pos.	10,000											
	03	Deck cracking	CFR	c 3	12.4	m ²	22,500							279,000	12	25	279,000	50
		Rebar exposure	Patching & CFR	a 5	2.5	m ²	17,500								7	15		
Pier		Pop-outs	Patching & CFR	a 5		Pos.	10,000											
		Deck cracking	CFR	c 3	12.4	m ²	22,500							279,000	12	25	279,000	50
		Rebar exposure	Patching	a 5	2.5	m ²	17,500								7	15		
	01	Cracking/Water leakage/Free lime	Resin injection	a 5	5.54	m	5,000								7	15		
Pier		Rebar exposure	Patching	a 5	2.24	m ²	17,500								7	15	39,200	30
		Damages in substructures	Foot protection	a 5		Pier	1,750,000											
		Cracking/Water leakage/Free lime	Resin injection	a 5	5.54	m	5,000								7	15		
	02	Rebar exposure	Patching	a 5	2.24	m ²	17,500								7	15	39,200	30
Bearings		Damages in substructures	Foot protection	a 5		Pier	1,750,000											
	101	Functional damage of bearings	Metal spraying	c 3	1.0	Pier	120,000							120,000	7	15	120,000	30
	102	Functional damage of bearings	Metal spraying	c 3	1.0	#	120,000							120,000	7	15	120,000	30
	103	Functional damage of bearings	Metal spraying	c 3	1.0	#	120,000							120,000	7	15	120,000	30
Road surface	104	Functional damage of bearings	Metal spraying	c 3	1.0	#	120,000							120,000	7	15	120,000	30
		Level difference of road surface	Pavement replacement	a 5		m ²	5,000								5	10		
	01	Damages in pavements	same as above	a 5	1,485.0	#	5,000								5	10	7,425,000	20
		Damages in barriers	Patching	c 2	7.39	m ²	17,500								7	15	129,400	30
Barriers	02	Damages in barriers	Patching	c 2	7.39	m ²	17,500								7	15	129,400	30
	03	Damages in barriers	Patching	a 5	7.39	m ²	17,500								7	15	129,400	30
	04	Damages in barriers	Patching	c 2	7.39	m ²	17,500								7	15	129,400	30
	01	Damages in expansion joints	change of steel exp.	a 5	28.0	m	133,400								7	15	3,735,200	30

Span No.2

Inspecton result

Span No. 2

	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	
Girder	01				c	4	a			a							
	02				c	4	a			a							
Deck	01						a	a	a								
	02						a	a	a								
	03						a	a	a								
	04						a	a	a								
	05						a	a	a								
	06						a	a	a								
Pier	01				c		a										
	02				a		a										
Road surface										a							
Pavement													a				
Barriers Railings	01														c		
	02														c		
	03														a		
	04														a		
Others																	

Span No.2

Countermeasure classification of members					Bridge name		008Taksin		Span No.		2
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification	
			Classification	Judge				Classification	Judge		
Girder	01	Cracking, Water leakage, Free lime	c	3	3	02	Cracking, Water leakage, Free lime	c	3	3	
		Rebar exposure	a	-	5		Rebar exposure	a	-	5	
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5	
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5	
		Pop-outs	a		5		Pop-outs	a		5	
		Deck cracking	a	N	5		Deck cracking	a	N	5	
	03	Rebar exposure	a		5	06	Rebar exposure	a		5	
		Pop-outs	a		5		Pop-outs	a		5	
		Deck cracking	a	N	5		Deck cracking	a	N	5	
Pier	01	Cracking, Water leakage, Free lime	c	-	3	02	Cracking, Water leakage, Free lime	a	-	5	
		Rebar exposure	a	-	5		Rebar exposure	a	-	5	
		Damages in substructures	a	-	5		Damages in substructures	a	-	5	
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5	
Barriers	01	Damages in barriers	c		2	03	Damages in barriers	a		5	
Railing	02	Damages in barriers	c		2	04	Damages in barriers	a		5	

Estimation of repair quantity

Bridge name		008Taksin		Span No.	2
Subject		Quantity	Remarks		
1	Span length	92.00 m	Length of 1 span		
2	Road width for pavement	22.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	28.00 m	Deck width		
4	Area of bridge surface	2,576.0 m ²	Span length x Total width		
5	Area of pavement	2,070.0 m ²	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
		04	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	103.0 m	A of bridge surf. x 0.040	
	Girder		51.5 m	L × 1/2 (per girder)	
9	Area of rebarb exposure		Quantity	Remarks	
	Total area	A	20.6 m ²	A of bridge surf. x 0.008	
	Girder		10.3 m ²	L × 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01,06	A	346.8 m ²	Deck width = 3.77 m	
	Area of rebarb exposure		3.5 m ²	A × 0.010	
	Area of deck cracking		17.3 m ²	A × 0.050	
	03,04	A	346.8 m ²	Deck width = 3.77 m	
	Area of rebarb exposure		3.5 m ²	A × 0.010	
Area of deck cracking		17.3 m ²	A × 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m ²	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		10.30 m ²	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name	008Taksin		Span No. 2		Approximate repair price for countermeasure classification 1 & 2 (B)	countermeasure classification 3		countermeasure classification 4		Planned repair & reconstruction					
	No.	Damage	Damage classification	Repair method		Repair quantity	Unit	Approximate unit price (B)	Approximate repair price (B)		Approximate repair price for countermeasure classification 1 & 2 (B)	Repair price (B)	Remaining years up to countermeasure measure cl. 2	Repair price (B)	Remaining years up to countermeasure measure cl. 2
Girder	01	Cracking/Water leakage/Free lime	c 3	Resin injection	51.5	m	5,000	257,500	-	257,500	7	-	15	-	30
		Rebar exposure	a 5	Patching	10.3	m ²	17,500	180,300	-	180,300	7	-	15	-	30
	02	Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	c 3	Resin injection	51.5	m	5,000	257,500	-	257,500	7	-	15	-	30
Deck	01	Rebar exposure	a 5	Patching	10.3	m ²	17,500	180,300	-	180,300	7	-	15	-	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-
	03	Rebar exposure	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	17.3	m ²	22,500	389,300	-	389,300	12	-	25	-	50
Pier	05	Rebar exposure	a 5	Patching	3.5	m ²	17,500	61,300	-	61,300	7	-	15	-	30
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
	06	Deck cracking	a 5	CFR	17.3	m ²	22,500	389,300	-	389,300	12	-	25	-	50
		Rebar exposure	a 5	Patching	3.5	m ²	17,500	61,300	-	61,300	7	-	15	-	30
Road surface	01	Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a 5	CFR	17.3	m ²	22,500	389,300	-	389,300	12	-	25	-	50
	02	Cracking/Water leakage/Free lime	c 3	Resin injection	5.94	m	5,000	27,700	-	27,700	7	-	15	-	30
		Rebar exposure	a 5	Patching	2.24	m ²	17,500	39,200	-	39,200	7	-	15	-	30
Barriers Railings	01	Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	a 5	Resin injection	5.54	m	5,000	27,700	-	27,700	7	-	15	-	30
	02	Rebar exposure	a 5	Patching	2.24	m ²	17,500	39,200	-	39,200	7	-	15	-	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
Barriers Railings	01	Level difference of road surface	a 5	Pavement replacement	-	m ²	5,000	-	-	-	-	-	-	-	-
		Damages in pavements	a 5	same as above	2,070.0	ft	5,000	10,350,000	-	10,350,000	5	-	10	-	20
	02	Damages in barriers	c 2	Patching	10.30	m ²	17,500	180,300	180,300	180,300	7	-	15	-	30
		Damages in barriers	c 2	Patching	10.30	m ²	17,500	180,300	180,300	180,300	7	-	15	-	30
03	Damages in barriers	a 5	Patching	10.30	m ²	17,500	180,300	-	180,300	7	-	15	-	30	
	Damages in barriers	a 5	Patching	10.30	m ²	17,500	180,300	-	180,300	7	-	15	-	30	

Span No.3

Inspection result

		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	Remarks
Girder	01					c	8	a			a							
	02					c	8	a			a							
Deck	01							a	a	c								
	02							a	a	a								
	03							a	a	c								
	04							a	a	c								
	05							a	a	a								
	06							a	a	c								
Pier	01					a		a										
	02					c		a										
Bearings	101												a					
	102												a					
	103												a					
	104												a					
Road surface												c						
Pavement															e			
Barriers	01																a	
	02																c	
Railings	03																a	
	04																a	
Expansion joints	01																a	
Others																		

Span No.3

Countermeasure classification of members					Bridge name	008Taksin	Span No.	3		
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	c	3	3	02	Cracking, Water leakage, Free lime	c	3	3
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages at anchorage of PC tendon	a	-	5		Damages at anchorage of PC tendon	a	-	5
Deck	01	Rebar exposure	a		5	04	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	c	-	3		Deck cracking	c	-	3
	03	Rebar exposure	a		5	06	Rebar exposure	a		5
		Pop-outs	a		5		Pop-outs	a		5
		Deck cracking	c	-	3		Deck cracking	c	-	3
Pier	01	Cracking, Water leakage, Free lime	a	-	5	02	Cracking, Water leakage, Free lime	c	3	3
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Bearings	101	Functional damage of bearings	a		5	103	Functional damage of bearings	a		5
	102	Functional damage of bearings	a		5	104	Functional damage of bearings	a		5
Road surface	01	Level difference of road surface	c		4	01	Damages in pavements	e		2
Barriers Railing	01	Damages in barriers	a		5	03	Damages in barriers	a		5
	02	Damages in barriers	c		2	04	Damages in barriers	a		5
Expansion joints	01	Damages in expansion joints	a		5	-	-	-	-	-

Estimation of repair quantity

Bridge name		008Taksin		Span No.	3
Subject		Quantity	Remarks		
1	Span length	66.00 m	Length of 1 span		
2	Road width for pavement	22.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	28.00 m	Deck width		
4	Area of bridge surface	1,848.0 m ²	Span length x Total width		
5	Area of pavement	1,485.0 m ²	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
		04	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	73.9 m	A of bridge surf. x 0.040	
	Girder		37.0 m	L x 1/2 (per girder)	
9	Area of rebar exposure		Quantity	Remarks	
	Total area	A	14.8 m ²	A of bridge surf. x 0.008	
	Girder		7.4 m ²	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01,06	A	248.8 m ²	Deck width = 3.77 m	
	Area of rebar exposure		2.5 m ²	A x 0.010	
	Area of deck cracking		12.4 m ²	A x 0.050	
	03,04	A	248.8 m ²	Deck width = 3.77 m	
	Area of rebar exposure		2.5 m ²	A x 0.010	
Area of deck cracking		12.4 m ²	A x 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m ²	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		7.39 m ²	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Member	No.	Damage	Damage 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 el. 2	Repair price (B)	Remaining years up to countermeasure el. 2				
Girder	01	Cracking/Water leakage/Free lime	c 3	Resin injection	37.0	m	5,000	185,000	-	7	185,000	-	15	-	-	30	
		Rebar exposure	a 5	Patching	7.4	m ²	17,500	129,500	-	7	-	-	-	15	129,500	-	30
	02	Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	c 3	Resin injection	37.0	m	5,000	185,000	-	7	185,000	-	15	-	-	30	
	01	Rebar exposure	a 5	Patching	7.4	m ²	17,500	129,500	-	7	-	-	-	15	129,500	-	30
		Damages at anchorage of PC tendon	a 5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-	-	-
	Deck	01	Rebar exposure	a 5	Patching	-	m ²	17,500	-	-	7	-	-	15	-	-	30
			Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-
		03	Deck cracking	c 3	CFR	12.4	m ²	22,500	279,000	-	12	279,000	-	25	279,000	-	50
			Rebar exposure	a 5	Patching	2.5	m ²	17,500	43,800	-	7	-	-	-	15	-	30
05		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	-
		Deck cracking	c 3	CFR	12.4	m ²	22,500	279,000	-	12	279,000	-	25	279,000	-	50	
06		Rebar exposure	a 5	Patching	2.5	m ²	17,500	43,800	-	7	-	-	-	15	-	30	
		Pop-outs	a 5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-	-	-
Pier		01	Cracking/Water leakage/Free lime	c 3	CFR	12.4	m ²	22,500	279,000	-	12	279,000	-	25	279,000	-	50
			Rebar exposure	a 5	Patching	2.24	m ²	17,500	39,200	-	7	-	-	-	15	39,200	-
	02	Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-	-	-
		Cracking/Water leakage/Free lime	c 3	Resin injection	5.54	m	5,000	27,700	-	7	27,700	-	15	-	-	30	
	101	Rebar exposure	a 5	Patching	2.24	m ²	17,500	39,200	-	7	-	-	-	15	39,200	-	30
		Damages in substructures	a 5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-	-	-
	102	Functional damage of bearings	a 5	Metal spraying	1.0	Pier	120,000	120,000	-	7	-	-	-	15	120,000	-	30
		Functional damage of bearings	a 5	Metal spraying	1.0	#	120,000	120,000	-	7	-	-	-	15	120,000	-	30
	104	Functional damage of bearings	a 5	Metal spraying	1.0	#	120,000	120,000	-	7	-	-	-	15	120,000	-	30
		Level difference of road surface	c 4	Pavement replacement	-	m ²	5,000	-	-	5	-	-	-	10	-	-	20
01	Damages in pavements	e 2	same as above	1,485.0	#	5,000	7,425,000	7,425,000	5	-	-	-	10	7,425,000	-	20	
	Damages in barriers	a 5	Patching	7.39	m ²	17,500	129,400	-	7	-	-	-	15	129,400	-	30	
03	Damages in barriers	a 5	Patching	7.39	m ²	17,500	129,400	-	7	-	-	-	15	129,400	-	30	
	Damages in barriers	a 5	Patching	7.39	m ²	17,500	129,400	-	7	-	-	-	15	129,400	-	30	
01	Damages in expansion joints	a 5	change of steel exp.	28.0	m	133,400	3,735,200	-	7	-	-	-	15	3,735,200	-	30	

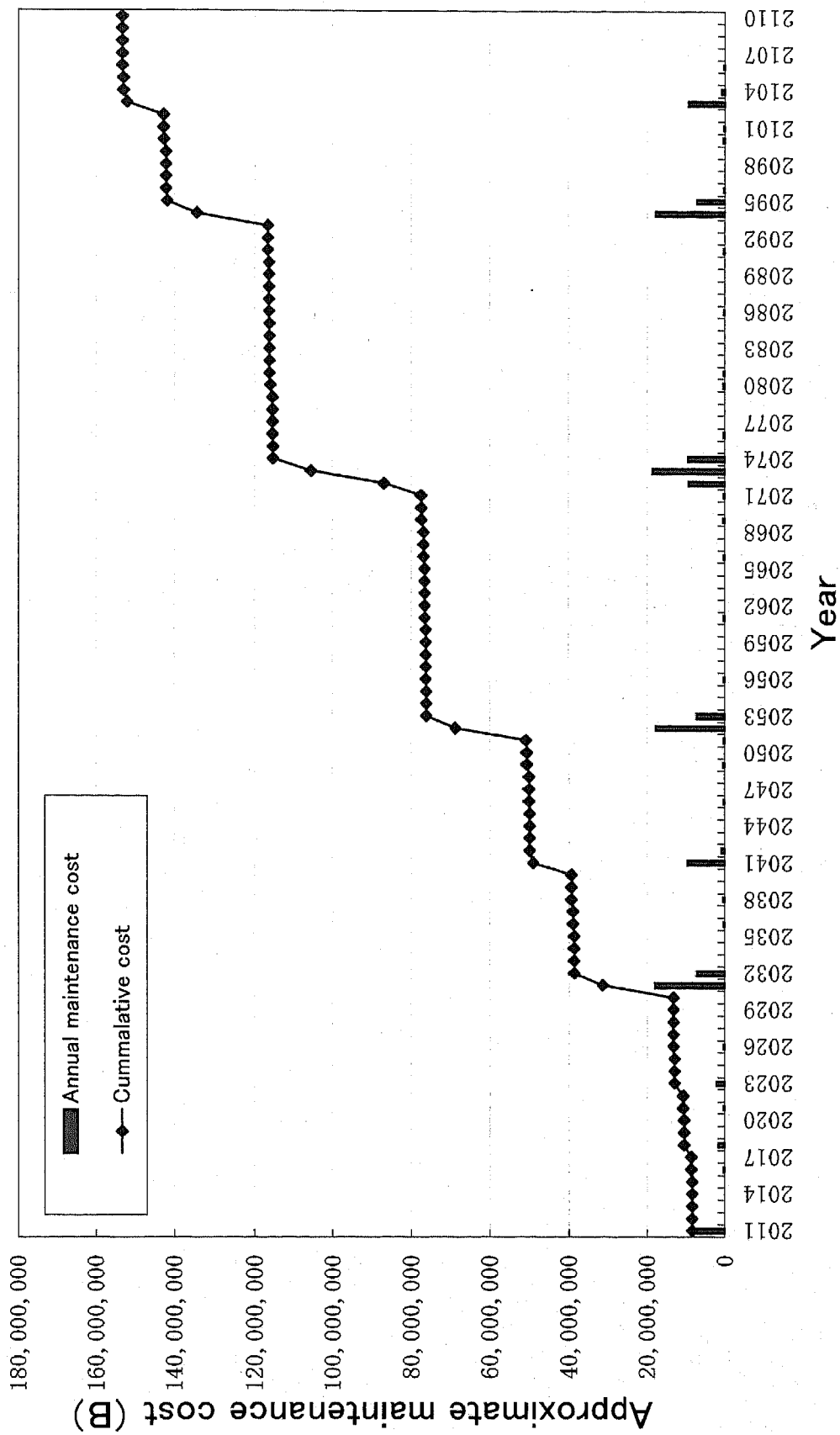
Approximate total repair cost

Year	Annual repair cost (B)					Cumulative cost (B)
	Span No.1	Span No.2	Span No.3	Periodic inspection + reserve for unexpected matters	Bridge total	
2011	388,200	360,600	7,554,400	233,400	8,536,600	8,536,600
2012	-	-	-	-	-	8,536,600
2013	-	-	-	-	-	8,536,600
2014	-	-	-	-	-	8,536,600
2015	-	-	-	-	-	8,536,600
2016	-	-	-	233,400	233,400	8,770,000
2017	-	-	-	-	-	8,770,000
2018	850,000	542,700	370,000	-	1,762,700	10,532,700
2019	-	-	-	-	-	10,532,700
2020	-	-	-	-	-	10,532,700
2021	-	-	-	233,400	233,400	10,766,100
2022	-	-	-	-	-	10,766,100
2023	1,116,000	-	1,116,000	-	2,232,000	12,998,100
2024	-	-	-	-	-	12,998,100
2025	-	-	-	-	-	12,998,100
2026	-	-	-	233,400	233,400	13,231,500
2027	-	-	-	-	-	13,231,500
2028	-	-	-	-	-	13,231,500
2029	-	-	-	-	-	13,231,500
2030	-	-	-	-	-	13,231,500
2031	7,425,000	10,350,000	-	233,400	18,008,400	31,239,900
2032	-	-	7,425,000	-	7,425,000	38,664,900
2033	-	-	-	-	-	38,664,900
2034	-	-	-	-	-	38,664,900
2035	-	-	-	-	-	38,664,900
2036	-	-	-	233,400	233,400	38,898,300
2037	-	-	-	-	-	38,898,300
2038	-	-	480,000	-	480,000	39,378,300
2039	-	-	-	-	-	39,378,300
2040	-	-	-	-	-	39,378,300
2041	4,202,000	799,600	4,460,800	233,400	9,695,800	49,074,100
2042	388,200	360,600	129,400	-	878,200	49,952,300
2043	-	-	-	-	-	49,952,300
2044	-	-	-	-	-	49,952,300
2045	-	-	-	-	-	49,952,300
2046	-	-	-	233,400	233,400	50,185,700
2047	-	-	-	-	-	50,185,700
2048	-	-	-	-	-	50,185,700
2049	480,000	-	-	-	480,000	50,665,700
2050	-	-	-	-	-	50,665,700
2051	-	-	-	233,400	233,400	50,899,100
2052	7,425,000	10,350,000	-	-	17,775,000	68,674,100
2053	-	-	7,425,000	-	7,425,000	76,099,100
2054	-	-	-	-	-	76,099,100
2055	-	-	-	-	-	76,099,100
2056	-	-	-	233,400	233,400	76,332,500
2057	-	-	-	-	-	76,332,500
2058	-	-	-	-	-	76,332,500
2059	-	-	-	-	-	76,332,500
2060	-	-	-	-	-	76,332,500

Year	Annual repair cost (B)					Cumulative cost (B)
	Span No.1	Span No.2	Span No.3	Periodic inspection + reserve for unexpected matters	Bridge total	
2061	-	-	-	233,400	233,400	76,565,900
2062	-	-	-	-	-	76,565,900
2063	-	-	-	-	-	76,565,900
2064	-	-	-	-	-	76,565,900
2065	-	-	-	-	-	76,565,900
2066	-	-	-	233,400	233,400	76,799,300
2067	-	-	-	-	-	76,799,300
2068	-	-	-	-	-	76,799,300
2069	-	-	480,000	-	480,000	77,279,300
2070	-	-	-	-	-	77,279,300
2071	-	-	-	233,400	233,400	77,512,700
2072	4,202,000	799,600	4,460,800	-	9,462,400	86,975,100
2073	7,813,200	10,710,600	129,400	-	18,653,200	105,628,300
2074	1,116,000	-	8,541,000	-	9,657,000	115,285,300
2075	-	-	-	-	-	115,285,300
2076	-	-	-	233,400	233,400	115,518,700
2077	-	-	-	-	-	115,518,700
2078	-	-	-	-	-	115,518,700
2079	-	-	-	-	-	115,518,700
2080	480,000	-	-	-	480,000	115,998,700
2081	-	-	-	233,400	233,400	116,232,100
2082	-	-	-	-	-	116,232,100
2083	-	-	-	-	-	116,232,100
2084	-	-	-	-	-	116,232,100
2085	-	-	-	-	-	116,232,100
2086	-	-	-	233,400	233,400	116,465,500
2087	-	-	-	-	-	116,465,500
2088	-	-	-	-	-	116,465,500
2089	-	-	-	-	-	116,465,500
2090	-	-	-	-	-	116,465,500
2091	-	-	-	233,400	233,400	116,698,900
2092	-	-	-	-	-	116,698,900
2093	-	-	-	-	-	116,698,900
2094	7,425,000	10,350,000	-	-	17,775,000	134,473,900
2095	-	-	7,425,000	-	7,425,000	141,898,900
2096	-	-	-	233,400	233,400	142,132,300
2097	-	-	-	-	-	142,132,300
2098	-	-	-	-	-	142,132,300
2099	-	-	-	-	-	142,132,300
2100	-	-	480,000	-	480,000	142,612,300
2101	-	-	-	233,400	233,400	142,845,700
2102	-	-	-	-	-	142,845,700
2103	4,202,000	799,600	4,460,800	-	9,462,400	152,308,100
2104	388,200	360,600	129,400	-	878,200	153,186,300
2105	-	-	-	-	-	153,186,300
2106	-	-	-	233,400	233,400	153,419,700
2107	-	-	-	-	-	153,419,700
2108	-	-	-	-	-	153,419,700
2109	-	-	-	- 180 -	-	153,419,700
2110	-	-	-	-	-	153,419,700

Estimation of LCC

Estimation of LCC
Taksin



1.5.9 Rama 3

Span No.1

Inspection result

		Damages of steel members				Damages of concrete members						Others						Span No.	1
		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	
Girder	01					c		a			a								
Deck	01							a	a	a									
	02							a	a	a									
	03							a	a	a									
Pier	01					c		a											
	02					c		a											
Road surface											a								
Pavement														a					
Barriers	01															a			
Railings	02															a			
Expansion joints	01																a		
Others																			

Span No.1

Countermeasure classification of members					Bridge name	009Rama III	Span No.	1		
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	c	3	3					
		Rebar exposure	a	-	5					
		Damages at anchorage of PC tendon	a	-	5					
Deck	01	Rebar exposure	a		5					
		Pop-outs	a		5					
		Deck cracking	a	N	5					
	03	Rebar exposure	a		5					
		Pop-outs	a		5					
		Deck cracking	a	N	5					
Pier	01	Cracking, Water leakage, Free lime	c	3	3	02	Cracking, Water leakage, Free lime	c	3	3
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5
Barriers	01	Damages in barriers	a		5	03	Damages in barriers	a		5
Railing	02	Damages in barriers	a		5					
Expansion joints	01	Damages in expansion joints	a		5	-	-	-	-	-

Estimation of repair quantity

Bridge name		009Rama III		Span No.	1
Subject		Quantity	Remarks		
1	Span length	125.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	23.00 m	Deck width		
4	Area of bridge surface	2,875.0 m ²	Span length x Total width		
5	Area of pavement	2,687.5 m ²	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	115.0 m	A of bridge surf. x 0.040	
	Girder		57.5 m	L × 1/2 (per girder)	
9	Area of rebarb exposure		Quantity	Remarks	
	Total area	A	23.0 m ²	A of bridge surf. x 0.008	
	Girder		11.5 m ²	L × 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01	A	562.5 m ²	Deck width = 4.50 m	
	Area of rebarb exposure		5.6 m ²	A × 0.010	
	Area of deck cracking		28.1 m ²	A × 0.050	
	03	A	562.5 m ²	Deck width = 4.50 m	
	Area of rebarb exposure		5.6 m ²	A × 0.010	
Area of deck cracking		28.1 m ²	A × 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m ²	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		11.50 m ²	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name	009Rama III		Span No.		1		Approximate repair price for countermeasure classification 1 & 2 (B)	Approximate repair price (B)	Approximate unit price (B)	Unit	Repair quantity	Repair method	Damage classification	Damage	No.	countermeasure classification				Planned repair & reconstruction	
	Damage classification	Countermeasure classification	Repair classification 3	Repair price (B)	Remaining years up to countermeasure cl. 2	Repair price (B)										Remaining years up to countermeasure cl. 2	Repair price (B)	Remaining years up to countermeasure cl. 2	Repair price (B)		Remaining years up to countermeasure cl. 2
Girder		c	3	Resin injection	57.5	m	5,000	287,500	7	287,500	15	-	-	-	30						
	01	a	5	Patching	11.5	m ²	17,500	201,300	7	-	15	-	-	-	30						
Deck		a	5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-						
		a	5	Patching	5.6	m ²	17,500	98,000	7	-	15	-	-	-	30						
		a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-						
		a	5	CFR	28.1	m ²	22,500	632,300	12	-	25	-	-	-	50						
		a	5	Patching	5.6	m ²	17,500	98,000	7	-	15	-	-	-	30						
		a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-						
		a	5	CFR	28.1	m ²	22,500	632,300	12	-	25	-	-	-	50						
		a	5	Resin injection	5.54	m	5,000	27,700	7	-	15	-	-	-	30						
		a	5	Patching	2.24	m ²	17,500	39,200	7	-	15	-	-	-	30						
		a	5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-						
Road surface		c	3	Resin injection	5.54	m	5,000	27,700	7	-	15	-	-	-	30						
	01	a	5	Patching	2.24	m ²	17,500	39,200	7	-	15	-	-	-	30						
Barriers		a	5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-						
		a	5	Pavement replacement	-	m ²	5,000	-	5	-	10	-	-	-	20						
	01	a	5	same as above	2,687.5	#	5,000	13,437,500	5	-	10	-	-	-	20						
Expansion joints		a	5	Patching	11.50	m ²	17,500	201,300	7	-	15	-	-	-	30						
		a	5	Patching	11.50	m ²	17,500	201,300	7	-	15	-	-	-	30						
	01	a	5	Patching	11.50	m ²	17,500	201,300	7	-	15	-	-	-	30						
	a	5	change of steel exp.	21.50	m	133,400	2,868,100	7	-	15	-	-	-	30							

Span No.2

Inspector result

Span No. 2

		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	
Girder	01					a		a			a							
Deck	01							a	a	c								
	02							a	a	a								
	03							a	a	a								
Pier	01					a		a										
	02					c		a										
Road surface											a							
Pavement														a				
Barriers	01															a		
Railings	02															a		
Expansion joints	01																a	
Others																		

Span No.2

Countermeasure classification of members					Bridge name	009Rama III	Span No.	2		
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification
			Classification	Judge				Classification	Judge	
Girder	01	Cracking, Water leakage, Free lime	a	-	5					
		Rebar exposure	a	-	5					
		Damages at anchorage of PC tendon	a	-	5					
Deck	01	Rebar exposure	a		5					
		Pop-outs	a		5					
		Deck cracking	c	-	3					
	03	Rebar exposure	a		5					
		Pop-outs	a		5					
		Deck cracking	a	N	5					
Pier	01	Cracking, Water leakage, Free lime	a	3	5	02	Cracking, Water leakage, Free lime	c	3	3
		Rebar exposure	a	-	5		Rebar exposure	a	-	5
		Damages in substructures	a	-	5		Damages in substructures	a	-	5
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5
Barriers	01	Damages in barriers	a		5	03	Damages in barriers	a		5
Railing	02	Damages in barriers	a		5					

Estimation of repair quantity

Bridge name		009Rama III		Span No.	2
Subject		Quantity	Remarks		
1	Span length	226.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	23.00 m	Deck width		
4	Area of bridge surface	5,198.0 m ²	Span length x Total width		
5	Area of pavement	4,859.0 m ²	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
8	Crack length		Quantity	Remarks	
	Total crack length	L	207.9 m	A of bridge surf. x 0.040	
	Girder		104.0 m	L x 1/2 (per girder)	
9	Area of rebarb exposure		Quantity	Remarks	
	Total area	A	41.6 m ²	A of bridge surf. x 0.008	
	Girder		20.8 m ²	L x 1/2 (per girder)	
10	Repaired area of deck		Quantity	Remarks	
	01	A	1,017.0 m ²	Deck width = 4.50 m	
	Area of rebarb exposure		10.2 m ²	A x 0.010	
	Area of deck cracking		50.9 m ²	A x 0.050	
	03	A	1,017.0 m ²	Deck width = 4.50 m	
	Area of rebarb exposure		10.2 m ²	A x 0.010	
Area of deck cracking		50.9 m ²	A x 0.050		
11	Repair quantity of substructure		Quantity	Remarks	
	Cracking, Water leakage, Free lime		5.54 m	per substructure	
	Rebar exposure		2.24 m ²	per substructure	
12	Concrete barrier		Quantity	Remarks	
	Rebar exposure		20.79 m ²	A of bridge surf. x 0.004	

Approximate repair price for countermeasure

Bridge name	009Rama III			Span No.		2	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		
	Member	No.	Damage	Damage classification	Countermeasure classification					Repair method	Repair quantity	Unit	Repair price (B)	Remaini ng years up to counter measure cl. 2	Repair price (B)	Remaini ng years up to counter measure cl. 2
Girder	01	Cracking/Water leakage/free lime	a	5	Resin injection	104.0	m	5,000	520,000	-	-	7	-	15	-	30
		Rebar exposure	a	5	Patching	20.8	m ²	17,500	364,000	-	-	7	-	15	-	30
		Damages at anchorage of PC tendon	a	5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-	-
Deck	01	Rebar exposure	a	5	Patching	10.2	m ²	17,500	178,500	-	-	7	-	15	-	30
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	c	3	CFR	50.9	m ²	22,500	1,145,300	-	1,145,300	12	-	25	-	50
-	03	Rebar exposure	a	5	Patching	10.2	m ²	17,500	178,500	-	-	7	-	15	-	30
		Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
		Deck cracking	a	5	CFR	50.9	m ²	22,500	1,145,300	-	-	12	-	25	-	50
-	01	Cracking/Water leakage/Free lime	a	5	Resin injection	5.54	m	5,000	27,700	-	-	7	-	15	-	30
		Rebar exposure	a	5	Patching	2.24	m ²	17,500	39,200	-	-	7	-	15	-	30
		Damages in substructures	a	5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
-	02	Cracking/Water leakage/Free lime	c	3	Resin injection	5.54	m	5,000	27,700	-	27,700	7	-	15	-	30
		Rebar exposure	a	5	Patching	2.24	m ²	17,500	39,200	-	-	7	-	15	-	30
		Damages in substructures	a	5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
Road surface	01	Level difference of road surface	a	5	Pavement replacement	-	m ²	5,000	-	-	-	5	-	10	-	20
		Damages in pavements	a	5	same as above	4,859.0	ft	5,000	24,295,000	-	-	5	-	10	-	20
		Damages in barriers	a	5	Patching	20.79	m ²	17,500	363,900	-	-	7	-	15	-	30
Barriers	02	Damages in barriers	a	5	Patching	20.79	m ²	17,500	363,900	-	-	7	-	15	-	30
		Damages in barriers	a	5	Patching	20.79	m ²	17,500	363,900	-	-	7	-	15	-	30
Railings	03	Damages in barriers	a	5	Patching	20.79	m ²	17,500	363,900	-	-	7	-	15	-	30
		Damages in barriers	a	5	Patching	20.79	m ²	17,500	363,900	-	-	7	-	15	-	30

Span No.3

Inspection result

Span No. 3

		Damages of steel member				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	
Girder	01					c		a			a							
Deck	01							a	a	a								
	02							a	a	a								
	03							a	a	c								
Pier	01					a		a										
	02					c		a										
Road surface											a							
Pavement														a				
Barriers Railings	01															a		
	02															a		
Expansion joints	01																a	
Others																		

Span No.3

Countermeasure classification of members					Bridge name		009Rama III		Span No.		3
Member	No.	Damage	Damage classification		Countermeasure classification	No.	Damage	Damage classification		Countermeasure classification	
			Classification	Judge				Classification	Judge		
Girder	01	Cracking, Water leakage, Free lime	c	3	3						
		Rebar exposure	a	-	5						
		Damages at anchorage of PC tendon	a	-	5						
Deck	01	Rebar exposure	a		5						
		Pop-outs	a		5						
		Deck cracking	a	N	5						
	03	Rebar exposure	a		5						
		Pop-outs	a		5						
		Deck cracking	c	-	3						
Pier	01	Cracking, Water leakage, Free lime	a	3	5	02	Cracking, Water leakage, Free lime	c	3	3	
		Rebar exposure	a	-	5		Rebar exposure	a	-	5	
		Damages in substructures	a	-	5		Damages in substructures	a	-	5	
Road surface	01	Level difference of road surface	a		5	01	Damages in pavements	a		5	
Barriers Railing	01	Damages in barriers	a		5	03	Damages in barriers	a		5	
	02	Damages in barriers	a		5						
Expansion joints	01	Damages in expansion joints	a		5	-	-	-	-	-	

Estimation of repair quantity

Bridge name		009Rama III		Span No.	3
Subject		Quantity	Remarks		
1	Span length	125.00 m	Length of 1 span		
2	Road width for pavement	21.50 m	Width for pavement area (Vehicle lane)		
3	Total road width	23.00 m	Deck width		
4	Area of bridge surface	2,875.0 m ²	Span length x Total width		
5	Area of pavement	2,687.5 m ²	Span length x Width for pavement		
6	Barriers & railings	01	concrete	Type of barriers & railings	
		02	concrete	Same as above.	
		03	concrete	Same as above	
7	Expansion joints	01	steel	Type of expansion joint	
		-	-	Same as above	
Crack length		Quantity	Remarks		
8	Total crack length L	115.0 m	A of bridge surf. x 0.040		
	Girder	57.5 m	L × 1/2 (per girder)		
Area of rebar exposure		Quantity	Remarks		
9	Total area A	23.0 m ²	A of bridge surf. x 0.008		
	Girder	11.5 m ²	L × 1/2 (per girder)		
Repaired area of deck		Quantity	Remarks		
10	01 A	562.5 m ²	Deck width = 4.50 m		
	Area of rebar exposure	5.6 m ²	A × 0.010		
	Area of deck cracking	28.1 m ²	A × 0.050		
	03 A	562.5 m ²	Deck width = 4.50 m		
	Area of rebar exposure	5.6 m ²	A × 0.010		
	Area of deck cracking	28.1 m ²	A × 0.050		
Repair quantity of substructure		Quantity	Remarks		
11	Cracking, Water leakage, Free lime	5.54 m	per substructure		
	Rebar exposure	2.24 m ²	per substructure		
Concrete barrier		Quantity	Remarks		
12	Rebar exposure	11.50 m ²	A of bridge surf. x 0.004		

Approximate repair price for countermeasure

Bridge name		009Rama III		Span No.		3									
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)	Repair price (B)	Repair price (B)	Life cycle	
Girder	01	Cracking/Water leakage/Free lime	c	3	Resin injection	57.5	m	5,000	287,500	-	7	-	-	15	30
		Rebar exposure	a	5	Patching	11.5	m ²	17,500	201,300	-	7	-	-	15	30
Deck	01	Damages at anchorage of PC tendon	a	5	Reinforcement with external PC tendon	-	Pos.	1,000,000	-	-	-	-	-	-	-
		Rebar exposure	a	5	Patching	5.6	m ²	17,500	98,000	-	7	-	-	15	30
	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
	Deck cracking	a	5	CFR	28.1	m ²	22,500	632,300	-	12	-	-	25	50	
	Rebar exposure	a	5	Patching	5.6	m ²	17,500	98,000	-	7	-	-	15	30	
	Pop-outs	a	5	Patching & CFR	-	Pos.	10,000	-	-	-	-	-	-	-	-
Pier	01	Deck cracking	c	3	CFR	28.1	m ²	22,500	632,300	-	12	-	-	25	50
		Cracking/Water leakage/Free lime	a	5	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	30
	Rebar exposure	a	5	Patching	2.24	m ²	17,500	39,200	-	7	-	-	15	30	
	Damages in substructures	a	5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-	-
	Cracking/Water leakage/Free lime	c	3	Resin injection	5.54	m	5,000	27,700	-	7	-	-	15	30	
	Rebar exposure	a	5	Patching	2.24	m ²	17,500	39,200	-	7	-	-	15	30	
Road surface	01	Damages in substructures	a	5	Foot protection	-	Pier	1,750,000	-	-	-	-	-	-	-
		Level difference of road surface	a	5	Pavement replacement	-	m ²	5,000	-	-	-	-	-	10	20
Barriers Railings	01	Damages in pavements	a	5	same as above	2,687.5	m ²	5,000	13,437,500	-	5	-	-	10	20
		Damages in barriers	a	5	Patching	11.50	m ²	17,500	201,300	-	7	-	-	15	30
		Damages in barriers	a	5	Patching	11.50	m ²	17,500	201,300	-	7	-	-	15	30
Expansion joints	01	Damages in barriers	a	5	Patching	11.50	m ²	17,500	201,300	-	7	-	-	15	30
		Damages in expansion joints	a	5	change of steel exp.	21.50	m	133,400	2,868,100	-	7	-	-	15	30

Approximate total repair cost

Year	Annual repair cost (B)					Cummalative cost (B)
	Span No.1	Span No.2	Span No.3	Periodic inspection + reserve for unexpected matters	Bridge total	
2011	-	-	-	233,400	233,400	233,400
2012	-	-	-	-	-	233,400
2013	-	-	-	-	-	233,400
2014	-	-	-	-	-	233,400
2015	-	-	-	-	-	233,400
2016	-	-	-	233,400	233,400	466,800
2017	-	-	-	-	-	466,800
2018	342,900	27,700	315,200	-	685,800	1,152,600
2019	-	-	-	-	-	1,152,600
2020	-	-	-	-	-	1,152,600
2021	-	-	-	233,400	233,400	1,386,000
2022	-	-	-	-	-	1,386,000
2023	-	1,145,300	632,300	-	1,777,600	3,163,600
2024	-	-	-	-	-	3,163,600
2025	-	-	-	-	-	3,163,600
2026	-	-	-	233,400	233,400	3,397,000
2027	-	-	-	-	-	3,397,000
2028	-	-	-	-	-	3,397,000
2029	-	-	-	-	-	3,397,000
2030	-	-	-	-	-	3,397,000
2031	13,437,500	24,295,000	13,437,500	233,400	51,403,400	54,800,400
2032	-	-	-	-	-	54,800,400
2033	-	-	-	-	-	54,800,400
2034	-	-	-	-	-	54,800,400
2035	-	-	-	-	-	54,800,400
2036	-	-	-	233,400	233,400	55,033,800
2037	-	-	-	-	-	55,033,800
2038	-	-	-	-	-	55,033,800
2039	-	-	-	-	-	55,033,800
2040	-	-	-	-	-	55,033,800
2041	883,600	1,534,100	883,600	233,400	3,534,700	58,568,500
2042	-	-	-	-	-	58,568,500
2043	-	-	-	-	-	58,568,500
2044	-	-	-	-	-	58,568,500
2045	-	-	-	-	-	58,568,500
2046	-	-	-	233,400	233,400	58,801,900
2047	-	-	-	-	-	58,801,900
2048	-	-	-	-	-	58,801,900
2049	-	-	-	-	-	58,801,900
2050	-	-	-	-	-	58,801,900
2051	-	-	-	233,400	233,400	59,035,300
2052	13,437,500	24,295,000	13,437,500	-	51,170,000	110,205,300
2053	-	-	-	-	-	110,205,300
2054	-	-	-	-	-	110,205,300
2055	-	-	-	-	-	110,205,300
2056	-	-	-	233,400	233,400	110,438,700
2057	-	-	-	-	-	110,438,700
2058	-	-	-	-	-	110,438,700
2059	-	-	-	- 194 -	-	110,438,700
2060	-	1,145,300	-	-	1,145,300	111,584,000

Year	Annual repair cost (B)					Cumulative cost (B)
	Span No.1	Span No.2	Span No.3	Periodic inspection + reserve for unexpected matters	Bridge total	
2061	1,264,600	1,145,300	632,300	233,400	3,275,600	114,859,600
2062	-	-	-	-	-	114,859,600
2063	-	-	-	-	-	114,859,600
2064	-	-	-	-	-	114,859,600
2065	-	-	-	-	-	114,859,600
2066	-	-	-	233,400	233,400	115,093,000
2067	-	-	-	-	-	115,093,000
2068	-	-	-	-	-	115,093,000
2069	-	-	-	-	-	115,093,000
2070	-	-	-	-	-	115,093,000
2071	-	-	-	233,400	233,400	115,326,400
2072	883,600	1,534,100	883,600	-	3,301,300	118,627,700
2073	13,437,500	24,295,000	13,437,500	-	51,170,000	169,797,700
2074	-	-	632,300	-	632,300	170,430,000
2075	-	-	-	-	-	170,430,000
2076	-	-	-	233,400	233,400	170,663,400
2077	-	-	-	-	-	170,663,400
2078	-	-	-	-	-	170,663,400
2079	-	-	-	-	-	170,663,400
2080	-	-	-	-	-	170,663,400
2081	-	-	-	233,400	233,400	170,896,800
2082	-	-	-	-	-	170,896,800
2083	-	-	-	-	-	170,896,800
2084	-	-	-	-	-	170,896,800
2085	-	-	-	-	-	170,896,800
2086	-	-	-	233,400	233,400	171,130,200
2087	-	-	-	-	-	171,130,200
2088	-	-	-	-	-	171,130,200
2089	-	-	-	-	-	171,130,200
2090	-	-	-	-	-	171,130,200
2091	-	-	-	233,400	233,400	171,363,600
2092	-	-	-	-	-	171,363,600
2093	-	-	-	-	-	171,363,600
2094	13,437,500	24,295,000	13,437,500	-	51,170,000	222,533,600
2095	-	-	-	-	-	222,533,600
2096	-	-	-	233,400	233,400	222,767,000
2097	-	1,145,300	-	-	1,145,300	223,912,300
2098	-	-	-	-	-	223,912,300
2099	-	-	-	-	-	223,912,300
2100	-	-	-	-	-	223,912,300
2101	-	-	-	233,400	233,400	224,145,700
2102	-	-	-	-	-	224,145,700
2103	883,600	1,534,100	883,600	-	3,301,300	227,447,000
2104	-	-	-	-	-	227,447,000
2105	-	-	-	-	-	227,447,000
2106	-	-	-	233,400	233,400	227,680,400
2107	-	-	-	-	-	227,680,400
2108	-	-	-	-	-	227,680,400
2109	-	-	-	- 195 -	-	227,680,400
2110	-	-	-	-	-	227,680,400

Estimation of LCC

Estimation of LCC
Rama III

