

Table E-1.1a Catalog of preservation actions

E-1A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
4	Joints - sealed	Leakage	2310	1	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
5	Joints - sealed	Leakage	2310	2	Reseal	300, 301, 302,	10.00	na	na	na	na	ft.
6	Joints - sealed	Leakage	2310	3	Reseal	300, 301, 302,	15.00	na	na	na	na	ft.
7	Joints - sealed	Leakage	2310	4	Replace seal	300, 301, 302,	25.00	na	na	na	na	ft.
8	Joints - sealed	Adhesion	2320	1	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
9	Joints - sealed	Adhesion	2320	2	Reseal	300, 301, 302,	8.00	na	na	na	na	ft.
10	Joints - sealed	Adhesion	2320	3	Reseal	300, 301, 302,	12.00	na	na	na	na	ft.
11	Joints - sealed	Adhesion	2320	4	Replace seal	300, 301, 302,	25.00	na	na	na	na	ft.
12	Joints - sealed	Damage	2330	1	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
13	Joints - sealed	Damage	2330	2	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
14	Joints - sealed	Damage	2330	3	Replace seal	300, 301, 302,	25.00	na	na	na	na	ft.
15	Joints - sealed	Damage	2330	4	Replace seal	300, 301, 302,	25.00	na	na	na	na	ft.
16	Joints - sealed	Cracking	2340	1	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
17	Joints - sealed	Cracking	2340	2	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
18	Joints - sealed	Cracking	2340	3	Repair	300, 301, 302,	15.00	na	na	na	na	ft.
19	Joints - sealed	Cracking	2340	4	Replace seal	300, 301, 302,	25.00	na	na	na	na	ft.
20	Joints - sealed	Debris	2350	1	Clean	300, 301, 302,	0.50	na	na	na	na	ft.
21	Joints - sealed	Debris	2350	2	Clean	300, 301, 302,	1.00	na	na	na	na	ft.
22	Joints - sealed	Debris	2350	3	Clean	300, 301, 302,	1.00	na	na	na	na	ft.
23	Joints - sealed	Debris	2350	4	Clean	300, 301, 302,	1.50	na	na	na	na	ft.
24	Joints - sealed	DeckDet	2360	1	Do nothing	300, 301, 302,	0.00	na	na	na	na	ft.
25	Joints - sealed	DeckDet	2360	2	Patch	300, 301, 302,	25.00	na	na	na	na	ft.
26	Joints - sealed	DeckDet	2360	3	Patch	300, 301, 302,	25.00	na	na	na	na	ft.
27	Joints - sealed	DeckDet	2360	4	Repair and replace	300, 301, 302,	145.00	na	na	na	na	ft.
28	Joints - asm w/s	Leakage	2310	1	Do nothing	303	0.00	na	na	na	na	ft.
29	Joints - asm w/s	Leakage	2310	2	Do nothing	303	0.00	na	na	na	na	ft.
30	Joints - asm w/s	Leakage	2310	3	Repair	303	50.00	na	na	na	na	ft.
31	Joints - asm w/s	Leakage	2310	4	Replace	303	100.00	na	na	na	na	ft.
32	Joints - asm w/s	Adhesion	2320	1	Do nothing	303	0.00	na	na	na	na	ft.
33	Joints - asm w/s	Adhesion	2320	2	Repair	303	35.00	na	na	na	na	ft.
34	Joints - asm w/s	Adhesion	2320	3	Repair	303	50.00	na	na	na	na	ft.
35	Joints - asm w/s	Adhesion	2320	4	Replace	303	100.00	na	na	na	na	ft.
36	Joints - asm w/s	Damage	2330	1	Do nothing	303	0.00	na	na	na	na	ft.
37	Joints - asm w/s	Damage	2330	2	Do nothing	303	0.00	na	na	na	na	ft.
38	Joints - asm w/s	Damage	2330	3	Repair	303	100.00	na	na	na	na	ft.
39	Joints - asm w/s	Damage	2330	4	Replace	303	260.00	na	na	na	na	ft.
40	Joints - asm w/s	Cracking	2340	1	Do nothing	303	0.00	na	na	na	na	ft.
41	Joints - asm w/s	Cracking	2340	2	Do nothing	303	0.00	na	na	na	na	ft.
42	Joints - asm w/s	Cracking	2340	3	Repair	303	50.00	na	na	na	na	ft.
43	Joints - asm w/s	Cracking	2340	4	Replace	303	100.00	na	na	na	na	ft.
44	Joints - asm w/s	Debris	2350	1	Clean	303	0.50	na	na	na	na	ft.
45	Joints - asm w/s	Debris	2350	2	Clean	303	1.00	na	na	na	na	ft.
46	Joints - asm w/s	Debris	2350	3	Clean	303	1.00	na	na	na	na	ft.
47	Joints - asm w/s	Debris	2350	4	Clean	303	1.50	na	na	na	na	ft.
48	Joints - asm w/s	DeckDet	2360	1	Do nothing	303	0.00	na	na	na	na	ft.
49	Joints - asm w/s	DeckDet	2360	2	Patch	303	25.00	na	na	na	na	ft.
50	Joints - asm w/s	DeckDet	2360	3	Patch	303	25.00	na	na	na	na	ft.
51	Joints - asm w/s	DeckDet	2360	4	Replace	303	120.00	na	na	na	na	ft.
52	Joints - asm w/s	MetalDet	2370	1	Do nothing	303	0.00	na	na	na	na	ft.
53	Joints - asm w/s	MetalDet	2370	2	Do nothing	303	0.00	na	na	na	na	ft.
54	Joints - asm w/s	MetalDet	2370	3	Repair	303	100.00	na	na	na	na	ft.
55	Joints - asm w/s	MetalDet	2370	4	Replace	303	260.00	na	na	na	na	ft.

Table E-1.1b Impacts of preservation actions

E-1B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
4	Joints - sealed	Leakage	2310	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
5	Joints - sealed	Leakage	2310	2	Reseal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
6	Joints - sealed	Leakage	2310	3	Reseal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
7	Joints - sealed	Leakage	2310	4	Replace seal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
8	Joints - sealed	Adhesion	2320	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
9	Joints - sealed	Adhesion	2320	2	Reseal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
10	Joints - sealed	Adhesion	2320	3	Reseal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
11	Joints - sealed	Adhesion	2320	4	Replace seal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
12	Joints - sealed	Damage	2330	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
13	Joints - sealed	Damage	2330	2	Do nothing	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
14	Joints - sealed	Damage	2330	3	Replace seal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
15	Joints - sealed	Damage	2330	4	Replace seal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
16	Joints - sealed	Cracking	2340	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
17	Joints - sealed	Cracking	2340	2	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
18	Joints - sealed	Cracking	2340	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
19	Joints - sealed	Cracking	2340	4	Replace seal	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
20	Joints - sealed	Debris	2350	1	Clean	Joints	Extend life	Bearings	None	Beam ends	None	Pier caps	None
21	Joints - sealed	Debris	2350	2	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
22	Joints - sealed	Debris	2350	3	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
23	Joints - sealed	Debris	2350	4	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
24	Joints - sealed	DeckDet	2360	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
25	Joints - sealed	DeckDet	2360	2	Patch	Joints	Increase condition state	Bearings	None	Beam ends	None	Pier caps	None
26	Joints - sealed	DeckDet	2360	3	Patch	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
27	Joints - sealed	DeckDet	2360	4	Repair and replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
28	Joints - asm w/s	Leakage	2310	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
29	Joints - asm w/s	Leakage	2310	2	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
30	Joints - asm w/s	Leakage	2310	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
31	Joints - asm w/s	Leakage	2310	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
32	Joints - asm w/s	Adhesion	2320	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
33	Joints - asm w/s	Adhesion	2320	2	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
34	Joints - asm w/s	Adhesion	2320	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
35	Joints - asm w/s	Adhesion	2320	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
36	Joints - asm w/s	Damage	2330	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
37	Joints - asm w/s	Damage	2330	2	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
38	Joints - asm w/s	Damage	2330	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
39	Joints - asm w/s	Damage	2330	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
40	Joints - asm w/s	Cracking	2340	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
41	Joints - asm w/s	Cracking	2340	2	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
42	Joints - asm w/s	Cracking	2340	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
43	Joints - asm w/s	Cracking	2340	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
44	Joints - asm w/s	Debris	2350	1	Clean	Joints	Extend life	Bearings	None	Beam ends	None	Pier caps	None
45	Joints - asm w/s	Debris	2350	2	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
46	Joints - asm w/s	Debris	2350	3	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
47	Joints - asm w/s	Debris	2350	4	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
48	Joints - asm w/s	DeckDet	2360	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
49	Joints - asm w/s	DeckDet	2360	2	Patch	Joints	Increase condition state	Bearings	None	Beam ends	None	Pier caps	None
50	Joints - asm w/s	DeckDet	2360	3	Patch	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
51	Joints - asm w/s	DeckDet	2360	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
52	Joints - asm w/s	MetalDet	2370	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
53	Joints - asm w/s	MetalDet	2370	2	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
54	Joints - asm w/s	MetalDet	2370	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
55	Joints - asm w/s	MetalDet	2370	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life

Table E-1.1c Metrics for preservation actions

E-1C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
4	Joints - sealed	Leakage	2310	1	0			Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
5	Joints - sealed	Leakage	2310	2				Reseal	na	na	na	Joints	1	12	10	8	Bearing	0	1	3	Beam Ends	0	1	3	Pier Caps	0	1	3
6	Joints - sealed	Leakage	2310	3				Reseal	na	na	na	Joints	1	10	8	5	Bearing	2	5	8	Beam Ends	2	5	8	Pier Caps	4	7	10
7	Joints - sealed	Leakage	2310	4				Replace seal	na	na	na	Joints	1	35	28	20	Bearing	8	12	15	Beam Ends	12	16	20	Pier Caps	10	18	25
8	Joints - sealed	Adhesion	2320	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
9	Joints - sealed	Adhesion	2320	2				Reseal	na	na	na	Joints	2	12	10	8	Bearing	0	1	2	Beam Ends	0	1	2	Pier Caps	0	1	2
10	Joints - sealed	Adhesion	2320	3				Reseal	na	na	na	Joints	2	10	8	5	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
11	Joints - sealed	Adhesion	2320	4				Replace seal	na	na	na	Joints	1	35	28	20	Bearing	3	9	12	Beam Ends	3	10	15	Pier Caps	12	16	20
12	Joints - sealed	Damage	2330	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
13	Joints - sealed	Damage	2330	2				Do nothing	na	na	na	Joints	2	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
14	Joints - sealed	Damage	2330	3				Replace seal	na	na	na	Joints	1	35	28	20	Bearing	5	8	12	Beam Ends	8	12	15	Pier Caps	12	16	20
15	Joints - sealed	Damage	2330	4				Replace seal	na	na	na	Joints	1	35	28	20	Bearing	5	8	12	Beam Ends	8	12	15	Pier Caps	12	16	20
16	Joints - sealed	Cracking	2340	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
17	Joints - sealed	Cracking	2340	2				Do nothing	na	na	na	Joints	2	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
18	Joints - sealed	Cracking	2340	3				Repair	na	na	na	Joints	2	10	8	5	Bearing	2	5	8	Beam Ends	2	5	8	Pier Caps	4	7	10
19	Joints - sealed	Cracking	2340	4				Replace seal	na	na	na	Joints	1	35	28	20	Bearing	4	8	12	Beam Ends	10	14	18	Pier Caps	11	16	22
20	Joints - sealed	Debris	2350	1				Clean	6	4	2	Joints	1	3	2	1	Bearing	0	0	0.5	Beam Ends	0	0	0.5	Pier Caps	0	0	0.5
21	Joints - sealed	Debris	2350	2				Clean	6	4	2	Joints	1	3	2	1	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
22	Joints - sealed	Debris	2350	3				Clean	6	4	2	Joints	1	3	2	1	Bearing	4	6	8	Beam Ends	4	6	8	Pier Caps	4	6	8
23	Joints - sealed	Debris	2350	4				Clean	6	4	2	Joints	1	3	2	1	Bearing	8	12	15	Beam Ends	12	16	20	Pier Caps	12	18	25
24	Joints - sealed	DeckDet	2360	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
25	Joints - sealed	DeckDet	2360	2				Patch	na	na	na	Joints	1	12	10	8	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
26	Joints - sealed	DeckDet	2360	3				Patch	na	na	na	Joints	1	10	8	6	Bearing	2	5	7	Beam Ends	2	5	7	Pier Caps	2	5	7
27	Joints - sealed	DeckDet	2360	4				Repair and replace	na	na	na	Joints	1	35	28	20	Bearing	4	8	12	Beam Ends	10	14	18	Pier Caps	11	16	22
28	Joints - asm w/s	Leakage	2310	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
29	Joints - asm w/s	Leakage	2310	2				Do nothing	na	na	na	Joints	2	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
30	Joints - asm w/s	Leakage	2310	3				Repair	na	na	na	Joints	2	10	8	5	Bearing	2	5	8	Beam Ends	2	5	8	Pier Caps	4	7	10
31	Joints - asm w/s	Leakage	2310	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	8	12	15	Beam Ends	12	16	20	Pier Caps	10	18	25
32	Joints - asm w/s	Adhesion	2320	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
33	Joints - asm w/s	Adhesion	2320	2				Repair	na	na	na	Joints	1	12	10	8	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
34	Joints - asm w/s	Adhesion	2320	3				Repair	na	na	na	Joints	2	10	8	5	Bearing	2	5	7	Beam Ends	2	5	7	Pier Caps	2	5	7
35	Joints - asm w/s	Adhesion	2320	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	4	8	12	Beam Ends	10	14	17	Pier Caps	8	16	20
36	Joints - asm w/s	Damage	2330	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
37	Joints - asm w/s	Damage	2330	2				Do nothing	na	na	na	Joints	2	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
38	Joints - asm w/s	Damage	2330	3				Repair	na	na	na	Joints	1	20	18	15	Bearing	2	5	8	Beam Ends	2	5	8	Pier Caps	4	7	10
39	Joints - asm w/s	Damage	2330	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	3	6	10	Beam Ends	4	8	12	Pier Caps	3	6	10
40	Joints - asm w/s	Cracking	2340	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
41	Joints - asm w/s	Cracking	2340	2				Do nothing	na	na	na	Joints	2	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
42	Joints - asm w/s	Cracking	2340	3				Repair	na	na	na	Joints	2	10	8	5	Bearing	3	7	11	Beam Ends	4	9	13	Pier Caps	3	7	11
43	Joints - asm w/s	Cracking	2340	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	4	8	12	Beam Ends	10	14	17	Pier Caps	8	16	20
44	Joints - asm w/s	Debris	2350	1				Clean	6	4	2	Joints	1	3	2	1	Bearing	0	0	0.5	Beam Ends	0	0	0.5	Pier Caps	0	0	0.5
45	Joints - asm w/s	Debris	2350	2				Clean	6	4	2	Joints	1	3	2	1	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
46	Joints - asm w/s	Debris	2350	3				Clean	6	4	2	Joints	1	3	2	1	Bearing	4	6	8	Beam Ends	4	6	8	Pier Caps	4	6	8
47	Joints - asm w/s	Debris	2350	4				Clean	6	4	2	Joints	1	3	2	1	Bearing	8	12	15	Beam Ends	12	16	20	Pier Caps	12	18	25
48	Joints - asm w/s	DeckDet	2360	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
49	Joints - asm w/s	DeckDet	2360	2				Patch	na	na	na	Joints	1	12	10	8	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
50	Joints - asm w/s	DeckDet	2360	3				Patch	na	na	na	Joints	2	10	8	6	Bearing	2	5	7	Beam Ends	2	5	7	Pier Caps	2	5	7
51	Joints - asm w/s	DeckDet	2360	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	4	8	12	Beam Ends	10	14	18	Pier Caps	11	16	22
52	Joints - asm w/s	MetalDet	2370	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
53	Joints - asm w/s	MetalDet	2370	2				Do nothing	na	na	na	Joints	2	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
54	Joints - asm w/s	MetalDet	2370	3				Repair	na	na	na	Joints	2	10	8	6	Bearing	2	4	6	Beam Ends	5	7	9	Pier Caps	5	8	11
55	Joints - asm w/s	MetalDet	2370	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	4	8	12	Beam Ends	10	14	18	Pier Caps	11	16	22

Table E-1.2a Catalog of preservation actions

E-2A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
56	Joints - w/o-s	Debris	2350	1	Clean	304, 305	0.50	na	na	na	na	ft.
57	Joints - w/o-s	Debris	2350	2	Clean	304, 305	1.00	na	na	na	na	ft.
58	Joints - w/o-s	Debris	2350	3	Clean	304, 305	1.00	na	na	na	na	ft.
59	Joints - w/o-s	Debris	2350	4	Clean	304, 305	1.50	na	na	na	na	ft.
60	Joints - w/o-s	DeckDet	2360	1	Clean	304, 305	0.50	na	na	na	na	ft.
61	Joints - w/o-s	DeckDet	2360	2	Patch	304, 305	25.00	na	na	na	na	ft.
62	Joints - w/o-s	DeckDet	2360	3	Patch	304, 305	25.00	na	na	na	na	ft.
63	Joints - w/o-s	DeckDet	2360	4	Repair and patch	304, 305	145.00	na	na	na	na	ft.
64	Joints - w/o-s	MetalDet	2370	1	Do nothing	304, 305	0.00	na	na	na	na	ft.
65	Joints - w/o-s	MetalDet	2370	2	Repair	304, 305	60.00	na	na	na	na	ft.
66	Joints - w/o-s	MetalDet	2370	3	Repair	304, 305	100.00	na	na	na	na	ft.
67	Joints - w/o-s	MetalDet	2370	4	Replace	304, 305	260.00	na	na	na	na	ft.
68	Steel coating superstr	Chalking	3410	1	Do nothing	na	na	515	0.00	na	na	sq.ft.
69	Steel coating superstr	Chalking	3410	1	Wash	na	na	515	1.00	na	na	sq.ft.
70	Steel coating superstr	Chalking	3410	2	Wash	na	na	515	1.00	na	na	sq.ft.
71	Steel coating superstr	Chalking	3410	2	Clean & overcoat	na	na	515	5.00	na	na	sq.ft.
72	Steel coating superstr	Chalking	3410	3	Remove & recoat	na	na	515	20.00	na	na	sq.ft.
73	Steel coating superstr	Chalking	3410	4	Remove & recoat	na	na	515	20.00	na	na	sq.ft.
74	Steel coating superstr	Peeling	3420	1	Do nothing	na	na	515	0.00	na	na	sq.ft.
75	Steel coating superstr	Peeling	3420	2	Do nothing	na	na	515	0.00	na	na	sq.ft.
76	Steel coating superstr	Peeling	3420	3	Clean & overcoat	na	na	515	10.00	na	na	sq.ft.
77	Steel coating superstr	Peeling	3420	4	Remove & recoat	na	na	515	20.00	na	na	sq.ft.
78	Steel coating superstr	Oxide/color	3430	1	Do nothing	na	na	515	0.00	na	na	sq.ft.
79	Steel coating superstr	Oxide/color	3430	2	Clean & overcoat	na	na	515	10.00	na	na	sq.ft.
80	Steel coating superstr	Oxide/color	3430	3	Clean & overcoat	na	na	515	10.00	na	na	sq.ft.
81	Steel coating superstr	Oxide/color	3430	4	Remove & recoat	na	na	515	20.00	na	na	sq.ft.
82	Steel coating superstr	Effectiveness	3440	1	Do nothing	na	na	515	0.00	na	na	sq.ft.
83	Steel coating superstr	Effectiveness	3440	2	Do nothing	na	na	515	0.00	na	na	sq.ft.
84	Steel coating superstr	Effectiveness	3440	3	Clean & overcoat	na	na	515	10.00	na	na	sq.ft.
85	Steel coating superstr	Effectiveness	3440	4	Remove & recoat	na	na	515	20.00	na	na	sq.ft.
86	Steel coating substr	Chalking	3410	1	Do nothing	na	na	na	na	515	0.00	sq.ft.
87	Steel coating substr	Chalking	3410	1	Wash	na	na	na	na	515	1.00	sq.ft.
88	Steel coating substr	Chalking	3410	2	Wash	na	na	na	na	515	1.00	sq.ft.
89	Steel coating substr	Chalking	3410	2	Clean & overcoat	na	na	na	na	515	5.00	sq.ft.
90	Steel coating substr	Chalking	3410	3	Remove & recoat	na	na	na	na	515	20.00	sq.ft.
91	Steel coating substr	Chalking	3410	4	Remove & recoat	na	na	na	na	515	20.00	sq.ft.
92	Steel coating substr	Peeling	3420	1	Do nothing	na	na	na	na	515	0.00	sq.ft.
93	Steel coating substr	Peeling	3420	2	Do nothing	na	na	na	na	515	0.00	sq.ft.
94	Steel coating substr	Peeling	3420	3	Clean & overcoat	na	na	na	na	515	10.00	sq.ft.
95	Steel coating substr	Peeling	3420	4	Remove & recoat	na	na	na	na	515	20.00	sq.ft.
96	Steel coating substr	Oxide/color	3430	1	Do nothing	na	na	na	na	515	0.00	sq.ft.
97	Steel coating substr	Oxide/color	3430	2	Clean & overcoat	na	na	na	na	515	10.00	sq.ft.
98	Steel coating substr	Oxide/color	3430	3	Clean & overcoat	na	na	na	na	515	10.00	sq.ft.
99	Steel coating substr	Oxide/color	3430	4	Remove & recoat	na	na	na	na	515	20.00	sq.ft.
100	Steel coating substr	Effectiveness	3440	1	Do nothing	na	na	na	na	515	0.00	sq.ft.
101	Steel coating substr	Effectiveness	3440	2	Do nothing	na	na	na	na	515	0.00	sq.ft.
102	Steel coating substr	Effectiveness	3440	3	Clean & overcoat	na	na	na	na	515	10.00	sq.ft.
103	Steel coating substr	Effectiveness	3440	4	Remove & recoat	na	na	na	na	515	20.00	sq.ft.

Table E-1.2b Impacts of preservation actions

E-2B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
56	Joints - w/o-s	Debris	2350	1	Clean	Joints	Extend life	Bearings	None	Beam ends	None	Pier caps	None
57	Joints - w/o-s	Debris	2350	2	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
58	Joints - w/o-s	Debris	2350	3	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
59	Joints - w/o-s	Debris	2350	4	Clean	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
60	Joints - w/o-s	DeckDet	2360	1	Clean	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
61	Joints - w/o-s	DeckDet	2360	2	Patch	Joints	Increase condition state	Bearings	None	Beam ends	None	Pier caps	None
62	Joints - w/o-s	DeckDet	2360	3	Patch	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
63	Joints - w/o-s	DeckDet	2360	4	Repair and patch	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
64	Joints - w/o-s	MetalDet	2370	1	Do nothing	Joints	None	Bearings	None	Beam ends	None	Pier caps	None
65	Joints - w/o-s	MetalDet	2370	2	Repair	Joints	Increase condition state	Bearings	None	Beam ends	None	Pier caps	None
66	Joints - w/o-s	MetalDet	2370	3	Repair	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
67	Joints - w/o-s	MetalDet	2370	4	Replace	Joints	Increase condition state	Bearings	Extend life	Beam ends	Extend life	Pier caps	Extend life
68	Steel coating superstr	Chalking	3410	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
69	Steel coating superstr	Chalking	3410	1	Wash	Steel coating	Extend coating life	Steel	Prevent/Reduce section loss	na	na	na	na
70	Steel coating superstr	Chalking	3410	2	Wash	Steel coating	Extend coating life	Steel	Prevent/Reduce section loss	na	na	na	na
71	Steel coating superstr	Chalking	3410	2	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
72	Steel coating superstr	Chalking	3410	3	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
73	Steel coating superstr	Chalking	3410	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
74	Steel coating superstr	Peeling	3420	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
75	Steel coating superstr	Peeling	3420	2	Do nothing	Steel coating	None	Steel	None	na	na	na	na
76	Steel coating superstr	Peeling	3420	3	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
77	Steel coating superstr	Peeling	3420	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
78	Steel coating superstr	Oxide/color	3430	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
79	Steel coating superstr	Oxide/color	3430	2	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
80	Steel coating superstr	Oxide/color	3430	3	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
81	Steel coating superstr	Oxide/color	3430	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
82	Steel coating superstr	Effectiveness	3440	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
83	Steel coating superstr	Effectiveness	3440	2	Do nothing	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
84	Steel coating superstr	Effectiveness	3440	3	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
85	Steel coating superstr	Effectiveness	3440	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
86	Steel coating substr	Chalking	3410	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
87	Steel coating substr	Chalking	3410	1	Wash	Steel coating	Extend coating life	Steel	Prevent/Reduce section loss	na	na	na	na
88	Steel coating substr	Chalking	3410	2	Wash	Steel coating	Extend coating life	Steel	Prevent/Reduce section loss	na	na	na	na
89	Steel coating substr	Chalking	3410	2	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
90	Steel coating substr	Chalking	3410	3	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
91	Steel coating substr	Chalking	3410	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
92	Steel coating substr	Peeling	3420	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
93	Steel coating substr	Peeling	3420	2	Do nothing	Steel coating	None	Steel	None	na	na	na	na
94	Steel coating substr	Peeling	3420	3	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
95	Steel coating substr	Peeling	3420	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
96	Steel coating substr	Oxide/color	3430	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
97	Steel coating substr	Oxide/color	3430	2	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
98	Steel coating substr	Oxide/color	3430	3	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
99	Steel coating substr	Oxide/color	3430	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
100	Steel coating substr	Effectiveness	3440	1	Do nothing	Steel coating	None	Steel	None	na	na	na	na
101	Steel coating substr	Effectiveness	3440	2	Do nothing	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
102	Steel coating substr	Effectiveness	3440	3	Clean & overcoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na
103	Steel coating substr	Effectiveness	3440	4	Remove & recoat	Steel coating	Increase condition state	Steel	Prevent/Reduce section loss	na	na	na	na

Table E-1.2c Metrics for preservation actions

E-2C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1																												
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
56	Joints - w/o-s	Debris	2350	1				Clean	6	4	2	Joints	1	3	2	1	Bearing	0	0	0.5	Beam Ends	0	0	0.5	Pier Caps	0	0	0.5
57	Joints - w/o-s	Debris	2350	2				Clean	6	4	2	Joints	1	3	2	1	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
58	Joints - w/o-s	Debris	2350	3				Clean	6	4	2	Joints	1	3	2	1	Bearing	4	6	8	Beam Ends	4	6	8	Pier Caps	4	6	8
59	Joints - w/o-s	Debris	2350	4				Clean	6	4	2	Joints	1	3	2	1	Bearing	8	12	15	Beam Ends	12	16	20	Pier Caps	12	18	25
60	Joints - w/o-s	DeckDet	2360	1				Clean	6	4	2	Joints	1	3	2	1	Bearing	0	1	1	Beam Ends	0	1	1	Pier Caps	0	1	1
61	Joints - w/o-s	DeckDet	2360	2				Patch	na	na	na	Joints	1	12	10	8	Bearing	1	2	3	Beam Ends	1	2	3	Pier Caps	1	2	3
62	Joints - w/o-s	DeckDet	2360	3				Patch	na	na	na	Joints	2	10	8	6	Bearing	2	5	7	Beam Ends	2	5	7	Pier Caps	2	5	7
63	Joints - w/o-s	DeckDet	2360	4				Repair and patch	na	na	na	Joints	1	16	12	8	Bearing	4	8	12	Beam Ends	10	14	18	Pier Caps	11	16	22
64	Joints - w/o-s	MetalDet	2370	1				Do nothing	na	na	na	Joints	1	0	0	0	Bearing	0	0	0	Beam Ends	0	0	0	Pier Caps	0	0	0
65	Joints - w/o-s	MetalDet	2370	2				Repair	na	na	na	Joints	1	12	10	8	Bearing	2	4	6	Beam Ends	5	7	9	Pier Caps	5	8	11
66	Joints - w/o-s	MetalDet	2370	3				Repair	na	na	na	Joints	2	10	8	6	Bearing	2	4	6	Beam Ends	5	7	9	Pier Caps	5	8	11
67	Joints - w/o-s	MetalDet	2370	4				Replace	na	na	na	Joints	1	40	35	30	Bearing	4	8	12	Beam Ends	10	14	18	Pier Caps	11	16	22
68	Steel coating superstr	Chalking	3410	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
69	Steel coating superstr	Chalking	3410	1				Wash	25	5	1	Coating	1	1	1	1	Steel	1	1	1	na				na			
70	Steel coating superstr	Chalking	3410	2				Wash	10	3	1	Coating	2	1	1	1	Steel	1	1	1	na				na			
71	Steel coating superstr	Chalking	3410	2				Clean & overcoat	20	15	10	Coating	1	18	12	8	Steel	15	10	6	na				na			
72	Steel coating superstr	Chalking	3410	3				Remove & recoat	na	na	na	Coating	1	20	18	15	Steel	18	14	10	na				na			
73	Steel coating superstr	Chalking	3410	4				Remove & recoat	na	na	na	Coating	1	20	18	15	Steel	18	14	10	na				na			
74	Steel coating superstr	Peeling	3420	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
75	Steel coating superstr	Peeling	3420	2				Do nothing	na	na	na	Coating	2	0	0	0	Steel	0	0	0	na				na			
76	Steel coating superstr	Peeling	3420	3				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	15	10	6	na				na			
77	Steel coating superstr	Peeling	3420	4				Remove & recoat	na	na	na	Coating	1	20	18	15	Steel	18	14	10	na				na			
78	Steel coating superstr	Oxide/color	3430	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
79	Steel coating superstr	Oxide/color	3430	2				Clean & overcoat	20	15	10	Coating	1	17	13	10	Steel	0	0	0	na				na			
80	Steel coating superstr	Oxide/color	3430	3				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	18	14	10	na				na			
81	Steel coating superstr	Oxide/color	3430	4				Remove & recoat	na	na	na	Coating	1	20	18	15	Steel	18	14	10	na				na			
82	Steel coating superstr	Effectiveness	3440	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
83	Steel coating superstr	Effectiveness	3440	2				Do nothing	na	na	na	Coating	2	0	0	0	Steel	0	0	0	na				na			
84	Steel coating superstr	Effectiveness	3440	3				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	0	0	0	na				na			
85	Steel coating superstr	Effectiveness	3440	4				Remove & recoat	na	na	na	Coating	1	20	18	15	Steel	18	14	10	na				na			
86	Steel coating substr	Chalking	3410	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
87	Steel coating substr	Chalking	3410	1				Wash	25	5	1	Coating	1	1	1	1	Steel	1	1	1	na				na			
88	Steel coating substr	Chalking	3410	2				Wash	10	3	1	Coating	2	1	1	1	Steel	1	1	1	na				na			
89	Steel coating substr	Chalking	3410	2				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	15	10	6	na				na			
90	Steel coating substr	Chalking	3410	3				Remove & recoat	na	na	na	Coating	1	20	18	15	Steel	18	14	10	na				na			
91	Steel coating substr	Chalking	3410	4				Remove & recoat	na	na	na	Coating	1	18	15	12	Steel	18	14	10	na				na			
92	Steel coating substr	Peeling	3420	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
93	Steel coating substr	Peeling	3420	2				Do nothing	na	na	na	Coating	2	0	0	0	Steel	0	0	0	na				na			
94	Steel coating substr	Peeling	3420	3				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	15	10	6	na				na			
95	Steel coating substr	Peeling	3420	4				Remove & recoat	na	na	na	Coating	1	18	15	12	Steel	18	14	10	na				na			
96	Steel coating substr	Oxide/color	3430	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
97	Steel coating substr	Oxide/color	3430	2				Clean & overcoat	20	15	10	Coating	1	17	13	10	Steel	0	0	0	na				na			
98	Steel coating substr	Oxide/color	3430	3				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	18	14	10	na				na			
99	Steel coating substr	Oxide/color	3430	4				Remove & recoat	na	na	na	Coating	1	18	15	12	Steel	18	14	10	na				na			
100	Steel coating substr	Effectiveness	3440	1				Do nothing	na	na	na	Coating	1	0	0	0	Steel	0	0	0	na				na			
101	Steel coating substr	Effectiveness	3440	2				Do nothing	na	na	na	Coating	2	0	0	0	Steel	0	0	0	na				na			
102	Steel coating substr	Effectiveness	3440	3				Clean & overcoat	20	15	10	Coating	1	15	10	7	Steel	0	0	0	na				na			
103	Steel coating substr	Effectiveness	3440	4				Remove & recoat	na	na	na	Coating	1	18	15	12	Steel	18	14	10	na				na			

Table E-1.3a Catalog of preservation actions

E-3A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
104	Wearing surf - asph	Dlm/Spl/Ptch/Pthl	3210	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
105	Wearing surf - asph	Dlm/Spl/Ptch/Pthl	3210	2	Repair	510	10.00	na	na	na	na	sq.ft.
106	Wearing surf - asph	Dlm/Spl/Ptch/Pthl	3210	3	Repair	510	20.00	na	na	na	na	sq.ft.
107	Wearing surf - asph	Dlm/Spl/Ptch/Pthl	3210	4	Replace	510	35.00	na	na	na	na	sq.ft.
108	Wearing surf - asph	Crack	3220	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
109	Wearing surf - asph	Crack	3220	2	Seal	510	0.50	na	na	na	na	sq.ft.
110	Wearing surf - asph	Crack	3220	3	Seal	510	0.75	na	na	na	na	sq.ft.
111	Wearing surf - asph	Crack	3220	4	Replace	510	35.00	na	na	na	na	sq.ft.
112	Wearing surf - asph	Effectiveness	3230	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
113	Wearing surf - asph	Effectiveness	3230	2	Do nothing	510	0.00	na	na	na	na	sq.ft.
114	Wearing surf - asph	Effectiveness	3230	3	Replace	510	35.00	na	na	na	na	sq.ft.
115	Wearing surf - asph	Effectiveness	3230	4	Replace	510	35.00	na	na	na	na	sq.ft.
116	Wearing surf - rigid	Dlm/Spl/Ptch/Pthl	3210	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
117	Wearing surf - rigid	Dlm/Spl/Ptch/Pthl	3210	2	Repair	510	10.00	na	na	na	na	sq.ft.
118	Wearing surf - rigid	Dlm/Spl/Ptch/Pthl	3210	3	Repair	510	15.00	na	na	na	na	sq.ft.
119	Wearing surf - rigid	Dlm/Spl/Ptch/Pthl	3210	4	Replace	510	35.00	na	na	na	na	sq.ft.
120	Wearing surf - rigid	Crack	3220	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
121	Wearing surf - rigid	Crack	3220	2	Seal	510	1.50	na	na	na	na	sq.ft.
122	Wearing surf - rigid	Crack	3220	3	Seal	510	2.50	na	na	na	na	sq.ft.
123	Wearing surf - rigid	Crack	3220	4	Replace	510	35.00	na	na	na	na	sq.ft.
124	Wearing surf - rigid	Effectiveness	3230	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
125	Wearing surf - rigid	Effectiveness	3230	2	Do nothing	510	0.00	na	na	na	na	sq.ft.
126	Wearing surf - rigid	Effectiveness	3230	3	Replace	510	35.00	na	na	na	na	sq.ft.
127	Wearing surf - rigid	Effectiveness	3230	4	Replace	510	35.00	na	na	na	na	sq.ft.
128	Wearing surf - thin	Dlm/Spl/Ptch/Pthl	3210	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
129	Wearing surf - thin	Dlm/Spl/Ptch/Pthl	3210	2	Repair	510	2.00	na	na	na	na	sq.ft.
130	Wearing surf - thin	Dlm/Spl/Ptch/Pthl	3210	3	Repair	510	5.00	na	na	na	na	sq.ft.
131	Wearing surf - thin	Dlm/Spl/Ptch/Pthl	3210	4	Replace	510	7.00	na	na	na	na	sq.ft.
132	Wearing surf - thin	Crack	3220	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
133	Wearing surf - thin	Crack	3220	2	Seal	510	1.50	na	na	na	na	sq.ft.
134	Wearing surf - thin	Crack	3220	3	Seal	510	2.50	na	na	na	na	sq.ft.
135	Wearing surf - thin	Crack	3220	4	Replace	510	7.00	na	na	na	na	sq.ft.
136	Wearing surf - thin	Effectiveness	3230	1	Do nothing	510	0.00	na	na	na	na	sq.ft.
137	Wearing surf - thin	Effectiveness	3230	2	Do nothing	510	0.00	na	na	na	na	sq.ft.
138	Wearing surf - thin	Effectiveness	3230	3	Replace	510	7.00	na	na	na	na	sq.ft.
139	Wearing surf - thin	Effectiveness	3230	4	Replace	510	7.00	na	na	na	na	sq.ft.

Table E-1.3b Impacts of preservation actions

E-3B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
104	Wearing surf - asph	Dlm/Sppl/Ptch/Pthl	3210	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
105	Wearing surf - asph	Dlm/Sppl/Ptch/Pthl	3210	2	Repair	Wearing surf	Extend life	Deck	Extend life	na	na	na	na
106	Wearing surf - asph	Dlm/Sppl/Ptch/Pthl	3210	3	Repair	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
107	Wearing surf - asph	Dlm/Sppl/Ptch/Pthl	3210	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
108	Wearing surf - asph	Crack	3220	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
109	Wearing surf - asph	Crack	3220	2	Seal	Wearing surf	Extend life	Deck	Extend life	na	na	na	na
110	Wearing surf - asph	Crack	3220	3	Seal	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
111	Wearing surf - asph	Crack	3220	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
112	Wearing surf - asph	Effectiveness	3230	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
113	Wearing surf - asph	Effectiveness	3230	2	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
114	Wearing surf - asph	Effectiveness	3230	3	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
115	Wearing surf - asph	Effectiveness	3230	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
116	Wearing surf - rigid	Dlm/Sppl/Ptch/Pthl	3210	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
117	Wearing surf - rigid	Dlm/Sppl/Ptch/Pthl	3210	2	Repair	Wearing surf	Extend life	Deck	Extend life	na	na	na	na
118	Wearing surf - rigid	Dlm/Sppl/Ptch/Pthl	3210	3	Repair	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
119	Wearing surf - rigid	Dlm/Sppl/Ptch/Pthl	3210	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
120	Wearing surf - rigid	Crack	3220	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
121	Wearing surf - rigid	Crack	3220	2	Seal	Wearing surf	Extend life	Deck	Extend life	na	na	na	na
122	Wearing surf - rigid	Crack	3220	3	Seal	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
123	Wearing surf - rigid	Crack	3220	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
124	Wearing surf - rigid	Effectiveness	3230	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
125	Wearing surf - rigid	Effectiveness	3230	2	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
126	Wearing surf - rigid	Effectiveness	3230	3	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
127	Wearing surf - rigid	Effectiveness	3230	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
128	Wearing surf - thin	Dlm/Sppl/Ptch/Pthl	3210	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
129	Wearing surf - thin	Dlm/Sppl/Ptch/Pthl	3210	2	Repair	Wearing surf	Extend life	Deck	Extend life	na	na	na	na
130	Wearing surf - thin	Dlm/Sppl/Ptch/Pthl	3210	3	Repair	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
131	Wearing surf - thin	Dlm/Sppl/Ptch/Pthl	3210	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
132	Wearing surf - thin	Crack	3220	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
133	Wearing surf - thin	Crack	3220	2	Seal	Wearing surf	Extend life	Deck	Extend life	na	na	na	na
134	Wearing surf - thin	Crack	3220	3	Seal	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
135	Wearing surf - thin	Crack	3220	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
136	Wearing surf - thin	Effectiveness	3230	1	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
137	Wearing surf - thin	Effectiveness	3230	2	Do nothing	Wearing surf	None	Deck	None	na	na	na	na
138	Wearing surf - thin	Effectiveness	3230	3	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na
139	Wearing surf - thin	Effectiveness	3230	4	Replace	Wearing surf	Increase condition state	Deck	Extend life	na	na	na	na

Table E-1.3c Metrics for preservation actions

E-3C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
104	Wearing surf - asph	Dim/Sppl/Ptch/Pthl	3210	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
105	Wearing surf - asph	Dim/Sppl/Ptch/Pthl	3210	2				Repair	na	na	na	Wearing surf	1	20	16	12	Deck	12	9	6	na				na			
106	Wearing surf - asph	Dim/Sppl/Ptch/Pthl	3210	3				Repair	na	na	na	Wearing surf	2	20	16	12	Deck	12	9	6	na				na			
107	Wearing surf - asph	Dim/Sppl/Ptch/Pthl	3210	4				Replace	35	27	18	Wearing surf	1	35	27	18	Deck	20	14	10	na				na			
108	Wearing surf - asph	Crack	3220	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
109	Wearing surf - asph	Crack	3220	2				Seal	10	8	5	Wearing surf	2	8	6	3	Deck	8	6	3	na				na			
110	Wearing surf - asph	Crack	3220	3				Seal	10	7	5	Wearing surf	2	7	5	3	Deck	7	5	3	na				na			
111	Wearing surf - asph	Crack	3220	4				Replace	na	na	na	Wearing surf	1	35	27	18	Deck	20	14	10	na				na			
112	Wearing surf - asph	Effectiveness	3230	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
113	Wearing surf - asph	Effectiveness	3230	2				Do nothing	na	na	na	Wearing surf	2	0	0	0	Deck	0	0	0	na				na			
114	Wearing surf - asph	Effectiveness	3230	3				Replace	35	27	18	Wearing surf	1	35	27	18	Deck	20	14	10	na				na			
115	Wearing surf - asph	Effectiveness	3230	4				Replace	35	27	18	Wearing surf	1	35	27	18	Deck	20	14	10	na				na			
116	Wearing surf - rigid	Dim/Sppl/Ptch/Pthl	3210	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
117	Wearing surf - rigid	Dim/Sppl/Ptch/Pthl	3210	2				Repair	na	na	na	Wearing surf	1	25	18	12	Deck	20	14	10	na				na			
118	Wearing surf - rigid	Dim/Sppl/Ptch/Pthl	3210	3				Repair	na	na	na	Wearing surf	2	25	18	12	Deck	20	14	10	na				na			
119	Wearing surf - rigid	Dim/Sppl/Ptch/Pthl	3210	4				Replace	40	28	15	Wearing surf	1	40	28	15	Deck	30	22	15	na				na			
120	Wearing surf - rigid	Crack	3220	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
121	Wearing surf - rigid	Crack	3220	2				Seal	20	14	8	Wearing surf	2	8	6	3	Deck	8	6	3	na				na			
122	Wearing surf - rigid	Crack	3220	3				Seal	20	14	8	Wearing surf	2	7	5	3	Deck	7	5	3	na				na			
123	Wearing surf - rigid	Crack	3220	4				Replace	40	28	15	Wearing surf	1	40	28	15	Deck	30	22	15	na				na			
124	Wearing surf - rigid	Effectiveness	3230	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
125	Wearing surf - rigid	Effectiveness	3230	2				Do nothing	na	na	na	Wearing surf	2	0	0	0	Deck	0	0	0	na				na			
126	Wearing surf - rigid	Effectiveness	3230	3				Replace	40	28	15	Wearing surf	1	40	28	15	Deck	30	22	15	na				na			
127	Wearing surf - rigid	Effectiveness	3230	4				Replace	40	28	15	Wearing surf	1	40	28	15	Deck	30	22	15	na				na			
128	Wearing surf - thin	Dim/Sppl/Ptch/Pthl	3210	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
129	Wearing surf - thin	Dim/Sppl/Ptch/Pthl	3210	2				Repair	20	12	8	Wearing surf	1	15	10	6	Deck	12	8	4	na				na			
130	Wearing surf - thin	Dim/Sppl/Ptch/Pthl	3210	3				Repair	20	12	8	Wearing surf	2	15	10	6	Deck	12	8	4	na				na			
131	Wearing surf - thin	Dim/Sppl/Ptch/Pthl	3210	4				Replace	25	18	10	Wearing surf	1	25	18	10	Deck	20	15	8	na				na			
132	Wearing surf - thin	Crack	3220	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
133	Wearing surf - thin	Crack	3220	2				Seal	15	10	5	Wearing surf	2	8	6	3	Deck	8	6	3	na				na			
134	Wearing surf - thin	Crack	3220	3				Seal	15	10	5	Wearing surf	2	7	5	3	Deck	7	5	3	na				na			
135	Wearing surf - thin	Crack	3220	4				Replace	25	18	10	Wearing surf	1	25	18	10	Deck	20	15	8	na				na			
136	Wearing surf - thin	Effectiveness	3230	1				Do nothing	na	na	na	Wearing surf	1	0	0	0	Deck	0	0	0	na				na			
137	Wearing surf - thin	Effectiveness	3230	2				Do nothing	na	na	na	Wearing surf	2	0	0	0	Deck	0	0	0	na				na			
138	Wearing surf - thin	Effectiveness	3230	3				Replace	25	18	10	Wearing surf	1	25	18	10	Deck	20	15	8	na				na			
139	Wearing surf - thin	Effectiveness	3230	4				Replace	25	18	10	Wearing surf	1	25	18	10	Deck	20	15	8	na				na			

Table E-1.4a Catalog of preservation actions

E-4A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
140	Concrete-R/C deck	Dlm/Spll/Ptch	1080	1	Do nothing	12, 38, 16	0.00	na	na	na	na	sq.ft.
141	Concrete-R/C deck	Dlm/Spll/Ptch	1080	2	Clean and patch	12, 38, 16	35.00	na	na	na	na	sq.ft.
142	Concrete-R/C deck	Dlm/Spll/Ptch	1080	3	Clean and patch	12, 38, 16	60.00	na	na	na	na	sq.ft.
143	Concrete-R/C deck	Dlm/Spll/Ptch	1080	4	Replace	12, 38, 16	80.00	na	na	na	na	sq.ft.
144	Concrete-R/C deck	Exposed Rebar	1090	1	Do nothing	12, 38, 16	0.00	na	na	na	na	sq.ft.
145	Concrete-R/C deck	Exposed Rebar	1090	2	Clean and patch	12, 38, 16	35.00	na	na	na	na	sq.ft.
146	Concrete-R/C deck	Exposed Rebar	1090	3	Clean and patch	12, 38, 16	60.00	na	na	na	na	sq.ft.
147	Concrete-R/C deck	Exposed Rebar	1090	4	Replace	12, 38, 16	80.00	na	na	na	na	sq.ft.
148	Concrete-R/C deck	Efflor/Rust Stain	1120	1	Do nothing	12, 38, 16	0.00	na	na	na	na	sq.ft.
149	Concrete-R/C deck	Efflor/Rust Stain	1120	2	Seal cracks	12, 38, 16	1.50	na	na	na	na	sq.ft.
150	Concrete-R/C deck	Efflor/Rust Stain	1120	3	Seal cracks	12, 38, 16	2.50	na	na	na	na	sq.ft.
151	Concrete-R/C deck	Efflor/Rust Stain	1120	4	Replace	12, 38, 16	80.00	na	na	na	na	sq.ft.
152	Concrete-R/C deck	Cracking	1130	1	Do nothing	12, 38, 16	0.00	na	na	na	na	sq.ft.
153	Concrete-R/C deck	Cracking	1130	2	Seal cracks	12, 38, 16	1.50	na	na	na	na	sq.ft.
154	Concrete-R/C deck	Cracking	1130	3	Seal cracks	12, 38, 16	2.50	na	na	na	na	sq.ft.
155	Concrete-R/C deck	Cracking	1130	4	Replace	12, 38, 16	80.00	na	na	na	na	sq.ft.
156	Concrete-P/S deck	Dlm/Spll/Ptch	1080	1	Do nothing	13, 15	0.00	na	na	na	na	sq.ft.
157	Concrete-P/S deck	Dlm/Spll/Ptch	1080	2	Clean and patch	13, 15	40.00	na	na	na	na	sq.ft.
158	Concrete-P/S deck	Dlm/Spll/Ptch	1080	3	Clean and patch	13, 15	65.00	na	na	na	na	sq.ft.
159	Concrete-P/S deck	Dlm/Spll/Ptch	1080	4	Replace	13, 15	100.00	na	na	na	na	sq.ft.
160	Concrete-P/S deck	Exposed Rebar	1090	1	Do nothing	13, 15	0.00	na	na	na	na	sq.ft.
161	Concrete-P/S deck	Exposed Rebar	1090	2	Clean and patch	13, 15	40.00	na	na	na	na	sq.ft.
162	Concrete-P/S deck	Exposed Rebar	1090	3	Clean and patch	13, 15	65.00	na	na	na	na	sq.ft.
163	Concrete-P/S deck	Exposed Rebar	1090	4	Replace	13, 15	100.00	na	na	na	na	sq.ft.
164	Concrete-P/S deck	Expsd Prestressng	1100	1	Do nothing	13, 15	0.00	na	na	na	na	sq.ft.
165	Concrete-P/S deck	Expsd Prestressng	1100	2	Clean and patch	13, 15	50.00	na	na	na	na	sq.ft.
166	Concrete-P/S deck	Expsd Prestressng	1100	3	Clean and patch	13, 15	75.00	na	na	na	na	sq.ft.
167	Concrete-P/S deck	Expsd Prestressng	1100	4	Replace	13, 15	100.00	na	na	na	na	sq.ft.
168	Concrete-P/S deck	Cracking (PSC)	1110	1	Do nothing	13, 15	0.00	na	na	na	na	sq.ft.
169	Concrete-P/S deck	Cracking (PSC)	1110	2	Seal cracks	13, 15	1.50	na	na	na	na	sq.ft.
170	Concrete-P/S deck	Cracking (PSC)	1110	3	Seal cracks	13, 15	2.50	na	na	na	na	sq.ft.
171	Concrete-P/S deck	Cracking (PSC)	1110	4	Replace	13, 15	100.00	na	na	na	na	sq.ft.
172	Concrete-P/S deck	Efflor/Rust Stain	1120	1	Do nothing	13, 15	0.00	na	na	na	na	sq.ft.
173	Concrete-P/S deck	Efflor/Rust Stain	1120	2	Seal cracks	13, 15	1.50	na	na	na	na	sq.ft.
174	Concrete-P/S deck	Efflor/Rust Stain	1120	3	Seal cracks	13, 15	2.50	na	na	na	na	sq.ft.
175	Concrete-P/S deck	Efflor/Rust Stain	1120	4	Replace	13, 15	100.00	na	na	na	na	sq.ft.
176	Concrete-R/C-P/S deck	All	All	1	Do nothing	12, 38, 16, 13, 15	0.00	na	na	na	na	sq.ft.
177	Concrete-R/C-P/S deck	All	All	1	Wash	12, 38, 16, 13, 15	0.15	na	na	na	na	sq.ft.
178	Concrete-R/C-P/S deck	All	All	1	Seal	12, 38, 16, 13, 15	2.00	na	na	na	na	sq.ft.
179	Concrete-R/C-P/S deck	All	All	1	New asphalt overlay	12, 38, 16, 13, 15	35.00	na	na	na	na	sq.ft.
180	Concrete-R/C-P/S deck	All	All	1	New rigid overlay	12, 38, 16, 13, 15	35.00	na	na	na	na	sq.ft.
181	Concrete-R/C-P/S deck	All	All	1	New thin overlay	12, 38, 16, 13, 15	7.00	na	na	na	na	sq.ft.
182	Concrete-R/C-P/S deck	All	All	2	Do nothing	12, 38, 16, 13, 15	0.00	na	na	na	na	sq.ft.
183	Concrete-R/C-P/S deck	All	All	2	Wash	12, 38, 16, 13, 15	0.15	na	na	na	na	sq.ft.
184	Concrete-R/C-P/S deck	All	All	2	Seal	12, 38, 16, 13, 15	2.00	na	na	na	na	sq.ft.
185	Concrete-R/C-P/S deck	All	All	2	New asphalt overlay	12, 38, 16, 13, 15	35.00	na	na	na	na	sq.ft.
186	Concrete-R/C-P/S deck	All	All	2	New rigid overlay	12, 38, 16, 13, 15	35.00	na	na	na	na	sq.ft.
187	Concrete-R/C-P/S deck	All	All	2	New thin overlay	12, 38, 16, 13, 15	7.00	na	na	na	na	sq.ft.
188	Concrete-R/C-P/S deck	All	All	3	Do nothing	12, 38, 16, 13, 15	0.00	na	na	na	na	sq.ft.
189	Concrete-R/C-P/S deck	All	All	3	Wash	12, 38, 16, 13, 15	0.15	na	na	na	na	sq.ft.
190	Concrete-R/C-P/S deck	All	All	3	Seal	12, 38, 16, 13, 15	2.00	na	na	na	na	sq.ft.
191	Concrete-R/C-P/S deck	All	All	3	New asphalt overlay	12, 38, 16, 13, 15	35.00	na	na	na	na	sq.ft.
192	Concrete-R/C-P/S deck	All	All	3	New rigid overlay	12, 38, 16, 13, 15	35.00	na	na	na	na	sq.ft.
193	Concrete-R/C-P/S deck	All	All	3	New thin overlay	12, 38, 16, 13, 15	7.00	na	na	na	na	sq.ft.

Table E-1.4b Impacts of preservation actions

E-4B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
140	Concrete-R/C deck	Dlm/Spill/Ptch	1080	1	Do nothing	R/C deck	None	na	na	na	na	na	na
141	Concrete-R/C deck	Dlm/Spill/Ptch	1080	2	Clean and patch	R/C deck	Extend life	na	na	na	na	na	na
142	Concrete-R/C deck	Dlm/Spill/Ptch	1080	3	Clean and patch	R/C deck	Increase condition state	na	na	na	na	na	na
143	Concrete-R/C deck	Dlm/Spill/Ptch	1080	4	Replace	R/C deck	Increase condition state	na	na	na	na	na	na
144	Concrete-R/C deck	Exposed Rebar	1090	1	Do nothing	R/C deck	None	na	na	na	na	na	na
145	Concrete-R/C deck	Exposed Rebar	1090	2	Clean and patch	R/C deck	Extend life	na	na	na	na	na	na
146	Concrete-R/C deck	Exposed Rebar	1090	3	Clean and patch	R/C deck	Increase condition state	na	na	na	na	na	na
147	Concrete-R/C deck	Exposed Rebar	1090	4	Replace	R/C deck	Increase condition state	na	na	na	na	na	na
148	Concrete-R/C deck	Efflor/Rust Stain	1120	1	Do nothing	R/C deck	None	na	na	na	na	na	na
149	Concrete-R/C deck	Efflor/Rust Stain	1120	2	Seal cracks	R/C deck	Extend life	na	na	na	na	na	na
150	Concrete-R/C deck	Efflor/Rust Stain	1120	3	Seal cracks	R/C deck	Increase condition state	na	na	na	na	na	na
151	Concrete-R/C deck	Efflor/Rust Stain	1120	4	Replace	R/C deck	Increase condition state	na	na	na	na	na	na
152	Concrete-R/C deck	Cracking	1130	1	Do nothing	R/C deck	None	na	na	na	na	na	na
153	Concrete-R/C deck	Cracking	1130	2	Seal cracks	R/C deck	Extend life	na	na	na	na	na	na
154	Concrete-R/C deck	Cracking	1130	3	Seal cracks	R/C deck	Increase condition state	na	na	na	na	na	na
155	Concrete-R/C deck	Cracking	1130	4	Replace	R/C deck	Increase condition state	na	na	na	na	na	na
156	Concrete-P/S deck	Dlm/Spill/Ptch	1080	1	Do nothing	P/S deck	None	na	na	na	na	na	na
157	Concrete-P/S deck	Dlm/Spill/Ptch	1080	2	Clean and patch	P/S deck	Extend life	na	na	na	na	na	na
158	Concrete-P/S deck	Dlm/Spill/Ptch	1080	3	Clean and patch	P/S deck	Increase condition state	na	na	na	na	na	na
159	Concrete-P/S deck	Dlm/Spill/Ptch	1080	4	Replace	P/S deck	Increase condition state	na	na	na	na	na	na
160	Concrete-P/S deck	Exposed Rebar	1090	1	Do nothing	P/S deck	None	na	na	na	na	na	na
161	Concrete-P/S deck	Exposed Rebar	1090	2	Clean and patch	P/S deck	Extend life	na	na	na	na	na	na
162	Concrete-P/S deck	Exposed Rebar	1090	3	Clean and patch	P/S deck	Increase condition state	na	na	na	na	na	na
163	Concrete-P/S deck	Exposed Rebar	1090	4	Replace	P/S deck	Increase condition state	na	na	na	na	na	na
164	Concrete-P/S deck	Expsd Prestressng	1100	1	Do nothing	P/S deck	None	na	na	na	na	na	na
165	Concrete-P/S deck	Expsd Prestressng	1100	2	Clean and patch	P/S deck	Extend life	na	na	na	na	na	na
166	Concrete-P/S deck	Expsd Prestressng	1100	3	Clean and patch	P/S deck	Increase condition state	na	na	na	na	na	na
167	Concrete-P/S deck	Expsd Prestressng	1100	4	Replace	P/S deck	Increase condition state	na	na	na	na	na	na
168	Concrete-P/S deck	Cracking (PSC)	1110	1	Do nothing	P/S deck	None	na	na	na	na	na	na
169	Concrete-P/S deck	Cracking (PSC)	1110	2	Seal cracks	P/S deck	Extend life	na	na	na	na	na	na
170	Concrete-P/S deck	Cracking (PSC)	1110	3	Seal cracks	P/S deck	Increase condition state	na	na	na	na	na	na
171	Concrete-P/S deck	Cracking (PSC)	1110	4	Replace	P/S deck	Increase condition state	na	na	na	na	na	na
172	Concrete-P/S deck	Efflor/Rust Stain	1120	1	Do nothing	P/S deck	None	na	na	na	na	na	na
173	Concrete-P/S deck	Efflor/Rust Stain	1120	2	Seal cracks	P/S deck	Extend life	na	na	na	na	na	na
174	Concrete-P/S deck	Efflor/Rust Stain	1120	3	Seal cracks	P/S deck	Increase condition state	na	na	na	na	na	na
175	Concrete-P/S deck	Efflor/Rust Stain	1120	4	Replace	P/S deck	Increase condition state	na	na	na	na	na	na
176	Concrete-R/C-P/S deck	All	All	1	Do nothing	R/C P/S deck	None	na	na	na	na	na	na
177	Concrete-R/C-P/S deck	All	All	1	Wash	R/C P/S deck	Extend life	na	na	na	na	na	na
178	Concrete-R/C-P/S deck	All	All	1	Seal	R/C P/S deck	Extend life	na	na	na	na	na	na
179	Concrete-R/C-P/S deck	All	All	1	New asphalt overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
180	Concrete-R/C-P/S deck	All	All	1	New rigid overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
181	Concrete-R/C-P/S deck	All	All	1	New thin overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
182	Concrete-R/C-P/S deck	All	All	2	Do nothing	R/C P/S deck	None	na	na	na	na	na	na
183	Concrete-R/C-P/S deck	All	All	2	Wash	R/C P/S deck	Extend life	na	na	na	na	na	na
184	Concrete-R/C-P/S deck	All	All	2	Seal	R/C P/S deck	Extend life	na	na	na	na	na	na
185	Concrete-R/C-P/S deck	All	All	2	New asphalt overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
186	Concrete-R/C-P/S deck	All	All	2	New rigid overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
187	Concrete-R/C-P/S deck	All	All	2	New thin overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
188	Concrete-R/C-P/S deck	All	All	3	Do nothing	R/C P/S deck	None	na	na	na	na	na	na
189	Concrete-R/C-P/S deck	All	All	3	Wash	R/C P/S deck	Extend life	na	na	na	na	na	na
190	Concrete-R/C-P/S deck	All	All	3	Seal	R/C P/S deck	Extend life	na	na	na	na	na	na
191	Concrete-R/C-P/S deck	All	All	3	New asphalt overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
192	Concrete-R/C-P/S deck	All	All	3	New rigid overlay	R/C P/S deck	Extend life	na	na	na	na	na	na
193	Concrete-R/C-P/S deck	All	All	3	New thin overlay	R/C P/S deck	Extend life	na	na	na	na	na	na

Table E-1.4c Metrics for preservation actions

E-4C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
140	Concrete-R/C deck	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	R/C deck	1	0	0	0	na				na				na			
141	Concrete-R/C deck	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	R/C deck	2	10	8	6	na				na				na			
142	Concrete-R/C deck	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	R/C deck	2	8	6	4	na				na				na			
143	Concrete-R/C deck	Dim/Spill/Ptch	1080	4				Replace	50	40	30	R/C deck	1	50	40	30	na				na				na			
144	Concrete-R/C deck	Exposed Rebar	1090	1				Do nothing	na	na	na	R/C deck	1	0	0	0	na				na				na			
145	Concrete-R/C deck	Exposed Rebar	1090	2				Clean and patch	20	14	8	R/C deck	2	10	8	6	na				na				na			
146	Concrete-R/C deck	Exposed Rebar	1090	3				Clean and patch	20	14	8	R/C deck	2	8	6	4	na				na				na			
147	Concrete-R/C deck	Exposed Rebar	1090	4				Replace	50	40	30	R/C deck	1	50	40	30	na				na				na			
148	Concrete-R/C deck	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	R/C deck	1	0	0	0	na				na				na			
149	Concrete-R/C deck	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	R/C deck	2	16	10	6	na				na				na			
150	Concrete-R/C deck	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	R/C deck	2	16	10	6	na				na				na			
151	Concrete-R/C deck	Efflor/Rust Stain	1120	4				Replace	50	20	30	R/C deck	1	50	40	30	na				na				na			
152	Concrete-R/C deck	Cracking	1130	1				Do nothing	na	na	na	R/C deck	1	0	0	0	na				na				na			
153	Concrete-R/C deck	Cracking	1130	2				Seal cracks	20	14	8	R/C deck	2	16	10	6	na				na				na			
154	Concrete-R/C deck	Cracking	1130	3				Seal cracks	20	14	8	R/C deck	2	16	10	6	na				na				na			
155	Concrete-R/C deck	Cracking	1130	4				Replace	50	20	30	R/C deck	1	50	40	30	na				na				na			
156	Concrete-P/S deck	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	P/S deck	1	0	0	0	na				na				na			
157	Concrete-P/S deck	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	P/S deck	2	10	8	6	na				na				na			
158	Concrete-P/S deck	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	P/S deck	2	8	6	4	na				na				na			
159	Concrete-P/S deck	Dim/Spill/Ptch	1080	4				Replace	50	40	30	P/S deck	1	50	40	30	na				na				na			
160	Concrete-P/S deck	Exposed Rebar	1090	1				Do nothing	na	na	na	P/S deck	1	0	0	0	na				na				na			
161	Concrete-P/S deck	Exposed Rebar	1090	2				Clean and patch	20	14	8	P/S deck	2	10	8	6	na				na				na			
162	Concrete-P/S deck	Exposed Rebar	1090	3				Clean and patch	20	14	8	P/S deck	2	8	6	4	na				na				na			
163	Concrete-P/S deck	Exposed Rebar	1090	4				Replace	50	40	30	P/S deck	1	50	40	30	na				na				na			
164	Concrete-P/S deck	Expsd Prestressing	1100	1				Do nothing	na	na	na	P/S deck	1	0	0	0	na				na				na			
165	Concrete-P/S deck	Expsd Prestressing	1100	2				Clean and patch	20	14	8	P/S deck	2	12	10	8	na				na				na			
166	Concrete-P/S deck	Expsd Prestressing	1100	3				Clean and patch	20	14	8	P/S deck	2	12	10	8	na				na				na			
167	Concrete-P/S deck	Expsd Prestressing	1100	4				Replace	50	20	30	P/S deck	1	50	40	30	na				na				na			
168	Concrete-P/S deck	Cracking (PSC)	1110	1				Do nothing	na	na	na	P/S deck	1	0	0	0	na				na				na			
169	Concrete-P/S deck	Cracking (PSC)	1110	2				Seal cracks	20	14	8	P/S deck	2	16	10	6	na				na				na			
170	Concrete-P/S deck	Cracking (PSC)	1110	3				Seal cracks	20	14	8	P/S deck	2	16	10	6	na				na				na			
171	Concrete-P/S deck	Cracking (PSC)	1110	4				Replace	50	20	30	P/S deck	1	50	40	30	na				na				na			
172	Concrete-P/S deck	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	P/S deck	1	0	0	0	na				na				na			
173	Concrete-P/S deck	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	P/S deck	2	16	10	6	na				na				na			
174	Concrete-P/S deck	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	P/S deck	2	16	10	6	na				na				na			
175	Concrete-P/S deck	Efflor/Rust Stain	1120	4				Replace	50	20	30	P/S deck	1	50	40	30	na				na				na			
176	Concrete-R/C-P/S deck	All	All	1				Do nothing	na	na	na	R/C P/S deck	1	0	0	0	na				na				na			
177	Concrete-R/C-P/S deck	All	All	1				Wash	10	5	1	R/C P/S deck	1	1	1	1	na				na				na			
178	Concrete-R/C-P/S deck	All	All	1				Seal	20	12	5	R/C P/S deck	1	8	5	3	na				na				na			
179	Concrete-R/C-P/S deck	All	All	1				New asphalt overlay	25	23	20	R/C P/S deck	1	20	17	12	na				na				na			
180	Concrete-R/C-P/S deck	All	All	1				New rigid overlay	na	na	30	R/C P/S deck	1	0	0	25	na				na				na			
181	Concrete-R/C-P/S deck	All	All	1				New thin overlay	20	15	10	R/C P/S deck	1	16	12	8	na				na				na			
182	Concrete-R/C-P/S deck	All	All	2				Do nothing	na	na	na	R/C P/S deck	2	0	0	0	na				na				na			
183	Concrete-R/C-P/S deck	All	All	2				Wash	10	5	1	R/C P/S deck	2	1	1	1	na				na				na			
184	Concrete-R/C-P/S deck	All	All	2				Seal	20	12	5	R/C P/S deck	2	6	4	2	na				na				na			
185	Concrete-R/C-P/S deck	All	All	2				New asphalt overlay	25	23	20	R/C P/S deck	1	15	12	9	na				na				na			
186	Concrete-R/C-P/S deck	All	All	2				New rigid overlay	na	na	25	R/C P/S deck	1	0	0	20	na				na				na			
187	Concrete-R/C-P/S deck	All	All	2				New thin overlay	20	15	10	R/C P/S deck	1	13	10	7	na				na				na			
188	Concrete-R/C-P/S deck	All	All	3				Do nothing	na	na	na	R/C P/S deck	3	0	0	0	na				na				na			
189	Concrete-R/C-P/S deck	All	All	3				Wash	10	5	1	R/C P/S deck	3	1	1	1	na				na				na			
190	Concrete-R/C-P/S deck	All	All	3				Seal	20	12	5	R/C P/S deck	2	5	3	2	na				na				na			
191	Concrete-R/C-P/S deck	All	All	3				New asphalt overlay	25	23	20	R/C P/S deck	1	10	8	6	na				na				na			
192	Concrete-R/C-P/S deck	All	All	3				New rigid overlay	35	30	25	R/C P/S deck	1	25	20	18	na				na				na			
193	Concrete-R/C-P/S deck	All	All	3				New thin overlay	20	15	10	R/C P/S deck	1	10	8	5	na				na				na			

Table E-1.5a Catalog of preservation actions

E-5A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
194	Timber deck	Connection	1020	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
195	Timber deck	Connection	1020	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
196	Timber deck	Connection	1020	3	Tighten or nail	31, 54	1.00	na	na	na	na	sq.ft.
197	Timber deck	Connection	1020	4	Replace connection	31, 54	3.00	na	na	na	na	sq.ft.
198	Timber deck	Decay/Sectn Loss	1140	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
199	Timber deck	Decay/Sectn Loss	1140	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
200	Timber deck	Decay/Sectn Loss	1140	3	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
201	Timber deck	Decay/Sectn Loss	1140	4	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
202	Timber deck	Check/Shake	1150	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
203	Timber deck	Check/Shake	1150	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
204	Timber deck	Check/Shake	1150	3	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
205	Timber deck	Check/Shake	1150	4	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
206	Timber deck	Crack (Timber)	1160	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
207	Timber deck	Crack (Timber)	1160	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
208	Timber deck	Crack (Timber)	1160	3	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
209	Timber deck	Crack (Timber)	1160	4	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
210	Timber deck	Split/Delamination	1170	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
211	Timber deck	Split/Delamination	1170	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
212	Timber deck	Split/Delamination	1170	3	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
213	Timber deck	Split/Delamination	1170	4	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
214	Timber deck	Abrasion	1180	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
215	Timber deck	Abrasion	1180	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
216	Timber deck	Abrasion	1180	3	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
217	Timber deck	Abrasion	1180	4	Replace timbers	31, 54	20.00	na	na	na	na	sq.ft.
218	Timber deck	All	All	1	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
219	Timber deck	All	All	1	Clean	31, 54	0.50	na	na	na	na	sq.ft.
220	Timber deck	All	All	1	Timbr wearing cours	31, 54	5.00	na	na	na	na	sq.ft.
221	Timber deck	All	All	1	Asphalt overlay	31, 54	25.00	na	na	na	na	sq.ft.
222	Timber deck	All	All	2	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
223	Timber deck	All	All	2	Clean	31, 54	0.50	na	na	na	na	sq.ft.
224	Timber deck	All	All	2	Timbr wearing cours	31, 54	5.00	na	na	na	na	sq.ft.
225	Timber deck	All	All	2	Asphalt overlay	31, 54	25.00	na	na	na	na	sq.ft.
226	Timber deck	All	All	3	Do nothing	31, 54	0.00	na	na	na	na	sq.ft.
227	Timber deck	All	All	3	Clean	31, 54	0.50	na	na	na	na	sq.ft.
228	Timber deck	All	All	3	Timbr wearing cours	31, 54	5.00	na	na	na	na	sq.ft.
229	Timber deck	All	All	3	Asphalt overlay	31, 54	25.00	na	na	na	na	sq.ft.

Table E-1.5b Impacts of preservation actions

E-5B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
194	Timber deck	Connection	1020	1	Do nothing	Timber deck	None	na	na	na	na	na	na
195	Timber deck	Connection	1020	2	Do nothing	Timber deck	None	na	na	na	na	na	na
196	Timber deck	Connection	1020	3	Tighten or nail	Timber deck	Extend life	na	na	na	na	na	na
197	Timber deck	Connection	1020	4	Replace connection	Timber deck	Increase condition state	na	na	na	na	na	na
198	Timber deck	Decay/Sectn Loss	1140	1	Do nothing	Timber deck	None	na	na	na	na	na	na
199	Timber deck	Decay/Sectn Loss	1140	2	Do nothing	Timber deck	None	na	na	na	na	na	na
200	Timber deck	Decay/Sectn Loss	1140	3	Replace timbers	Timber deck	Increase condition state	Superstru	Extend life	na	na	na	na
201	Timber deck	Decay/Sectn Loss	1140	4	Replace timbers	Timber deck	Increase condition state	Superstru	Extend life	na	na	na	na
202	Timber deck	Check/Shake	1150	1	Do nothing	Timber deck	None	na	na	na	na	na	na
203	Timber deck	Check/Shake	1150	2	Do nothing	Timber deck	None	na	na	na	na	na	na
204	Timber deck	Check/Shake	1150	3	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
205	Timber deck	Check/Shake	1150	4	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
206	Timber deck	Crack (Timber)	1160	1	Do nothing	Timber deck	None	na	na	na	na	na	na
207	Timber deck	Crack (Timber)	1160	2	Do nothing	Timber deck	None	na	na	na	na	na	na
208	Timber deck	Crack (Timber)	1160	3	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
209	Timber deck	Crack (Timber)	1160	4	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
210	Timber deck	Split/Delamination	1170	1	Do nothing	Timber deck	None	na	na	na	na	na	na
211	Timber deck	Split/Delamination	1170	2	Do nothing	Timber deck	None	na	na	na	na	na	na
212	Timber deck	Split/Delamination	1170	3	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
213	Timber deck	Split/Delamination	1170	4	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
214	Timber deck	Abrasion	1180	1	Do nothing	Timber deck	None	na	na	na	na	na	na
215	Timber deck	Abrasion	1180	2	Do nothing	Timber deck	None	na	na	na	na	na	na
216	Timber deck	Abrasion	1180	3	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
217	Timber deck	Abrasion	1180	4	Replace timbers	Timber deck	Increase condition state	na	na	na	na	na	na
218	Timber deck	All	All	1	Do nothing	Timber deck	None	na	na	na	na	na	na
219	Timber deck	All	All	1	Clean	Timber deck	Extend life	na	na	na	na	na	na
220	Timber deck	All	All	1	Timbr wearing cours	Timber deck	Extend life	Superstru	Extend life	na	na	na	na
221	Timber deck	All	All	1	Asphalt overlay	Timber deck	Extend life	Superstru	Extend life	na	na	na	na
222	Timber deck	All	All	2	Do nothing	Timber deck	None	na	na	na	na	na	na
223	Timber deck	All	All	2	Clean	Timber deck	Extend life	na	na	na	na	na	na
224	Timber deck	All	All	2	Timbr wearing cours	Timber deck	Extend life	Superstru	Extend life	na	na	na	na
225	Timber deck	All	All	2	Asphalt overlay	Timber deck	Extend life	Superstru	Extend life	na	na	na	na
226	Timber deck	All	All	3	Do nothing	Timber deck	None	na	na	na	na	na	na
227	Timber deck	All	All	3	Clean	Timber deck	Extend life	na	na	na	na	na	na
228	Timber deck	All	All	3	Timbr wearing cours	Timber deck	Extend life	Superstru	Extend life	na	na	na	na
229	Timber deck	All	All	3	Asphalt overlay	Timber deck	Extend life	Superstru	Extend life	na	na	na	na

Table E-1.5c Metrics for preservation actions

E-5C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
194	Timber deck	Connection	1020	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
195	Timber deck	Connection	1020	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
196	Timber deck	Connection	1020	3				Tighten or nail	10	10	10	Timber deck	2	8	7	6	na				na				na			
197	Timber deck	Connection	1020	4				Replace connection	25	25	25	Timber deck	1	12	10	8	na				na				na			
198	Timber deck	Decay/Sectn Loss	1140	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
199	Timber deck	Decay/Sectn Loss	1140	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
200	Timber deck	Decay/Sectn Loss	1140	3				Replace timbers	25	21	18	Timber deck	1	25	21	18	Superstru	10	8	6	na				na			
201	Timber deck	Decay/Sectn Loss	1140	4				Replace timbers	25	21	18	Timber deck	1	25	21	18	Superstru	10	8	6	na				na			
202	Timber deck	Check/Shake	1150	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
203	Timber deck	Check/Shake	1150	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
204	Timber deck	Check/Shake	1150	3				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
205	Timber deck	Check/Shake	1150	4				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
206	Timber deck	Crack (Timber)	1160	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
207	Timber deck	Crack (Timber)	1160	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
208	Timber deck	Crack (Timber)	1160	3				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
209	Timber deck	Crack (Timber)	1160	4				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
210	Timber deck	Split/Delamination	1170	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
211	Timber deck	Split/Delamination	1170	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
212	Timber deck	Split/Delamination	1170	3				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
213	Timber deck	Split/Delamination	1170	4				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
214	Timber deck	Abrasion	1180	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
215	Timber deck	Abrasion	1180	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
216	Timber deck	Abrasion	1180	3				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
217	Timber deck	Abrasion	1180	4				Replace timbers	25	21	18	Timber deck	1	25	21	18	na				na				na			
218	Timber deck	All	All	1				Do nothing	na	na	na	Timber deck	1	0	0	0	na				na				na			
219	Timber deck	All	All	1				Clean	9	5	1	Timber deck	1	1	1	1	na				na				na			
220	Timber deck	All	All	1				Timbr wearing cours	15	12	10	Timber deck	1	15	12	10	Superstru	10	8	6	na				na			
221	Timber deck	All	All	1				Asphalt overlay	12	10	8	Timber deck	1	12	10	8	Superstru	8	6	5	na				na			
222	Timber deck	All	All	2				Do nothing	na	na	na	Timber deck	2	0	0	0	na				na				na			
223	Timber deck	All	All	2				Clean	9	5	1	Timber deck	2	1	1	1	na				na				na			
224	Timber deck	All	All	2				Timbr wearing cours	15	12	10	Timber deck	2	12	10	8	Superstru	8	6	5	na				na			
225	Timber deck	All	All	2				Asphalt overlay	12	10	8	Timber deck	2	10	8	6	Superstru	7	6	4	na				na			
226	Timber deck	All	All	3				Do nothing	na	na	na	Timber deck	3	0	0	0	na				na				na			
227	Timber deck	All	All	3				Clean	9	5	1	Timber deck	3	1	1	1	na				na				na			
228	Timber deck	All	All	3				Timbr wearing cours	15	12	10	Timber deck	2	10	8	6	Superstru	7	5	4	na				na			
229	Timber deck	All	All	3				Asphalt overlay	12	10	8	Timber deck	2	8	6	5	Superstru	6	5	3	na				na			

Table E-1.6a Catalog of preservation actions

E-6A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
230	Conc-R/C railings	Dlm/Spl/Ptch	1080	1	Do nothing	331	0.00	na	na	na	na	ft.
231	Conc-R/C railings	Dlm/Spl/Ptch	1080	2	Patch	331	10.00	na	na	na	na	ft.
232	Conc-R/C railings	Dlm/Spl/Ptch	1080	3	Patch	331	30.00	na	na	na	na	ft.
233	Conc-R/C railings	Dlm/Spl/Ptch	1080	4	Replace	331	100.00	na	na	na	na	ft.
234	Conc-R/C railings	Exposed Rebar	1090	1	Do nothing	331	0.00	na	na	na	na	ft.
235	Conc-R/C railings	Exposed Rebar	1090	2	Patch	331	10.00	na	na	na	na	ft.
236	Conc-R/C railings	Exposed Rebar	1090	3	Repair and patch	331	30.00	na	na	na	na	ft.
237	Conc-R/C railings	Exposed Rebar	1090	4	Replace	331	100.00	na	na	na	na	ft.
238	Conc-R/C railings	Efflor/Rust Stain	1120	1	Do nothing	331	0.00	na	na	na	na	ft.
239	Conc-R/C railings	Efflor/Rust Stain	1120	2	Seal	331	6.00	na	na	na	na	ft.
240	Conc-R/C railings	Efflor/Rust Stain	1120	3	Seal	331	8.00	na	na	na	na	ft.
241	Conc-R/C railings	Efflor/Rust Stain	1120	4	Clean and seal	331	10.00	na	na	na	na	ft.
242	Conc-R/C railings	Cracking	1130	1	Do nothing	331	0.00	na	na	na	na	ft.
243	Conc-R/C railings	Cracking	1130	2	Seal	331	6.00	na	na	na	na	ft.
244	Conc-R/C railings	Cracking	1130	3	Seal	331	8.00	na	na	na	na	ft.
245	Conc-R/C railings	Cracking	1130	4	Replace	331	100.00	na	na	na	na	ft.
246	Conc-R/C railings	All	All	1	Do nothing	331	0.00	na	na	na	na	ft.
247	Conc-R/C railings	All	All	1	Wash	331	2.00	na	na	na	na	ft.
248	Conc-R/C railings	All	All	2	Do nothing	331	0.00	na	na	na	na	ft.
249	Conc-R/C railings	All	All	2	Wash	331	2.00	na	na	na	na	ft.
250	Conc-R/C railings	All	All	3	Do nothing	331	0.00	na	na	na	na	ft.
251	Conc-R/C railings	All	All	3	Wash	331	2.50	na	na	na	na	ft.
252	Timber railings	Connection	1020	1	Do nothing	332	0.00	na	na	na	na	ft.
253	Timber railings	Connection	1020	2	Do nothing	332	0.00	na	na	na	na	ft.
254	Timber railings	Connection	1020	3	Tighten or nail	332	1.00	na	na	na	na	ft.
255	Timber railings	Connection	1020	4	Replace connection	332	3.00	na	na	na	na	ft.
256	Timber railings	Decay/Sectn Loss	1140	1	Do nothing	332	0.00	na	na	na	na	ft.
257	Timber railings	Decay/Sectn Loss	1140	2	Do nothing	332	0.00	na	na	na	na	ft.
258	Timber railings	Decay/Sectn Loss	1140	3	Replace timbers	332	8.00	na	na	na	na	ft.
259	Timber railings	Decay/Sectn Loss	1140	4	Replace timbers	332	8.00	na	na	na	na	ft.
260	Timber railings	Check/Shake	1150	1	Do nothing	332	0.00	na	na	na	na	ft.
261	Timber railings	Check/Shake	1150	2	Do nothing	332	0.00	na	na	na	na	ft.
262	Timber railings	Check/Shake	1150	3	Replace timbers	332	8.00	na	na	na	na	ft.
263	Timber railings	Check/Shake	1150	4	Replace timbers	332	8.00	na	na	na	na	ft.
264	Timber railings	Crack (Timber)	1160	1	Do nothing	332	0.00	na	na	na	na	ft.
265	Timber railings	Crack (Timber)	1160	2	Do nothing	332	0.00	na	na	na	na	ft.
266	Timber railings	Crack (Timber)	1160	3	Replace timbers	332	8.00	na	na	na	na	ft.
267	Timber railings	Crack (Timber)	1160	4	Replace timbers	332	8.00	na	na	na	na	ft.
268	Timber railings	Split/Delamination	1170	1	Do nothing	332	0.00	na	na	na	na	ft.
269	Timber railings	Split/Delamination	1170	2	Do nothing	332	0.00	na	na	na	na	ft.
270	Timber railings	Split/Delamination	1170	3	Replace timbers	332	8.00	na	na	na	na	ft.
271	Timber railings	Split/Delamination	1170	4	Replace timbers	332	8.00	na	na	na	na	ft.
272	Timber railings	Abrasion	1180	1	Do nothing	332	0.00	na	na	na	na	ft.
273	Timber railings	Abrasion	1180	2	Do nothing	332	0.00	na	na	na	na	ft.
274	Timber railings	Abrasion	1180	3	Replace timbers	332	8.00	na	na	na	na	ft.
275	Timber railings	Abrasion	1180	4	Replace timbers	332	8.00	na	na	na	na	ft.

Table E-1.6b Impacts of preservation actions

E-6B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
230	Conc-R/C railings	Dlm/Sp/lt/Ptch	1080	1	Do nothing	R/C railings	None	na	na	na	na	na	na
231	Conc-R/C railings	Dlm/Sp/lt/Ptch	1080	2	Patch	R/C railings	Extend life	na	na	na	na	na	na
232	Conc-R/C railings	Dlm/Sp/lt/Ptch	1080	3	Patch	R/C railings	Increase condition state	na	na	na	na	na	na
233	Conc-R/C railings	Dlm/Sp/lt/Ptch	1080	4	Replace	R/C railings	Increase condition state	na	na	na	na	na	na
234	Conc-R/C railings	Exposed Rebar	1090	1	Do nothing	R/C railings	None	na	na	na	na	na	na
235	Conc-R/C railings	Exposed Rebar	1090	2	Patch	R/C railings	Extend life	na	na	na	na	na	na
236	Conc-R/C railings	Exposed Rebar	1090	3	Repair and patch	R/C railings	Increase condition state	na	na	na	na	na	na
237	Conc-R/C railings	Exposed Rebar	1090	4	Replace	R/C railings	Increase condition state	na	na	na	na	na	na
238	Conc-R/C railings	Efflor/Rust Stain	1120	1	Do nothing	R/C railings	None	na	na	na	na	na	na
239	Conc-R/C railings	Efflor/Rust Stain	1120	2	Seal	R/C railings	Extend life	na	na	na	na	na	na
240	Conc-R/C railings	Efflor/Rust Stain	1120	3	Seal	R/C railings	Extend life	na	na	na	na	na	na
241	Conc-R/C railings	Efflor/Rust Stain	1120	4	Clean and seal	R/C railings	Extend life	na	na	na	na	na	na
242	Conc-R/C railings	Cracking	1130	1	Do nothing	R/C railings	None	na	na	na	na	na	na
243	Conc-R/C railings	Cracking	1130	2	Seal	R/C railings	Extend life	na	na	na	na	na	na
244	Conc-R/C railings	Cracking	1130	3	Seal	R/C railings	Extend life	na	na	na	na	na	na
245	Conc-R/C railings	Cracking	1130	4	Replace	R/C railings	Increase condition state	na	na	na	na	na	na
246	Conc-R/C railings	All	All	1	Do nothing	R/C railings	None	na	na	na	na	na	na
247	Conc-R/C railings	All	All	1	Wash	R/C railings	Extend life	na	na	na	na	na	na
248	Conc-R/C railings	All	All	2	Do nothing	R/C railings	None	na	na	na	na	na	na
249	Conc-R/C railings	All	All	2	Wash	R/C railings	Extend life	na	na	na	na	na	na
250	Conc-R/C railings	All	All	3	Do nothing	R/C railings	None	na	na	na	na	na	na
251	Conc-R/C railings	All	All	3	Wash	R/C railings	Extend life	na	na	na	na	na	na
252	Timber railings	Connection	1020	1	Do nothing	Timber railings	None	na	na	na	na	na	na
253	Timber railings	Connection	1020	2	Do nothing	Timber railings	None	na	na	na	na	na	na
254	Timber railings	Connection	1020	3	Tighten or nail	Timber railings	Extend life	na	na	na	na	na	na
255	Timber railings	Connection	1020	4	Replace connection	Timber railings	Increase condition state	na	na	na	na	na	na
256	Timber railings	Decay/Sectn Loss	1140	1	Do nothing	Timber railings	None	na	na	na	na	na	na
257	Timber railings	Decay/Sectn Loss	1140	2	Do nothing	Timber railings	None	na	na	na	na	na	na
258	Timber railings	Decay/Sectn Loss	1140	3	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
259	Timber railings	Decay/Sectn Loss	1140	4	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
260	Timber railings	Check/Shake	1150	1	Do nothing	Timber railings	None	na	na	na	na	na	na
261	Timber railings	Check/Shake	1150	2	Do nothing	Timber railings	None	na	na	na	na	na	na
262	Timber railings	Check/Shake	1150	3	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
263	Timber railings	Check/Shake	1150	4	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
264	Timber railings	Crack (Timber)	1160	1	Do nothing	Timber railings	None	na	na	na	na	na	na
265	Timber railings	Crack (Timber)	1160	2	Do nothing	Timber railings	None	na	na	na	na	na	na
266	Timber railings	Crack (Timber)	1160	3	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
267	Timber railings	Crack (Timber)	1160	4	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
268	Timber railings	Split/Delamination	1170	1	Do nothing	Timber railings	None	na	na	na	na	na	na
269	Timber railings	Split/Delamination	1170	2	Do nothing	Timber railings	None	na	na	na	na	na	na
270	Timber railings	Split/Delamination	1170	3	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
271	Timber railings	Split/Delamination	1170	4	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
272	Timber railings	Abrasion	1180	1	Do nothing	Timber railings	None	na	na	na	na	na	na
273	Timber railings	Abrasion	1180	2	Do nothing	Timber railings	None	na	na	na	na	na	na
274	Timber railings	Abrasion	1180	3	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na
275	Timber railings	Abrasion	1180	4	Replace timbers	Timber railings	Increase condition state	na	na	na	na	na	na

Table E-1.6c Metrics for preservation actions

E-6C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
230	Conc-R/C railings	Dim/Spl/Ptch	1080	1				Do nothing	na	na	na	R/C railings	1	0	0	0	na				na				na			
231	Conc-R/C railings	Dim/Spl/Ptch	1080	2				Patch	20	14	8	R/C railings	2	10	8	6	na				na				na			
232	Conc-R/C railings	Dim/Spl/Ptch	1080	3				Patch	20	14	8	R/C railings	2	8	6	4	na				na				na			
233	Conc-R/C railings	Dim/Spl/Ptch	1080	4				Replace	50	40	30	R/C railings	1	50	40	30	na				na				na			
234	Conc-R/C railings	Exposed Rebar	1090	1				Do nothing	na	na	na	R/C railings	1	0	0	0	na				na				na			
235	Conc-R/C railings	Exposed Rebar	1090	2				Patch	20	14	8	R/C railings	2	10	8	6	na				na				na			
236	Conc-R/C railings	Exposed Rebar	1090	3				Repair and patch	20	14	8	R/C railings	2	8	6	4	na				na				na			
237	Conc-R/C railings	Exposed Rebar	1090	4				Replace	50	40	30	R/C railings	1	50	40	30	na				na				na			
238	Conc-R/C railings	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	R/C railings	1	0	0	0	na				na				na			
239	Conc-R/C railings	Efflor/Rust Stain	1120	2				Seal	15	10	5	R/C railings	2	9	7	5	na				na				na			
240	Conc-R/C railings	Efflor/Rust Stain	1120	3				Seal	15	10	5	R/C railings	2	8	6	4	na				na				na			
241	Conc-R/C railings	Efflor/Rust Stain	1120	4				Replace	50	20	30	R/C railings	1	50	40	30	na				na				na			
242	Conc-R/C railings	Cracking	1130	1				Do nothing	na	na	na	R/C railings	1	0	0	0	na				na				na			
243	Conc-R/C railings	Cracking	1130	2				Seal	15	10	5	R/C railings	2	15	10	5	na				na				na			
244	Conc-R/C railings	Cracking	1130	3				Seal	15	10	5	R/C railings	2	15	10	5	na				na				na			
245	Conc-R/C railings	Cracking	1130	4				Replace	50	40	30	R/C railings	1	50	40	30	na				na				na			
246	Conc-R/C railings	All	All	1				Do nothing	na	na	na	R/C railings	1	0	0	0	na				na				na			
247	Conc-R/C railings	All	All	1				Wash	10	5	1	R/C railings	1	1	1	1	na				na				na			
248	Conc-R/C railings	All	All	2				Do nothing	na	na	na	R/C railings	2	0	0	0	na				na				na			
249	Conc-R/C railings	All	All	2				Wash	10	5	1	R/C railings	2	1	1	1	na				na				na			
250	Conc-R/C railings	All	All	3				Do nothing	na	na	na	R/C railings	3	0	0	0	na				na				na			
251	Conc-R/C railings	All	All	3				Wash	10	5	1	R/C railings	3	1	1	1	na				na				na			
252	Timber railings	Connection	1020	1				Do nothing	na	na	na	Timber railings	1	0	0	0	na				na				na			
253	Timber railings	Connection	1020	2				Do nothing	na	na	na	Timber railings	2	0	0	0	na				na				na			
254	Timber railings	Connection	1020	3				Tighten or nail	10	10	10	Timber railings	2	8	7	6	na				na				na			
255	Timber railings	Connection	1020	4				Replace connection	25	25	25	Timber railings	1	12	10	8	na				na				na			
256	Timber railings	Decay/Sectn Loss	1140	1				Do nothing	na	na	na	Timber railings	1	0	0	0	na				na				na			
257	Timber railings	Decay/Sectn Loss	1140	2				Do nothing	na	na	na	Timber railings	2	0	0	0	na				na				na			
258	Timber railings	Decay/Sectn Loss	1140	3				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
259	Timber railings	Decay/Sectn Loss	1140	4				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
260	Timber railings	Check/Shake	1150	1				Do nothing	na	na	na	Timber railings	1	0	0	0	na				na				na			
261	Timber railings	Check/Shake	1150	2				Do nothing	na	na	na	Timber railings	2	0	0	0	na				na				na			
262	Timber railings	Check/Shake	1150	3				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
263	Timber railings	Check/Shake	1150	4				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
264	Timber railings	Crack (Timber)	1160	1				Do nothing	na	na	na	Timber railings	1	0	0	0	na				na				na			
265	Timber railings	Crack (Timber)	1160	2				Do nothing	na	na	na	Timber railings	2	0	0	0	na				na				na			
266	Timber railings	Crack (Timber)	1160	3				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
267	Timber railings	Crack (Timber)	1160	4				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
268	Timber railings	Split/Delamination	1170	1				Do nothing	na	na	na	Timber railings	1	0	0	0	na				na				na			
269	Timber railings	Split/Delamination	1170	2				Do nothing	na	na	na	Timber railings	2	0	0	0	na				na				na			
270	Timber railings	Split/Delamination	1170	3				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
271	Timber railings	Split/Delamination	1170	4				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
272	Timber railings	Abrasion	1180	1				Do nothing	na	na	na	Timber railings	1	0	0	0	na				na				na			
273	Timber railings	Abrasion	1180	2				Do nothing	na	na	na	Timber railings	2	0	0	0	na				na				na			
274	Timber railings	Abrasion	1180	3				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			
275	Timber railings	Abrasion	1180	4				Replace timbers	25	21	18	Timber railings	1	25	21	18	na				na				na			

Table E-1.7a Catalog of preservation actions

E-7A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
276	Metal railings	Corrosion	1000	1	Do nothing	330	0.00	na	na	na	na	ft.
277	Metal railings	Corrosion	1000	2	Spot painting	330	10.00	na	na	na	na	ft.
278	Metal railings	Corrosion	1000	3	Spot painting	330	20.00	na	na	na	na	ft.
279	Metal railings	Corrosion	1000	4	Replace	330	100.00	na	na	na	na	ft.
280	Metal railings	Cracking	1010	1	Do nothing	330	0.00	na	na	na	na	ft.
281	Metal railings	Cracking	1010	2	Spot painting	330	10.00	na	na	na	na	ft.
282	Metal railings	Cracking	1010	3	Repair	330	40.00	na	na	na	na	ft.
283	Metal railings	Cracking	1010	4	Replace	330	100.00	na	na	na	na	ft.
284	Metal railings	Connection	1020	1	Do nothing	330	0.00	na	na	na	na	ft.
285	Metal railings	Connection	1020	2	Tighten	330	1.00	na	na	na	na	ft.
286	Metal railings	Connection	1020	3	Repair	330	5.00	na	na	na	na	ft.
287	Metal railings	Connection	1020	4	Replace connection	330	25.00	na	na	na	na	ft.
288	Metal railings	Distortion	1900	1	Do nothing	330	0.00	na	na	na	na	ft.
289	Metal railings	Distortion	1900	2	Do nothing	330	0.00	na	na	na	na	ft.
290	Metal railings	Distortion	1900	3	Straighten	330	35.00	na	na	na	na	ft.
291	Metal railings	Distortion	1900	4	Replace	330	100.00	na	na	na	na	ft.
292	Conc-R/C super	Dlm/Spll/Ptch	1080	1	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
293	Conc-R/C super	Dlm/Spll/Ptch	1080	2	Clean and patch	na	na	110, 116, 155	100.00	na	na	ft.
294	Conc-R/C super	Dlm/Spll/Ptch	1080	3	Clean and patch	na	na	110, 116, 155	250.00	na	na	ft.
295	Conc-R/C super	Dlm/Spll/Ptch	1080	4	Replace	na	na	110, 116, 155	400.00	na	na	ft.
296	Conc-R/C super	Exposed Rebar	1090	1	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
297	Conc-R/C super	Exposed Rebar	1090	2	Clean and patch	na	na	110, 116, 155	100.00	na	na	ft.
298	Conc-R/C super	Exposed Rebar	1090	3	Clean and patch	na	na	110, 116, 155	250.00	na	na	ft.
299	Conc-R/C super	Exposed Rebar	1090	4	Replace	na	na	110, 116, 155	400.00	na	na	ft.
300	Conc-R/C super	Efflor/Rust Stain	1120	1	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
301	Conc-R/C super	Efflor/Rust Stain	1120	2	Seal cracks	na	na	110, 116, 155	12.00	na	na	ft.
302	Conc-R/C super	Efflor/Rust Stain	1120	3	Seal cracks	na	na	110, 116, 155	20.00	na	na	ft.
303	Conc-R/C super	Efflor/Rust Stain	1120	4	Replace	na	na	110, 116, 155	400.00	na	na	ft.
304	Conc-R/C super	Cracking	1130	1	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
305	Conc-R/C super	Cracking	1130	2	Seal cracks	na	na	110, 116, 155	12.00	na	na	ft.
306	Conc-R/C super	Cracking	1130	3	Seal cracks	na	na	110, 116, 155	20.00	na	na	ft.
307	Conc-R/C super	Cracking	1130	4	Replace	na	na	110, 116, 155	400.00	na	na	ft.
308	Conc-R/C super	All	All	1	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
309	Conc-R/C super	All	All	1	Wash	na	na	110, 116, 155	9.00	na	na	ft.
310	Conc-R/C super	All	All	2	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
311	Conc-R/C super	All	All	2	Wash	na	na	110, 116, 155	10.00	na	na	ft.
312	Conc-R/C super	All	All	3	Do nothing	na	na	110, 116, 155	0.00	na	na	ft.
313	Conc-R/C super	All	All	3	Wash	na	na	110, 116, 155	12.00	na	na	ft.

Table E-1.7b Impacts of preservation actions

E-7B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
276	Metal railings	Corrosion	1000	1	Do nothing	Metal railings	None	na	na	na	na	na	na
277	Metal railings	Corrosion	1000	2	Spot painting	Metal railings	Extend life	na	na	na	na	na	na
278	Metal railings	Corrosion	1000	3	Spot painting	Metal railings	Extend life	na	na	na	na	na	na
279	Metal railings	Corrosion	1000	4	Replace	Metal railings	Increase condition state	na	na	na	na	na	na
280	Metal railings	Cracking	1010	1	Do nothing	Metal railings	None	na	na	na	na	na	na
281	Metal railings	Cracking	1010	2	Spot painting	Metal railings	Extend life	na	na	na	na	na	na
282	Metal railings	Cracking	1010	3	Repair	Metal railings	Increase condition state	na	na	na	na	na	na
283	Metal railings	Cracking	1010	4	Replace	Metal railings	Increase condition state	na	na	na	na	na	na
284	Metal railings	Connection	1020	1	Do nothing	Metal railings	None	na	na	na	na	na	na
285	Metal railings	Connection	1020	2	Tighten	Metal railings	Extend life	na	na	na	na	na	na
286	Metal railings	Connection	1020	3	Repair	Metal railings	Increase condition state	na	na	na	na	na	na
287	Metal railings	Connection	1020	4	Replace connection	Metal railings	Increase condition state	na	na	na	na	na	na
288	Metal railings	Distortion	1900	1	Do nothing	Metal railings	None	na	na	na	na	na	na
289	Metal railings	Distortion	1900	2	Do nothing	Metal railings	None	na	na	na	na	na	na
290	Metal railings	Distortion	1900	3	Straighten	Metal railings	Increase condition state	na	na	na	na	na	na
291	Metal railings	Distortion	1900	4	Replace	Metal railings	Increase condition state	na	na	na	na	na	na
292	Conc-R/C super	Dim/Spill/Ptch	1080	1	Do nothing	R/C Superstr	None	na	na	na	na	na	na
293	Conc-R/C super	Dim/Spill/Ptch	1080	2	Clean and patch	R/C Superstr	Extend life	na	na	na	na	na	na
294	Conc-R/C super	Dim/Spill/Ptch	1080	3	Clean and patch	R/C Superstr	Increase condition state	na	na	na	na	na	na
295	Conc-R/C super	Dim/Spill/Ptch	1080	4	Replace	R/C Superstr	Increase condition state	na	na	na	na	na	na
296	Conc-R/C super	Exposed Rebar	1090	1	Do nothing	R/C Superstr	None	na	na	na	na	na	na
297	Conc-R/C super	Exposed Rebar	1090	2	Clean and patch	R/C Superstr	Extend life	na	na	na	na	na	na
298	Conc-R/C super	Exposed Rebar	1090	3	Clean and patch	R/C Superstr	Increase condition state	na	na	na	na	na	na
299	Conc-R/C super	Exposed Rebar	1090	4	Replace	R/C Superstr	Increase condition state	na	na	na	na	na	na
300	Conc-R/C super	Efflor/Rust Stain	1120	1	Do nothing	R/C Superstr	None	na	na	na	na	na	na
301	Conc-R/C super	Efflor/Rust Stain	1120	2	Seal cracks	R/C Superstr	Extend life	na	na	na	na	na	na
302	Conc-R/C super	Efflor/Rust Stain	1120	3	Seal cracks	R/C Superstr	Extend life	na	na	na	na	na	na
303	Conc-R/C super	Efflor/Rust Stain	1120	4	Replace	R/C Superstr	Increase condition state	na	na	na	na	na	na
304	Conc-R/C super	Cracking	1130	1	Do nothing	R/C Superstr	None	na	na	na	na	na	na
305	Conc-R/C super	Cracking	1130	2	Seal cracks	R/C Superstr	Extend life	na	na	na	na	na	na
306	Conc-R/C super	Cracking	1130	3	Seal cracks	R/C Superstr	Extend life	na	na	na	na	na	na
307	Conc-R/C super	Cracking	1130	4	Replace	R/C Superstr	Increase condition state	na	na	na	na	na	na
308	Conc-R/C super	All	All	1	Do nothing	R/C Superstr	None	na	na	na	na	na	na
309	Conc-R/C super	All	All	1	Wash	R/C Superstr	Extend life	na	na	na	na	na	na
310	Conc-R/C super	All	All	2	Do nothing	R/C Superstr	None	na	na	na	na	na	na
311	Conc-R/C super	All	All	2	Wash	R/C Superstr	Extend life	na	na	na	na	na	na
312	Conc-R/C super	All	All	3	Do nothing	R/C Superstr	None	na	na	na	na	na	na
313	Conc-R/C super	All	All	3	Wash	R/C Superstr	Extend life	na	na	na	na	na	na

Table E-1.7c Metrics for preservation actions

E-7C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
276	Metal railings	Corrosion	1000	1				Do nothing	na	na	na	Metal railings	1	0	0	0	na				na				na			
277	Metal railings	Corrosion	1000	2				Spot painting	18	14	10	Metal railings	1	14	12	8	na				na				na			
278	Metal railings	Corrosion	1000	3				Spot painting	12	10	8	Metal railings	1	10	8	6	na				na				na			
279	Metal railings	Corrosion	1000	4				Replace	50	40	30	Metal railings	1	50	40	30	na				na				na			
280	Metal railings	Cracking	1010	1				Do nothing	na	na	na	Metal railings	1	0	0	0	na				na				na			
281	Metal railings	Cracking	1010	2				Do nothing	na	na	na	Metal railings	2	0	0	0	na				na				na			
282	Metal railings	Cracking	1010	3				Repair	10	10	10	Metal railings	2	10	10	10	na				na				na			
283	Metal railings	Cracking	1010	4				Replace	50	40	30	Metal railings	1	50	40	30	na				na				na			
284	Metal railings	Connection	1020	1				Do nothing	na	na	na	Metal railings	1	0	0	0	na				na				na			
285	Metal railings	Connection	1020	2				Tighten	10	10	10	Metal railings	1	10	10	10	na				na				na			
286	Metal railings	Connection	1020	3				Repair	8	8	8	Metal railings	1	8	8	8	na				na				na			
287	Metal railings	Connection	1020	4				Replace connection	50	40	30	Metal railings	1	50	40	30	na				na				na			
288	Metal railings	Distortion	1900	1				Do nothing	na	na	na	Metal railings	1	0	0	0	na				na				na			
289	Metal railings	Distortion	1900	2				Do nothing	na	na	na	Metal railings	2	0	0	0	na				na				na			
290	Metal railings	Distortion	1900	3				Straighten	8	8	8	Metal railings	2	8	8	8	na				na				na			
291	Metal railings	Distortion	1900	4				Replace	50	40	30	Metal railings	1	50	40	30	na				na				na			
292	Conc-R/C super	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	R/C Superstr	1	0	0	0	na				na				na			
293	Conc-R/C super	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	R/C Superstr	2	10	8	6	na				na				na			
294	Conc-R/C super	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	R/C Superstr	2	8	6	4	na				na				na			
295	Conc-R/C super	Dim/Spill/Ptch	1080	4				Replace	50	40	30	R/C Superstr	1	50	40	30	na				na				na			
296	Conc-R/C super	Exposed Rebar	1090	1				Do nothing	na	na	na	R/C Superstr	1	0	0	0	na				na				na			
297	Conc-R/C super	Exposed Rebar	1090	2				Clean and patch	20	14	8	R/C Superstr	2	10	8	6	na				na				na			
298	Conc-R/C super	Exposed Rebar	1090	3				Clean and patch	20	14	8	R/C Superstr	2	8	6	4	na				na				na			
299	Conc-R/C super	Exposed Rebar	1090	4				Replace	50	40	30	R/C Superstr	1	50	40	30	na				na				na			
300	Conc-R/C super	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	R/C Superstr	1	0	0	0	na				na				na			
301	Conc-R/C super	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	R/C Superstr	2	16	10	6	na				na				na			
302	Conc-R/C super	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	R/C Superstr	2	16	10	6	na				na				na			
303	Conc-R/C super	Efflor/Rust Stain	1120	4				Replace	50	40	30	R/C Superstr	1	50	40	30	na				na				na			
304	Conc-R/C super	Cracking	1130	1				Do nothing	na	na	na	R/C Superstr	1	0	0	0	na				na				na			
305	Conc-R/C super	Cracking	1130	2				Seal cracks	20	14	8	R/C Superstr	2	16	10	6	na				na				na			
306	Conc-R/C super	Cracking	1130	3				Seal cracks	20	14	8	R/C Superstr	2	16	10	6	na				na				na			
307	Conc-R/C super	Cracking	1130	4				Replace	50	40	30	R/C Superstr	1	50	40	30	na				na				na			
308	Conc-R/C super	All	All	1				Do nothing	na	na	na	R/C Superstr	1	0	0	0	na				na				na			
309	Conc-R/C super	All	All	1				Wash	10	5	1	R/C Superstr	1	1	1	1	na				na				na			
310	Conc-R/C super	All	All	2				Do nothing	na	na	na	R/C Superstr	2	0	0	0	na				na				na			
311	Conc-R/C super	All	All	2				Wash	10	5	1	R/C Superstr	2	1	1	1	na				na				na			
312	Conc-R/C super	All	All	3				Do nothing	na	na	na	R/C Superstr	3	0	0	0	na				na				na			
313	Conc-R/C super	All	All	3				Wash	10	5	1	R/C Superstr	3	1	1	1	na				na				na			

Table E-1.8a Catalog of preservation actions

E-8A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
314	Conc-P/S super	Dlm/Spl/Ptch	1080	1	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
315	Conc-P/S super	Dlm/Spl/Ptch	1080	2	Clean and patch	na	na	109, 115, 154	100.00	na	na	ft.
316	Conc-P/S super	Dlm/Spl/Ptch	1080	3	Clean and patch	na	na	109, 115, 154	350.00	na	na	ft.
317	Conc-P/S super	Dlm/Spl/Ptch	1080	4	Replace	na	na	109, 115, 154	600.00	na	na	ft.
318	Conc-P/S super	Exposed Rebar	1090	1	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
319	Conc-P/S super	Exposed Rebar	1090	2	Clean and patch	na	na	109, 115, 154	100.00	na	na	ft.
320	Conc-P/S super	Exposed Rebar	1090	3	Clean and patch	na	na	109, 115, 154	350.00	na	na	ft.
321	Conc-P/S super	Exposed Rebar	1090	4	Replace	na	na	109, 115, 154	600.00	na	na	ft.
322	Conc-P/S super	Expsd Prestressng	1100	1	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
323	Conc-P/S super	Expsd Prestressng	1100	2	Clean and patch	na	na	109, 115, 154	100.00	na	na	ft.
324	Conc-P/S super	Expsd Prestressng	1100	3	Clean and patch	na	na	109, 115, 154	350.00	na	na	ft.
325	Conc-P/S super	Expsd Prestressng	1100	4	Replace	na	na	109, 115, 154	600.00	na	na	ft.
326	Conc-P/S super	Cracking (PSC)	1110	1	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
327	Conc-P/S super	Cracking (PSC)	1110	2	Seal cracks	na	na	109, 115, 154	12.00	na	na	ft.
328	Conc-P/S super	Cracking (PSC)	1110	3	Seal cracks	na	na	109, 115, 154	20.00	na	na	ft.
329	Conc-P/S super	Cracking (PSC)	1110	4	Replace	na	na	109, 115, 154	600.00	na	na	ft.
330	Conc-P/S super	Efflor/Rust Stain	1120	1	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
331	Conc-P/S super	Efflor/Rust Stain	1120	2	Seal cracks	na	na	109, 115, 154	12.00	na	na	ft.
332	Conc-P/S super	Efflor/Rust Stain	1120	3	Seal cracks	na	na	109, 115, 154	20.00	na	na	ft.
333	Conc-P/S super	Efflor/Rust Stain	1120	4	Replace	na	na	109, 115, 154	600.00	na	na	ft.
334	Conc-P/S super	All	All	1	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
335	Conc-P/S super	All	All	1	Wash	na	na	109, 115, 154	9.00	na	na	ft.
336	Conc-P/S super	All	All	2	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
337	Conc-P/S super	All	All	2	Wash	na	na	109, 115, 154	10.00	na	na	ft.
338	Conc-P/S super	All	All	3	Do nothing	na	na	109, 115, 154	0.00	na	na	ft.
339	Conc-P/S super	All	All	3	Wash	na	na	109, 115, 154	12.00	na	na	ft.
340	Steel superstr	Corrosion	1000	1	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
341	Steel superstr	Corrosion	1000	2	Spot painting	na	na	107, 113, 152	100.00	na	na	ft.
342	Steel superstr	Corrosion	1000	3	Repair and paint	na	na	107, 113, 152	200.00	na	na	ft.
343	Steel superstr	Corrosion	1000	4	Replace	na	na	107, 113, 152	600.00	na	na	ft.
344	Steel superstr	Cracking	1010	1	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
345	Steel superstr	Cracking	1010	2	Repair	na	na	107, 113, 152	400.00	na	na	ft.
346	Steel superstr	Cracking	1010	3	Repair	na	na	107, 113, 152	1200.00	na	na	ft.
347	Steel superstr	Cracking	1010	4	Replace	na	na	107, 113, 152	600.00	na	na	ft.
348	Steel superstr	Connection	1020	1	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
349	Steel superstr	Connection	1020	2	Clean and tighten	na	na	107, 113, 152	75.00	na	na	ft.
350	Steel superstr	Connection	1020	3	Replace fasteners	na	na	107, 113, 152	200.00	na	na	ft.
351	Steel superstr	Connection	1020	4	Replace	na	na	107, 113, 152	600.00	na	na	ft.
352	Steel superstr	Distortion	1900	1	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
353	Steel superstr	Distortion	1900	2	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
354	Steel superstr	Distortion	1900	3	Repair	na	na	107, 113, 152	300.00	na	na	ft.
355	Steel superstr	Distortion	1900	4	Replace	na	na	107, 113, 152	600.00	na	na	ft.
356	Steel superstr	All	All	1	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
357	Steel superstr	All	All	1	Wash	na	na	107, 113, 152	9.00	na	na	ft.
358	Steel superstr	All	All	2	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
359	Steel superstr	All	All	2	Wash	na	na	107, 113, 152	10.00	na	na	ft.
360	Steel superstr	All	All	3	Do nothing	na	na	107, 113, 152	0.00	na	na	ft.
361	Steel superstr	All	All	3	Wash	na	na	107, 113, 152	12.00	na	na	ft.

Table E-1.8b Impacts of preservation actions

E-8B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
314	Conc-P/S super	Dlm/Spill/Ptch	1080	1	Do nothing	P/S Superstr	None	na	na	na	na	na	na
315	Conc-P/S super	Dlm/Spill/Ptch	1080	2	Clean and patch	P/S Superstr	Extend life	na	na	na	na	na	na
316	Conc-P/S super	Dlm/Spill/Ptch	1080	3	Clean and patch	P/S Superstr	Increase condition state	na	na	na	na	na	na
317	Conc-P/S super	Dlm/Spill/Ptch	1080	4	Replace	P/S Superstr	Increase condition state	na	na	na	na	na	na
318	Conc-P/S super	Exposed Rebar	1090	1	Do nothing	P/S Superstr	None	na	na	na	na	na	na
319	Conc-P/S super	Exposed Rebar	1090	2	Clean and patch	P/S Superstr	Extend life	na	na	na	na	na	na
320	Conc-P/S super	Exposed Rebar	1090	3	Clean and patch	P/S Superstr	Increase condition state	na	na	na	na	na	na
321	Conc-P/S super	Exposed Rebar	1090	4	Replace	P/S Superstr	Increase condition state	na	na	na	na	na	na
322	Conc-P/S super	Expsd Prestressng	1100	1	Do nothing	P/S Superstr	None	na	na	na	na	na	na
323	Conc-P/S super	Expsd Prestressng	1100	2	Clean and patch	P/S Superstr	Extend life	na	na	na	na	na	na
324	Conc-P/S super	Expsd Prestressng	1100	3	Clean and patch	P/S Superstr	Extend life	na	na	na	na	na	na
325	Conc-P/S super	Expsd Prestressng	1100	4	Replace	P/S Superstr	Increase condition state	na	na	na	na	na	na
326	Conc-P/S super	Cracking (PSC)	1110	1	Do nothing	P/S Superstr	None	na	na	na	na	na	na
327	Conc-P/S super	Cracking (PSC)	1110	2	Seal cracks	P/S Superstr	Extend life	na	na	na	na	na	na
328	Conc-P/S super	Cracking (PSC)	1110	3	Seal cracks	P/S Superstr	Extend life	na	na	na	na	na	na
329	Conc-P/S super	Cracking (PSC)	1110	4	Replace	P/S Superstr	Increase condition state	na	na	na	na	na	na
330	Conc-P/S super	Efflor/Rust Stain	1120	1	Do nothing	P/S Superstr	None	na	na	na	na	na	na
331	Conc-P/S super	Efflor/Rust Stain	1120	2	Seal cracks	P/S Superstr	Extend life	na	na	na	na	na	na
332	Conc-P/S super	Efflor/Rust Stain	1120	3	Seal cracks	P/S Superstr	Extend life	na	na	na	na	na	na
333	Conc-P/S super	Efflor/Rust Stain	1120	4	Replace	P/S Superstr	Increase condition state	na	na	na	na	na	na
334	Conc-P/S super	All	All	1	Do nothing	P/S Superstr	None	na	na	na	na	na	na
335	Conc-P/S super	All	All	1	Wash	P/S Superstr	Extend life	na	na	na	na	na	na
336	Conc-P/S super	All	All	2	Do nothing	P/S Superstr	None	na	na	na	na	na	na
337	Conc-P/S super	All	All	2	Wash	P/S Superstr	Extend life	na	na	na	na	na	na
338	Conc-P/S super	All	All	3	Do nothing	P/S Superstr	None	na	na	na	na	na	na
339	Conc-P/S super	All	All	3	Wash	P/S Superstr	Extend life	na	na	na	na	na	na
340	Steel superstr	Corrosion	1000	1	Do nothing	Steel superstr	None	na	na	na	na	na	na
341	Steel superstr	Corrosion	1000	2	Spot painting	Steel superstr	Extend life	na	na	na	na	na	na
342	Steel superstr	Corrosion	1000	3	Repair and paint	Steel superstr	Increase condition state	na	na	na	na	na	na
343	Steel superstr	Corrosion	1000	4	Replace	Steel superstr	Increase condition state	na	na	na	na	na	na
344	Steel superstr	Cracking	1010	1	Do nothing	Steel superstr	None	na	na	na	na	na	na
345	Steel superstr	Cracking	1010	2	Repair	Steel superstr	Extend life	na	na	na	na	na	na
346	Steel superstr	Cracking	1010	3	Repair	Steel superstr	Increase condition state	na	na	na	na	na	na
347	Steel superstr	Cracking	1010	4	Replace	Steel superstr	Increase condition state	na	na	na	na	na	na
348	Steel superstr	Connection	1020	1	Do nothing	Steel superstr	None	na	na	na	na	na	na
349	Steel superstr	Connection	1020	2	Clean and tighten	Steel superstr	Extend life	na	na	na	na	na	na
350	Steel superstr	Connection	1020	3	Replace fastners	Steel superstr	Increase condition state	na	na	na	na	na	na
351	Steel superstr	Connection	1020	4	Replace	Steel superstr	Increase condition state	na	na	na	na	na	na
352	Steel superstr	Distortion	1900	1	Do nothing	Steel superstr	None	na	na	na	na	na	na
353	Steel superstr	Distortion	1900	2	Do nothing	Steel superstr	None	na	na	na	na	na	na
354	Steel superstr	Distortion	1900	3	Repair	Steel superstr	Increase condition state	na	na	na	na	na	na
355	Steel superstr	Distortion	1900	4	Replace	Steel superstr	Increase condition state	na	na	na	na	na	na
356	Steel superstr	All	All	1	Do nothing	Steel superstr	None	na	na	na	na	na	na
357	Steel superstr	All	All	1	Wash	Steel superstr	Extend life	na	na	na	na	na	na
358	Steel superstr	All	All	2	Do nothing	Steel superstr	None	na	na	na	na	na	na
359	Steel superstr	All	All	2	Wash	Steel superstr	Extend life	na	na	na	na	na	na
360	Steel superstr	All	All	3	Do nothing	Steel superstr	None	na	na	na	na	na	na
361	Steel superstr	All	All	3	Wash	Steel superstr	Extend life	na	na	na	na	na	na

Table E-1.8c Metrics for preservation actions

E-8C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
314	Conc-P/S super	Dim/Spl/Ptch	1080	1				Do nothing	na	na	na	P/S Superstr	1	0	0	0	na				na				na			
315	Conc-P/S super	Dim/Spl/Ptch	1080	2				Clean and patch	20	14	8	P/S Superstr	2	10	8	6	na				na				na			
316	Conc-P/S super	Dim/Spl/Ptch	1080	3				Clean and patch	20	14	8	P/S Superstr	2	8	6	4	na				na				na			
317	Conc-P/S super	Dim/Spl/Ptch	1080	4				Replace	50	40	30	P/S Superstr	1	50	40	30	na				na				na			
318	Conc-P/S super	Exposed Rebar	1090	1				Do nothing	na	na	na	P/S Superstr	1	0	0	0	na				na				na			
319	Conc-P/S super	Exposed Rebar	1090	2				Clean and patch	20	14	8	P/S Superstr	2	10	8	6	na				na				na			
320	Conc-P/S super	Exposed Rebar	1090	3				Clean and patch	20	14	8	P/S Superstr	2	8	6	4	na				na				na			
321	Conc-P/S super	Exposed Rebar	1090	4				Replace	50	40	30	P/S Superstr	1	50	40	30	na				na				na			
322	Conc-P/S super	Expsd Prestressing	1100	1				Do nothing	na	na	na	P/S Superstr	1	0	0	0	na				na				na			
323	Conc-P/S super	Expsd Prestressing	1100	2				Clean and patch	20	14	8	P/S Superstr	2	12	10	8	na				na				na			
324	Conc-P/S super	Expsd Prestressing	1100	3				Clean and patch	20	14	8	P/S Superstr	2	12	10	8	na				na				na			
325	Conc-P/S super	Expsd Prestressing	1100	4				Replace	50	40	30	P/S Superstr	1	50	40	30	na				na				na			
326	Conc-P/S super	Cracking (PSC)	1110	1				Do nothing	na	na	na	P/S Superstr	1	0	0	0	na				na				na			
327	Conc-P/S super	Cracking (PSC)	1110	2				Seal cracks	20	14	8	P/S Superstr	2	16	10	6	na				na				na			
328	Conc-P/S super	Cracking (PSC)	1110	3				Seal cracks	20	14	8	P/S Superstr	2	16	10	6	na				na				na			
329	Conc-P/S super	Cracking (PSC)	1110	4				Replace	50	40	30	P/S Superstr	1	50	40	30	na				na				na			
330	Conc-P/S super	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	P/S Superstr	1	0	0	0	na				na				na			
331	Conc-P/S super	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	P/S Superstr	2	16	10	6	na				na				na			
332	Conc-P/S super	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	P/S Superstr	2	16	10	6	na				na				na			
333	Conc-P/S super	Efflor/Rust Stain	1120	4				Replace	50	40	30	P/S Superstr	1	50	40	30	na				na				na			
334	Conc-P/S super	All	All	1				Do nothing	na	na	na	P/S Superstr	1	0	0	0	na				na				na			
335	Conc-P/S super	All	All	1				Wash	10	5	1	P/S Superstr	1	1	1	1	na				na				na			
336	Conc-P/S super	All	All	2				Do nothing	na	na	na	P/S Superstr	2	0	0	0	na				na				na			
337	Conc-P/S super	All	All	2				Wash	10	5	1	P/S Superstr	2	1	1	1	na				na				na			
338	Conc-P/S super	All	All	3				Do nothing	na	na	na	P/S Superstr	3	0	0	0	na				na				na			
339	Conc-P/S super	All	All	3				Wash	10	5	1	P/S Superstr	3	1	1	1	na				na				na			
340	Steel superstr	Corrosion	1000	1				Do nothing	na	na	na	Steel superstr	1	0	0	0	na				na				na			
341	Steel superstr	Corrosion	1000	2				Spot painting	18	14	10	Steel superstr	1	15	11	8	na				na				na			
342	Steel superstr	Corrosion	1000	3				Repair and paint	20	16	12	Steel superstr	1	18	14	10	na				na				na			
343	Steel superstr	Corrosion	1000	4				Replace	50	40	30	Steel superstr	1	50	40	30	na				na				na			
344	Steel superstr	Cracking	1010	1				Do nothing	na	na	na	Steel superstr	1	0	0	0	na				na				na			
345	Steel superstr	Cracking	1010	2				Do nothing	na	na	na	Steel superstr	2	0	0	0	na				na				na			
346	Steel superstr	Cracking	1010	3				Repair	10	10	10	Steel superstr	2	8	8	8	na				na				na			
347	Steel superstr	Cracking	1010	4				Replace	50	40	30	Steel superstr	1	50	40	30	na				na				na			
348	Steel superstr	Connection	1020	1				Do nothing	na	na	na	Steel superstr	1	0	0	0	na				na				na			
349	Steel superstr	Connection	1020	2				Clean and tighten	10	10	10	Steel superstr	1	8	8	8	na				na				na			
350	Steel superstr	Connection	1020	3				Replace fasteners	8	8	8	Steel superstr	1	8	8	8	na				na				na			
351	Steel superstr	Connection	1020	4				Replace	50	40	30	Steel superstr	1	50	40	30	na				na				na			
352	Steel superstr	Distortion	1900	1				Do nothing	na	na	na	Steel superstr	1	0	0	0	na				na				na			
353	Steel superstr	Distortion	1900	2				Do nothing	na	na	na	Steel superstr	2	0	0	0	na				na				na			
354	Steel superstr	Distortion	1900	3				Repair	8	8	8	Steel superstr	2	8	8	8	na				na				na			
355	Steel superstr	Distortion	1900	4				Replace	50	40	30	Steel superstr	1	50	40	30	na				na				na			
356	Steel superstr	All	All	1				Do nothing	na	na	na	Steel superstr	1	0	0	0	na				na				na			
357	Steel superstr	All	All	1				Wash	10	5	1	Steel superstr	1	1	1	1	na				na				na			
358	Steel superstr	All	All	2				Do nothing	na	na	na	Steel superstr	2	0	0	0	na				na				na			
359	Steel superstr	All	All	2				Wash	10	5	1	Steel superstr	2	1	1	1	na				na				na			
360	Steel superstr	All	All	3				Do nothing	na	na	na	Steel superstr	3	0	0	0	na				na				na			
361	Steel superstr	All	All	3				Wash	10	5	1	Steel superstr	3	1	1	1	na				na				na			

Table E-1.9a Catalog of preservation actions

E-9A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
362	Timber superstr	Connection	1020	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
363	Timber superstr	Connection	1020	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
364	Timber superstr	Connection	1020	3	Tighten or nail	na	na	111, 117, 156	3.00	na	na	ft.
365	Timber superstr	Connection	1020	4	Replace connection	na	na	111, 117, 156	10.00	na	na	ft.
366	Timber superstr	Decay/Sectn Loss	1140	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
367	Timber superstr	Decay/Sectn Loss	1140	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
368	Timber superstr	Decay/Sectn Loss	1140	3	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
369	Timber superstr	Decay/Sectn Loss	1140	4	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
370	Timber superstr	Check/Shake	1150	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
371	Timber superstr	Check/Shake	1150	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
372	Timber superstr	Check/Shake	1150	3	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
373	Timber superstr	Check/Shake	1150	4	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
374	Timber superstr	Crack (Timber)	1160	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
375	Timber superstr	Crack (Timber)	1160	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
376	Timber superstr	Crack (Timber)	1160	3	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
377	Timber superstr	Crack (Timber)	1160	4	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
378	Timber superstr	Split/Delamination	1170	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
379	Timber superstr	Split/Delamination	1170	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
380	Timber superstr	Split/Delamination	1170	3	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
381	Timber superstr	Split/Delamination	1170	4	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
382	Timber superstr	Abrasion	1180	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
383	Timber superstr	Abrasion	1180	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
384	Timber superstr	Abrasion	1180	3	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
385	Timber superstr	Abrasion	1180	4	Replace timbers	na	na	111, 117, 156	60.00	na	na	ft.
386	Timber superstr	All	All	1	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
387	Timber superstr	All	All	1	Clean	na	na	111, 117, 156	0.50	na	na	ft.
388	Timber superstr	All	All	2	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
389	Timber superstr	All	All	2	Clean	na	na	111, 117, 156	0.75	na	na	ft.
390	Timber superstr	All	All	3	Do nothing	na	na	111, 117, 156	0.00	na	na	ft.
391	Timber superstr	All	All	3	Clean	na	na	111, 117, 156	1.00	na	na	ft.

Table E-1.9b Impacts of preservation actions

E-9B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
362	Timber superstr	Connection	1020	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
363	Timber superstr	Connection	1020	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
364	Timber superstr	Connection	1020	3	Tighten or nail	Timber superstr	Increase condition state	na	na	na	na	na	na
365	Timber superstr	Connection	1020	4	Replace connection	Timber superstr	Increase condition state	na	na	na	na	na	na
366	Timber superstr	Decay/Sectn Loss	1140	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
367	Timber superstr	Decay/Sectn Loss	1140	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
368	Timber superstr	Decay/Sectn Loss	1140	3	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
369	Timber superstr	Decay/Sectn Loss	1140	4	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
370	Timber superstr	Check/Shake	1150	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
371	Timber superstr	Check/Shake	1150	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
372	Timber superstr	Check/Shake	1150	3	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
373	Timber superstr	Check/Shake	1150	4	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
374	Timber superstr	Crack (Timber)	1160	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
375	Timber superstr	Crack (Timber)	1160	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
376	Timber superstr	Crack (Timber)	1160	3	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
377	Timber superstr	Crack (Timber)	1160	4	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
378	Timber superstr	Split/Delamination	1170	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
379	Timber superstr	Split/Delamination	1170	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
380	Timber superstr	Split/Delamination	1170	3	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
381	Timber superstr	Split/Delamination	1170	4	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
382	Timber superstr	Abrasion	1180	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
383	Timber superstr	Abrasion	1180	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
384	Timber superstr	Abrasion	1180	3	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
385	Timber superstr	Abrasion	1180	4	Replace timbers	Timber superstr	Increase condition state	na	na	na	na	na	na
386	Timber superstr	All	All	1	Do nothing	Timber superstr	None	na	na	na	na	na	na
387	Timber superstr	All	All	1	Clean	Timber superstr	Extend life	na	na	na	na	na	na
388	Timber superstr	All	All	2	Do nothing	Timber superstr	None	na	na	na	na	na	na
389	Timber superstr	All	All	2	Clean	Timber superstr	Extend life	na	na	na	na	na	na
390	Timber superstr	All	All	3	Do nothing	Timber superstr	None	na	na	na	na	na	na
391	Timber superstr	All	All	3	Clean	Timber superstr	Extend life	na	na	na	na	na	na

Table E-1.9c Metrics for preservation actions

E-9C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
362	Timber superstr	Connection	1020	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
363	Timber superstr	Connection	1020	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
364	Timber superstr	Connection	1020	3				Tighten or nail	10	10	10	Timber supers	2	8	7	6	na				na				na			
365	Timber superstr	Connection	1020	4				Replace connection	25	25	25	Timber supers	1	12	10	8	na				na				na			
366	Timber superstr	Decay/Sectn Loss	1140	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
367	Timber superstr	Decay/Sectn Loss	1140	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
368	Timber superstr	Decay/Sectn Loss	1140	3				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
369	Timber superstr	Decay/Sectn Loss	1140	4				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
370	Timber superstr	Check/Shake	1150	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
371	Timber superstr	Check/Shake	1150	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
372	Timber superstr	Check/Shake	1150	3				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
373	Timber superstr	Check/Shake	1150	4				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
374	Timber superstr	Crack (Timber)	1160	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
375	Timber superstr	Crack (Timber)	1160	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
376	Timber superstr	Crack (Timber)	1160	3				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
377	Timber superstr	Crack (Timber)	1160	4				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
378	Timber superstr	Split/Delamination	1170	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
379	Timber superstr	Split/Delamination	1170	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
380	Timber superstr	Split/Delamination	1170	3				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
381	Timber superstr	Split/Delamination	1170	4				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
382	Timber superstr	Abrasion	1180	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
383	Timber superstr	Abrasion	1180	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
384	Timber superstr	Abrasion	1180	3				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
385	Timber superstr	Abrasion	1180	4				Replace timbers	25	21	18	Timber supers	1	25	21	18	na				na				na			
386	Timber superstr	All	All	1				Do nothing	na	na	na	Timber supers	1	0	0	0	na				na				na			
387	Timber superstr	All	All	1				Clean	10	5	1	Timber supers	1	1	1	1	na				na				na			
388	Timber superstr	All	All	2				Do nothing	na	na	na	Timber supers	2	0	0	0	na				na				na			
389	Timber superstr	All	All	2				Clean	10	5	1	Timber supers	2	1	1	1	na				na				na			
390	Timber superstr	All	All	3				Do nothing	na	na	na	Timber supers	3	0	0	0	na				na				na			
391	Timber superstr	All	All	3				Clean	10	5	1	Timber supers	3	1	1	1	na				na				na			

Table E-1.10a Catalog of preservation actions

E-10A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
392	Bearings - elstmrc	Corrosion	1000	1	Do nothing	na	na	310	0.00	na	na	each
393	Bearings - elstmrc	Corrosion	1000	2	Clean & seal	na	na	310	10.00	na	na	each
394	Bearings - elstmrc	Corrosion	1000	3	Clean & seal	na	na	310	20.00	na	na	each
395	Bearings - elstmrc	Corrosion	1000	4	Replace	na	na	310	2500.00	na	na	each
396	Bearings - elstmrc	Connection	1020	1	Do nothing	na	na	310	0.00	na	na	each
397	Bearings - elstmrc	Connection	1020	2	Repair connex	na	na	310	50.00	na	na	each
398	Bearings - elstmrc	Connection	1020	3	Repair connex	na	na	310	100.00	na	na	each
399	Bearings - elstmrc	Connection	1020	4	Replace	na	na	310	2500.00	na	na	each
400	Bearings - elstmrc	Movement	2210	1	Do nothing	na	na	310	0.00	na	na	each
401	Bearings - elstmrc	Movement	2210	2	Do nothing	na	na	310	0.00	na	na	each
402	Bearings - elstmrc	Movement	2210	3	Reset	na	na	310	100.00	na	na	each
403	Bearings - elstmrc	Movement	2210	4	Replace	na	na	310	2500.00	na	na	each
404	Bearings - elstmrc	Alignment	2220	1	Do nothing	na	na	310	0.00	na	na	each
405	Bearings - elstmrc	Alignment	2220	2	Do nothing	na	na	310	0.00	na	na	each
406	Bearings - elstmrc	Alignment	2220	3	Reset	na	na	310	100.00	na	na	each
407	Bearings - elstmrc	Alignment	2220	4	Replace	na	na	310	2500.00	na	na	each
408	Bearings - elstmrc	Blngg/Splting/Terng	2230	1	Do nothing	na	na	310	0.00	na	na	each
409	Bearings - elstmrc	Blngg/Splting/Terng	2230	2	Do nothing	na	na	310	0.00	na	na	each
410	Bearings - elstmrc	Blngg/Splting/Terng	2230	3	Do nothing	na	na	310	0.00	na	na	each
411	Bearings - elstmrc	Blngg/Splting/Terng	2230	4	Replace	na	na	310	2500.00	na	na	each
412	Bearings - elstmrc	Loss of Berg Area	2240	1	Do nothing	na	na	310	0.00	na	na	each
413	Bearings - elstmrc	Loss of Berg Area	2240	2	Do nothing	na	na	310	0.00	na	na	each
414	Bearings - elstmrc	Loss of Berg Area	2240	3	Repair	na	na	310	1000.00	na	na	each
415	Bearings - elstmrc	Loss of Berg Area	2240	4	Replace	na	na	310	2500.00	na	na	each
416	Bearings - elstmrc	All	All	1	Do nothing	na	na	310	0.00	na	na	each
417	Bearings - elstmrc	All	All	1	Clean	na	na	310	10.00	na	na	each
418	Bearings - elstmrc	All	All	2	Do nothing	na	na	310	0.00	na	na	each
419	Bearings - elstmrc	All	All	2	Clean	na	na	310	10.00	na	na	each
420	Bearings - elstmrc	All	All	3	Do nothing	na	na	310	0.00	na	na	each
421	Bearings - elstmrc	All	All	3	Clean	na	na	310	20.00	na	na	each
422	Bearings-fixed/mov	Corrosion	1000	1	Do nothing	na	na	311, 313	0.00	na	na	each
423	Bearings-fixed/mov	Corrosion	1000	2	Clean & Lubricate	na	na	311, 313	200.00	na	na	each
424	Bearings-fixed/mov	Corrosion	1000	3	Clean & Lubricate	na	na	311, 313	250.00	na	na	each
425	Bearings-fixed/mov	Corrosion	1000	4	Replace	na	na	311, 313	4000.00	na	na	each
426	Bearings-fixed/mov	Connection	1020	1	Do nothing	na	na	311, 313	0.00	na	na	each
427	Bearings-fixed/mov	Connection	1020	2	Clean & tighten	na	na	311, 313	200.00	na	na	each
428	Bearings-fixed/mov	Connection	1020	3	Replace connection	na	na	311, 313	1500.00	na	na	each
429	Bearings-fixed/mov	Connection	1020	4	Replace	na	na	311, 313	4000.00	na	na	each
430	Bearings-fixed/mov	Movement	2210	1	Do nothing	na	na	311, 313	0.00	na	na	each
431	Bearings-fixed/mov	Movement	2210	2	Do nothing	na	na	311, 313	0.00	na	na	each
432	Bearings-fixed/mov	Movement	2210	3	Reset	na	na	311, 313	300.00	na	na	each
433	Bearings-fixed/mov	Movement	2210	4	Replace	na	na	311, 313	4000.00	na	na	each
434	Bearings-fixed/mov	Alignment	2220	1	Do nothing	na	na	311, 313	0.00	na	na	each
435	Bearings-fixed/mov	Alignment	2220	2	Do nothing	na	na	311, 313	0.00	na	na	each
436	Bearings-fixed/mov	Alignment	2220	3	Reset	na	na	311, 313	300.00	na	na	each
437	Bearings-fixed/mov	Alignment	2220	4	Replace	na	na	311, 313	4000.00	na	na	each
438	Bearings-fixed/mov	Loss of Bearing Area	2240	1	Do nothing	na	na	311, 313	0.00	na	na	each
439	Bearings-fixed/mov	Loss of Bearing Area	2240	2	Do nothing	na	na	311, 313	0.00	na	na	each
440	Bearings-fixed/mov	Loss of Bearing Area	2240	3	Repair	na	na	311, 313	1500.00	na	na	each
441	Bearings-fixed/mov	Loss of Bearing Area	2240	4	Replace	na	na	311, 313	4000.00	na	na	each
442	Bearings-fixed/mov	All	All	1	Do nothing	na	na	311, 313	0.00	na	na	each
443	Bearings-fixed/mov	All	All	1	Clean/lubricate	na	na	311, 313	200.00	na	na	each
444	Bearings-fixed/mov	All	All	2	Do nothing	na	na	311, 313	0.00	na	na	each
445	Bearings-fixed/mov	All	All	2	Clean/lubricate	na	na	311, 313	250.00	na	na	each
446	Bearings-fixed/mov	All	All	3	Do nothing	na	na	311, 313	0.00	na	na	each
447	Bearings-fixed/mov	All	All	3	Clean/lubricate	na	na	311, 313	300.00	na	na	each

Table E-1.10b Impacts of preservation actions

E-10B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
392	Bearings - elstmr	Corrosion	1000	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
393	Bearings - elstmr	Corrosion	1000	2	Clean & seal	Brgs - elstmr	None	Abut/caps	Extend life	na	na	na	na
394	Bearings - elstmr	Corrosion	1000	3	Clean & seal	Brgs - elstmr	None	Abut/caps	Extend life	na	na	na	na
395	Bearings - elstmr	Corrosion	1000	4	Replace	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
396	Bearings - elstmr	Connection	1020	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
397	Bearings - elstmr	Connection	1020	2	Repair connex	Brgs - elstmr	Extend life	Abut/caps	Extend life	na	na	na	na
398	Bearings - elstmr	Connection	1020	3	Repair connex	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
399	Bearings - elstmr	Connection	1020	4	Replace	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
400	Bearings - elstmr	Movement	2210	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
401	Bearings - elstmr	Movement	2210	2	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
402	Bearings - elstmr	Movement	2210	3	Reset	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
403	Bearings - elstmr	Movement	2210	4	Replace	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
404	Bearings - elstmr	Alignment	2220	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
405	Bearings - elstmr	Alignment	2220	2	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
406	Bearings - elstmr	Alignment	2220	3	Reset	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
407	Bearings - elstmr	Alignment	2220	4	Replace	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
408	Bearings - elstmr	Blngg/Splting/Terng	2230	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
409	Bearings - elstmr	Blngg/Splting/Terng	2230	2	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
410	Bearings - elstmr	Blngg/Splting/Terng	2230	3	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
411	Bearings - elstmr	Blngg/Splting/Terng	2230	4	Replace	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
412	Bearings - elstmr	Loss of Berg Area	2240	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
413	Bearings - elstmr	Loss of Berg Area	2240	2	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
414	Bearings - elstmr	Loss of Berg Area	2240	3	Repair	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
415	Bearings - elstmr	Loss of Berg Area	2240	4	Replace	Brgs - elstmr	Increase condition state	Abut/caps	Extend life	na	na	na	na
416	Bearings - elstmr	All	All	1	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
417	Bearings - elstmr	All	All	1	Clean	Brgs - elstmr	Extend life	Abut/caps	Extend life	na	na	na	na
418	Bearings - elstmr	All	All	2	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
419	Bearings - elstmr	All	All	2	Clean	Brgs - elstmr	Extend life	Abut/caps	Extend life	na	na	na	na
420	Bearings - elstmr	All	All	3	Do nothing	Brgs - elstmr	None	Abut/caps	None	na	na	na	na
421	Bearings - elstmr	All	All	3	Clean	Brgs - elstmr	Extend life	Abut/caps	Extend life	na	na	na	na
422	Bearings-fxd/mov	Corrosion	1000	1	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
423	Bearings-fxd/mov	Corrosion	1000	2	Clean & Lubricate	Brgs-fxd/mv	Extend life	Abut/caps	Extend life	na	na	na	na
424	Bearings-fxd/mov	Corrosion	1000	3	Clean & Lubricate	Brgs-fxd/mv	Extend life	Abut/caps	Extend life	na	na	na	na
425	Bearings-fxd/mov	Corrosion	1000	4	Replace	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
426	Bearings-fxd/mov	Connection	1020	1	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
427	Bearings-fxd/mov	Connection	1020	2	Clean & tighten	Brgs-fxd/mv	Extend life	Abut/caps	Extend life	na	na	na	na
428	Bearings-fxd/mov	Connection	1020	3	Replace connection	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
429	Bearings-fxd/mov	Connection	1020	4	Replace	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
430	Bearings-fxd/mov	Movement	2210	1	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
431	Bearings-fxd/mov	Movement	2210	2	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
432	Bearings-fxd/mov	Movement	2210	3	Reset	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
433	Bearings-fxd/mov	Movement	2210	4	Replace	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
434	Bearings-fxd/mov	Alignment	2220	1	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
435	Bearings-fxd/mov	Alignment	2220	2	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
436	Bearings-fxd/mov	Alignment	2220	3	Reset	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
437	Bearings-fxd/mov	Alignment	2220	4	Replace	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
438	Bearings-fxd/mov	Loss of Bearing Are	2240	1	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
439	Bearings-fxd/mov	Loss of Bearing Are	2240	2	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
440	Bearings-fxd/mov	Loss of Bearing Are	2240	3	Repair	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
441	Bearings-fxd/mov	Loss of Bearing Are	2240	4	Replace	Brgs-fxd/mv	Increase condition state	Abut/caps	Extend life	na	na	na	na
442	Bearings-fxd/mov	All	All	1	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
443	Bearings-fxd/mov	All	All	1	Clean/lubricate	Brgs-fxd/mv	Extend life	Abut/caps	Extend life	na	na	na	na
444	Bearings-fxd/mov	All	All	2	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
445	Bearings-fxd/mov	All	All	2	Clean/lubricate	Brgs-fxd/mv	Extend life	Abut/caps	Extend life	na	na	na	na
446	Bearings-fxd/mov	All	All	3	Do nothing	Brgs-fxd/mv	None	Abut/caps	None	na	na	na	na
447	Bearings-fxd/mov	All	All	3	Clean/lubricate	Brgs-fxd/mv	Extend life	Abut/caps	Extend life	na	na	na	na

Table E-1.10c Metrics for preservation actions

E-10C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
392	Bearings - elstmrc	Corrosion	1000	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
393	Bearings - elstmrc	Corrosion	1000	2				Do nothing	na	na	na	Brngs - elstmrc	2	0	0	0	Abut/caps	0	0	0	na				na			
394	Bearings - elstmrc	Corrosion	1000	3				Repair	40	30	20	Brngs - elstmrc	2	15	10	5	Abut/caps	0	0	0	na				na			
395	Bearings - elstmrc	Corrosion	1000	4				Replace	50	40	30	Brngs - elstmrc	1	50	40	30	Abut/caps	0	0	0	na				na			
396	Bearings - elstmrc	Connection	1020	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
397	Bearings - elstmrc	Connection	1020	2				Repair connex	40	30	20	Brngs - elstmrc	1	6	6	6	Abut/caps	6	6	6	na				na			
398	Bearings - elstmrc	Connection	1020	3				Repair connex	40	30	20	Brngs - elstmrc	1	6	6	6	Abut/caps	6	6	6	na				na			
399	Bearings - elstmrc	Connection	1020	4				Replace	50	40	30	Brngs - elstmrc	1	50	40	30	Abut/caps	10	10	8	na				na			
400	Bearings - elstmrc	Movement	2210	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
401	Bearings - elstmrc	Movement	2210	2				Do nothing	na	na	na	Brngs - elstmrc	2	0	0	0	Abut/caps	0	0	0	na				na			
402	Bearings - elstmrc	Movement	2210	3				Reset	na	na	na	Brngs - elstmrc	1	8	8	8	Abut/caps	0	0	0	na				na			
403	Bearings - elstmrc	Movement	2210	4				Replace	50	40	30	Brngs - elstmrc	1	50	40	30	Abut/caps	10	10	8	na				na			
404	Bearings - elstmrc	Alignment	2220	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
405	Bearings - elstmrc	Alignment	2220	2				Do nothing	na	na	na	Brngs - elstmrc	2	0	0	0	Abut/caps	0	0	0	na				na			
406	Bearings - elstmrc	Alignment	2220	3				Reset	na	na	na	Brngs - elstmrc	1	8	8	8	Abut/caps	4	4	4	na				na			
407	Bearings - elstmrc	Alignment	2220	4				Replace	50	40	30	Brngs - elstmrc	1	50	40	30	Abut/caps	10	10	8	na				na			
408	Bearings - elstmrc	Blngg/Splting/Terng	2230	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
409	Bearings - elstmrc	Blngg/Splting/Terng	2230	2				Do nothing	na	na	na	Brngs - elstmrc	2	0	0	0	Abut/caps	0	0	0	na				na			
410	Bearings - elstmrc	Blngg/Splting/Terng	2230	3				Do nothing	na	na	na	Brngs - elstmrc	3	0	0	0	Abut/caps	0	0	0	na				na			
411	Bearings - elstmrc	Blngg/Splting/Terng	2230	4				Replace	50	40	30	Brngs - elstmrc	1	50	40	30	Abut/caps	0	0	0	na				na			
412	Bearings - elstmrc	Loss of Bering Area	2240	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
413	Bearings - elstmrc	Loss of Bering Area	2240	2				Do nothing	na	na	na	Brngs - elstmrc	2	0	0	0	Abut/caps	0	0	0	na				na			
414	Bearings - elstmrc	Loss of Bering Area	2240	3				Repair	na	na	na	Brngs - elstmrc	1	40	30	20	Abut/caps	10	10	8	na				na			
415	Bearings - elstmrc	Loss of Bering Area	2240	4				Replace	50	40	30	Brngs - elstmrc	1	50	40	30	Abut/caps	10	10	8	na				na			
416	Bearings - elstmrc	All	All	1				Do nothing	na	na	na	Brngs - elstmrc	1	0	0	0	Abut/caps	0	0	0	na				na			
417	Bearings - elstmrc	All	All	1				Clean	10	5	1	Brngs - elstmrc	1	1	1	1	Abut/caps	1	1	1	na				na			
418	Bearings - elstmrc	All	All	2				Do nothing	na	na	na	Brngs - elstmrc	2	0	0	0	Abut/caps	0	0	0	na				na			
419	Bearings - elstmrc	All	All	2				Clean	10	5	1	Brngs - elstmrc	2	1	1	1	Abut/caps	1	1	1	na				na			
420	Bearings - elstmrc	All	All	3				Do nothing	na	na	na	Brngs - elstmrc	3	0	0	0	Abut/caps	0	0	0	na				na			
421	Bearings - elstmrc	All	All	3				Clean	10	5	1	Brngs - elstmrc	3	1	1	1	Abut/caps	1	1	1	na				na			
422	Bearings-fxd/mov	Corrosion	1000	1				Do nothing	na	na	na	Brngs-fxd/mv	1	0	0	0	Abut/caps	0	0	0	na				na			
423	Bearings-fxd/mov	Corrosion	1000	2				Clean/Lub/Paint	20	15	10	Brngs-fxd/mv	1	15	10	5	Abut/caps	0	0	0	na				na			
424	Bearings-fxd/mov	Corrosion	1000	3				Clean/Lub/Paint	20	15	10	Brngs-fxd/mv	1	15	10	5	Abut/caps	0	0	0	na				na			
425	Bearings-fxd/mov	Corrosion	1000	4				Replace	50	45	40	Brngs-fxd/mv	1	50	40	30	Abut/caps	0	0	0	na				na			
426	Bearings-fxd/mov	Connection	1020	1				Do nothing	na	na	na	Brngs-fxd/mv	1	0	0	0	Abut/caps	0	0	0	na				na			
427	Bearings-fxd/mov	Connection	1020	2				Clean & tighten	20	15	10	Brngs-fxd/mv	1	6	6	6	Abut/caps	6	6	6	na				na			
428	Bearings-fxd/mov	Connection	1020	3				Replace connection	na	na	na	Brngs-fxd/mv	1	6	6	6	Abut/caps	6	6	6	na				na			
429	Bearings-fxd/mov	Connection	1020	4				Replace	50	45	40	Brngs-fxd/mv	1	50	40	30	Abut/caps	10	10	8	na				na			
430	Bearings-fxd/mov	Movement	2210	1				Do nothing	na	na	na	Brngs-fxd/mv	1	0	0	0	Abut/caps	0	0	0	na				na			
431	Bearings-fxd/mov	Movement	2210	2				Do nothing	na	na	na	Brngs-fxd/mv	2	0	0	0	Abut/caps	0	0	0	na				na			
432	Bearings-fxd/mov	Movement	2210	3				Reset	na	na	na	Brngs-fxd/mv	1	8	8	8	Abut/caps	0	0	0	na				na			
433	Bearings-fxd/mov	Movement	2210	4				Replace	50	45	40	Brngs-fxd/mv	1	50	40	30	Abut/caps	10	10	8	na				na			
434	Bearings-fxd/mov	Alignment	2220	1				Do nothing	na	na	na	Brngs-fxd/mv	1	0	0	0	Abut/caps	0	0	0	na				na			
435	Bearings-fxd/mov	Alignment	2220	2				Do nothing	na	na	na	Brngs-fxd/mv	2	0	0	0	Abut/caps	0	0	0	na				na			
436	Bearings-fxd/mov	Alignment	2220	3				Reset	na	na	na	Brngs-fxd/mv	1	8	8	8	Abut/caps	4	4	4	na				na			
437	Bearings-fxd/mov	Alignment	2220	4				Replace	50	45	40	Brngs-fxd/mv	1	50	40	30	Abut/caps	10	10	8	na				na			
438	Bearings-fxd/mov	Loss of Bearing Area	2240	1				Do nothing	na	na	na	Brngs-fxd/mv	1	0	0	0	Abut/caps	0	0	0	na				na			
439	Bearings-fxd/mov	Loss of Bearing Area	2240	2				Do nothing	na	na	na	Brngs-fxd/mv	2	0	0	0	Abut/caps	0	0	0	na				na			
440	Bearings-fxd/mov	Loss of Bearing Area	2240	3				Repair	na	na	na	Brngs-fxd/mv	1	40	30	20	Abut/caps	10	10	8	na				na			
441	Bearings-fxd/mov	Loss of Bearing Area	2240	4				Replace	50	45	40	Brngs-fxd/mv	1	50	40	30	Abut/caps	10	10	8	na				na			
442	Bearings-fxd/mov	All	All	1				Do nothing	na	na	na	Brngs-fxd/mv	1	0	0	0	Abut/caps	0	0	0	na				na			
443	Bearings-fxd/mov	All	All	1				Clean/Lub/Paint	20	15	10	Brngs-fxd/mv	1	20	15	10	Abut/caps	5	4	3	na				na			
444	Bearings-fxd/mov	All	All	2				Do nothing	na	na	na	Brngs-fxd/mv	2	0	0	0	Abut/caps	0	0	0	na				na			
445	Bearings-fxd/mov	All	All	2				Clean/Lub/Paint	15	12	8	Brngs-fxd/mv	1	15	12	8	Abut/caps	6	5	4	na				na			
446	Bearings-fxd/mov	All	All	3				Do nothing	na	na	na	Brngs-fxd/mv	3	0	0	0	Abut/caps	0	0	0	na				na			
447	Bearings-fxd/mov	All	All	3				Clean/Lub/Paint	14	10	6	Brngs-fxd/mv	1	14	10	6	Abut/caps	7	6	5	na				na			

Table E-1.11a Catalog of preservation actions

E-11A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
448	Conc-R/C sbst col	Dlm/Sp/Pl/Ptch	1080	1	Do nothing	na	na	na	na	205	0.00	each
449	Conc-R/C sbst col	Dlm/Sp/Pl/Ptch	1080	2	Clean and patch	na	na	na	na	205	500.00	each
450	Conc-R/C sbst col	Dlm/Sp/Pl/Ptch	1080	3	Clean and patch	na	na	na	na	205	1000.00	each
451	Conc-R/C sbst col	Dlm/Sp/Pl/Ptch	1080	4	Replace	na	na	na	na	205	25000.00	each
452	Conc-R/C sbst col	Exposed Rebar	1090	1	Do nothing	na	na	na	na	205	0.00	each
453	Conc-R/C sbst col	Exposed Rebar	1090	2	Clean and patch	na	na	na	na	205	500.00	each
454	Conc-R/C sbst col	Exposed Rebar	1090	3	Clean and patch	na	na	na	na	205	5000.00	each
455	Conc-R/C sbst col	Exposed Rebar	1090	4	Replace	na	na	na	na	205	25000.00	each
456	Conc-R/C sbst col	Efflor/Rust Stain	1120	1	Do nothing	na	na	na	na	205	0.00	each
457	Conc-R/C sbst col	Efflor/Rust Stain	1120	2	Seal cracks	na	na	na	na	205	200.00	each
458	Conc-R/C sbst col	Efflor/Rust Stain	1120	3	Seal cracks	na	na	na	na	205	300.00	each
459	Conc-R/C sbst col	Efflor/Rust Stain	1120	4	Replace	na	na	na	na	205	25000.00	each
460	Conc-R/C sbst col	Cracking	1130	1	Do nothing	na	na	na	na	205	0.00	each
461	Conc-R/C sbst col	Cracking	1130	2	Seal cracks	na	na	na	na	205	200.00	each
462	Conc-R/C sbst col	Cracking	1130	3	Repair and seal	na	na	na	na	205	2500.00	each
463	Conc-R/C sbst col	Cracking	1130	4	Replace	na	na	na	na	205	25000.00	each
464	Conc-R/C sbst col	All	All	1	Do nothing	na	na	na	na	205	0.00	each
465	Conc-R/C sbst col	All	All	1	Wash	na	na	na	na	205	30.00	each
466	Conc-R/C sbst col	All	All	1	Seal	na	na	na	na	205	300.00	each
467	Conc-R/C sbst col	All	All	2	Do nothing	na	na	na	na	205	0.00	each
468	Conc-R/C sbst col	All	All	2	Wash	na	na	na	na	205	30.00	each
469	Conc-R/C sbst col	All	All	2	Seal	na	na	na	na	205	300.00	each
470	Conc-R/C sbst col	All	All	3	Do nothing	na	na	na	na	205	0.00	each
471	Conc-R/C sbst col	All	All	3	Wash	na	na	na	na	205	30.00	each
472	Conc-R/C sbst col	All	All	3	Seal	na	na	na	na	205	300.00	each
473	Conc-R/C sbst abut/cps	Dlm/Sp/Pl/Ptch	1080	1	Do nothing	na	na	na	na	215, 234	0.00	ft.
474	Conc-R/C sbst abut/cps	Dlm/Sp/Pl/Ptch	1080	2	Clean and patch	na	na	na	na	215, 234	70.00	ft.
475	Conc-R/C sbst abut/cps	Dlm/Sp/Pl/Ptch	1080	3	Clean and patch	na	na	na	na	215, 234	70.00	ft.
476	Conc-R/C sbst abut/cps	Dlm/Sp/Pl/Ptch	1080	4	Replace	na	na	na	na	215, 234	5000.00	ft.
477	Conc-R/C sbst abut/cps	Exposed Rebar	1090	1	Do nothing	na	na	na	na	215, 234	0.00	ft.
478	Conc-R/C sbst abut/cps	Exposed Rebar	1090	2	Clean and patch	na	na	na	na	215, 234	150.00	ft.
479	Conc-R/C sbst abut/cps	Exposed Rebar	1090	3	Clean and patch	na	na	na	na	215, 234	200.00	ft.
480	Conc-R/C sbst abut/cps	Exposed Rebar	1090	4	Replace	na	na	na	na	215, 234	5000.00	ft.
481	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	1	Do nothing	na	na	na	na	215, 234	0.00	ft.
482	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	2	Seal cracks	na	na	na	na	215, 234	10.00	ft.
483	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	3	Seal cracks	na	na	na	na	215, 234	15.00	ft.
484	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	4	Replace	na	na	na	na	215, 234	5000.00	ft.
485	Conc-R/C sbst abut/cps	Cracking	1130	1	Do nothing	na	na	na	na	215, 234	0.00	ft.
486	Conc-R/C sbst abut/cps	Cracking	1130	2	Seal cracks	na	na	na	na	215, 234	10.00	ft.
487	Conc-R/C sbst abut/cps	Cracking	1130	3	Seal cracks	na	na	na	na	215, 234	15.00	ft.
488	Conc-R/C sbst abut/cps	Cracking	1130	4	Replace	na	na	na	na	215, 234	5000.00	ft.
489	Conc-R/C sbst abut/cps	All	All	1	Do nothing	na	na	na	na	215, 234	0.00	ft.
490	Conc-R/C sbst abut/cps	All	All	1	Wash	na	na	na	na	215, 234	2.00	ft.
491	Conc-R/C sbst abut/cps	All	All	1	Seal	na	na	na	na	215, 234	12.00	ft.
492	Conc-R/C sbst abut/cps	All	All	2	Do nothing	na	na	na	na	215, 234	0.00	ft.
493	Conc-R/C sbst abut/cps	All	All	2	Wash	na	na	na	na	215, 234	2.00	ft.
494	Conc-R/C sbst abut/cps	All	All	2	Seal	na	na	na	na	215, 234	12.00	ft.
495	Conc-R/C sbst abut/cps	All	All	3	Do nothing	na	na	na	na	215, 234	0.00	ft.
496	Conc-R/C sbst abut/cps	All	All	3	Wash	na	na	na	na	215, 234	2.00	ft.
497	Conc-R/C sbst abut/cps	All	All	3	Seal	na	na	na	na	215, 234	12.00	ft.

Table E-1.11b Impacts of preservation actions

E-11B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
448	Conc-R/C sbst col	Dlm/Spill/Ptch	1080	1	Do nothing	R/C sbst col	None	na	na	na	na	na	na
449	Conc-R/C sbst col	Dlm/Spill/Ptch	1080	2	Clean and patch	R/C sbst col	Extend life	na	na	na	na	na	na
450	Conc-R/C sbst col	Dlm/Spill/Ptch	1080	3	Clean and patch	R/C sbst col	Increase condition state	na	na	na	na	na	na
451	Conc-R/C sbst col	Dlm/Spill/Ptch	1080	4	Replace	R/C sbst col	Increase condition state	na	na	na	na	na	na
452	Conc-R/C sbst col	Exposed Rebar	1090	1	Do nothing	R/C sbst col	None	na	na	na	na	na	na
453	Conc-R/C sbst col	Exposed Rebar	1090	2	Clean and patch	R/C sbst col	Extend life	na	na	na	na	na	na
454	Conc-R/C sbst col	Exposed Rebar	1090	3	Clean and patch	R/C sbst col	Increase condition state	na	na	na	na	na	na
455	Conc-R/C sbst col	Exposed Rebar	1090	4	Replace	R/C sbst col	Increase condition state	na	na	na	na	na	na
456	Conc-R/C sbst col	Efflor/Rust Stain	1120	1	Do nothing	R/C sbst col	None	na	na	na	na	na	na
457	Conc-R/C sbst col	Efflor/Rust Stain	1120	2	Seal cracks	R/C sbst col	Extend life	na	na	na	na	na	na
458	Conc-R/C sbst col	Efflor/Rust Stain	1120	3	Seal cracks	R/C sbst col	Extend life	na	na	na	na	na	na
459	Conc-R/C sbst col	Efflor/Rust Stain	1120	4	Replace	R/C sbst col	Increase condition state	na	na	na	na	na	na
460	Conc-R/C sbst col	Cracking	1130	1	Do nothing	R/C sbst col	None	na	na	na	na	na	na
461	Conc-R/C sbst col	Cracking	1130	2	Seal cracks	R/C sbst col	Extend life	na	na	na	na	na	na
462	Conc-R/C sbst col	Cracking	1130	3	Repair and seal	R/C sbst col	Extend life	na	na	na	na	na	na
463	Conc-R/C sbst col	Cracking	1130	4	Replace	R/C sbst col	Increase condition state	na	na	na	na	na	na
464	Conc-R/C sbst col	All	All	1	Do nothing	R/C sbst col	None	na	na	na	na	na	na
465	Conc-R/C sbst col	All	All	1	Wash	R/C sbst col	Extend life	na	na	na	na	na	na
466	Conc-R/C sbst col	All	All	1	Seal	R/C sbst col	Extend life	na	na	na	na	na	na
467	Conc-R/C sbst col	All	All	2	Do nothing	R/C sbst col	None	na	na	na	na	na	na
468	Conc-R/C sbst col	All	All	2	Wash	R/C sbst col	Extend life	na	na	na	na	na	na
469	Conc-R/C sbst col	All	All	2	Seal	R/C sbst col	Extend life	na	na	na	na	na	na
470	Conc-R/C sbst col	All	All	3	Do nothing	R/C sbst col	None	na	na	na	na	na	na
471	Conc-R/C sbst col	All	All	3	Wash	R/C sbst col	Extend life	na	na	na	na	na	na
472	Conc-R/C sbst col	All	All	3	Seal	R/C sbst col	Extend life	na	na	na	na	na	na
473	Conc-R/C sbst abut/cps	Dlm/Spill/Ptch	1080	1	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
474	Conc-R/C sbst abut/cps	Dlm/Spill/Ptch	1080	2	Clean and patch	R/C abut/cps	Extend life	na	na	na	na	na	na
475	Conc-R/C sbst abut/cps	Dlm/Spill/Ptch	1080	3	Clean and patch	R/C abut/cps	Increase condition state	na	na	na	na	na	na
476	Conc-R/C sbst abut/cps	Dlm/Spill/Ptch	1080	4	Replace	R/C abut/cps	Increase condition state	na	na	na	na	na	na
477	Conc-R/C sbst abut/cps	Exposed Rebar	1090	1	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
478	Conc-R/C sbst abut/cps	Exposed Rebar	1090	2	Clean and patch	R/C abut/cps	Extend life	na	na	na	na	na	na
479	Conc-R/C sbst abut/cps	Exposed Rebar	1090	3	Clean and patch	R/C abut/cps	Increase condition state	na	na	na	na	na	na
480	Conc-R/C sbst abut/cps	Exposed Rebar	1090	4	Replace	R/C abut/cps	Increase condition state	na	na	na	na	na	na
481	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	1	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
482	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	2	Seal cracks	R/C abut/cps	Extend life	na	na	na	na	na	na
483	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	3	Seal cracks	R/C abut/cps	Extend life	na	na	na	na	na	na
484	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	4	Replace	R/C abut/cps	Increase condition state	na	na	na	na	na	na
485	Conc-R/C sbst abut/cps	Cracking	1130	1	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
486	Conc-R/C sbst abut/cps	Cracking	1130	2	Seal cracks	R/C abut/cps	Extend life	na	na	na	na	na	na
487	Conc-R/C sbst abut/cps	Cracking	1130	3	Seal cracks	R/C abut/cps	Extend life	na	na	na	na	na	na
488	Conc-R/C sbst abut/cps	Cracking	1130	4	Replace	R/C abut/cps	Increase condition state	na	na	na	na	na	na
489	Conc-R/C sbst abut/cps	All	All	1	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
490	Conc-R/C sbst abut/cps	All	All	1	Wash	R/C abut/cps	Extend life	na	na	na	na	na	na
491	Conc-R/C sbst abut/cps	All	All	1	Seal	R/C abut/cps	Extend life	na	na	na	na	na	na
492	Conc-R/C sbst abut/cps	All	All	2	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
493	Conc-R/C sbst abut/cps	All	All	2	Wash	R/C abut/cps	Extend life	na	na	na	na	na	na
494	Conc-R/C sbst abut/cps	All	All	2	Seal	R/C abut/cps	Extend life	na	na	na	na	na	na
495	Conc-R/C sbst abut/cps	All	All	3	Do nothing	R/C abut/cps	None	na	na	na	na	na	na
496	Conc-R/C sbst abut/cps	All	All	3	Wash	R/C abut/cps	Extend life	na	na	na	na	na	na
497	Conc-P/S sbstr cols	All	All	3	Seal	R/C abut/cps	Extend life	na	na	na	na	na	na

Table E-1.11c Metrics for preservation actions

E-11C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
448	Conc-R/C sbst col	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	R/C sbst col	1	0	0	0	na				na				na			
449	Conc-R/C sbst col	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	R/C sbst col	2	10	8	6	na				na				na			
450	Conc-R/C sbst col	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	R/C sbst col	2	8	6	4	na				na				na			
451	Conc-R/C sbst col	Dim/Spill/Ptch	1080	4				Replace	50	40	30	R/C sbst col	1	50	40	30	na				na				na			
452	Conc-R/C sbst col	Exposed Rebar	1090	1				Do nothing	na	na	na	R/C sbst col	1	0	0	0	na				na				na			
453	Conc-R/C sbst col	Exposed Rebar	1090	2				Clean and patch	20	14	8	R/C sbst col	2	10	8	6	na				na				na			
454	Conc-R/C sbst col	Exposed Rebar	1090	3				Clean and patch	20	14	8	R/C sbst col	2	8	6	4	na				na				na			
455	Conc-R/C sbst col	Exposed Rebar	1090	4				Replace	50	40	30	R/C sbst col	1	50	40	30	na				na				na			
456	Conc-R/C sbst col	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	R/C sbst col	1	0	0	0	na				na				na			
457	Conc-R/C sbst col	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	R/C sbst col	2	16	10	6	na				na				na			
458	Conc-R/C sbst col	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	R/C sbst col	2	16	10	6	na				na				na			
459	Conc-R/C sbst col	Efflor/Rust Stain	1120	4				Replace	50	40	30	R/C sbst col	1	50	40	30	na				na				na			
460	Conc-R/C sbst col	Cracking	1130	1				Do nothing	na	na	na	R/C sbst col	1	0	0	0	na				na				na			
461	Conc-R/C sbst col	Cracking	1130	2				Seal cracks	20	14	8	R/C sbst col	2	16	10	6	na				na				na			
462	Conc-R/C sbst col	Cracking	1130	3				Seal cracks	20	14	8	R/C sbst col	2	16	10	6	na				na				na			
463	Conc-R/C sbst col	Cracking	1130	4				Replace	50	40	30	R/C sbst col	1	50	40	30	na				na				na			
464	Conc-R/C sbst col	All	All	1				Do nothing	na	na	na	R/C sbst col	1	0	0	0	na				na				na			
465	Conc-R/C sbst col	All	All	1				Wash	10	4	1	R/C sbst col	1	1	1	1	na				na				na			
466	Conc-R/C sbst col	All	All	1				Seal	15	10	5	R/C sbst col	1	8	5	3	na				na				na			
467	Conc-R/C sbst col	All	All	2				Do nothing	na	na	na	R/C sbst col	2	0	0	0	na				na				na			
468	Conc-R/C sbst col	All	All	2				Wash	10	4	1	R/C sbst col	2	1	1	1	na				na				na			
469	Conc-R/C sbst col	All	All	2				Seal	15	10	5	R/C sbst col	2	6	4	2	na				na				na			
470	Conc-R/C sbst col	All	All	3				Do nothing	na	na	na	R/C sbst col	3	0	0	0	na				na				na			
471	Conc-R/C sbst col	All	All	3				Wash	10	4	1	R/C sbst col	3	1	1	1	na				na				na			
472	Conc-R/C sbst col	All	All	3				Seal	15	10	5	R/C sbst col	3	5	3	2	na				na				na			
473	Conc-R/C sbst abut/cps	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	R/C abut/cps	1	0	0	0	na				na				na			
474	Conc-R/C sbst abut/cps	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	R/C abut/cps	2	10	8	6	na				na				na			
475	Conc-R/C sbst abut/cps	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	R/C abut/cps	2	8	6	4	na				na				na			
476	Conc-R/C sbst abut/cps	Dim/Spill/Ptch	1080	4				Replace	50	40	30	R/C abut/cps	1	50	40	30	na				na				na			
477	Conc-R/C sbst abut/cps	Exposed Rebar	1090	1				Do nothing	na	na	na	R/C abut/cps	1	0	0	0	na				na				na			
478	Conc-R/C sbst abut/cps	Exposed Rebar	1090	2				Clean and patch	20	14	8	R/C abut/cps	2	10	8	6	na				na				na			
479	Conc-R/C sbst abut/cps	Exposed Rebar	1090	3				Clean and patch	20	14	8	R/C abut/cps	2	8	6	4	na				na				na			
480	Conc-R/C sbst abut/cps	Exposed Rebar	1090	4				Replace	50	40	30	R/C abut/cps	1	50	40	30	na				na				na			
481	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	R/C abut/cps	1	0	0	0	na				na				na			
482	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	R/C abut/cps	2	16	10	6	na				na				na			
483	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	R/C abut/cps	2	16	10	6	na				na				na			
484	Conc-R/C sbst abut/cps	Efflor/Rust Stain	1120	4				Replace	50	40	30	R/C abut/cps	1	50	40	30	na				na				na			
485	Conc-R/C sbst abut/cps	Cracking	1130	1				Do nothing	na	na	na	R/C abut/cps	1	0	0	0	na				na				na			
486	Conc-R/C sbst abut/cps	Cracking	1130	2				Seal cracks	20	14	8	R/C abut/cps	2	16	10	6	na				na				na			
487	Conc-R/C sbst abut/cps	Cracking	1130	3				Seal cracks	20	14	8	R/C abut/cps	2	16	10	6	na				na				na			
488	Conc-R/C sbst abut/cps	Cracking	1130	4				Replace	50	40	30	R/C abut/cps	1	50	40	30	na				na				na			
489	Conc-R/C sbst abut/cps	All	All	1				Do nothing	na	na	na	R/C abut/cps	1	0	0	0	na				na				na			
490	Conc-R/C sbst abut/cps	All	All	1				Wash	10	4	1	R/C abut/cps	1	1	1	1	na				na				na			
491	Conc-R/C sbst abut/cps	All	All	1				Seal	15	10	5	R/C abut/cps	1	8	5	3	na				na				na			
492	Conc-R/C sbst abut/cps	All	All	2				Do nothing	na	na	na	R/C abut/cps	2	0	0	0	na				na				na			
493	Conc-R/C sbst abut/cps	All	All	2				Wash	10	4	1	R/C abut/cps	2	1	1	1	na				na				na			
494	Conc-R/C sbst abut/cps	All	All	2				Seal	15	10	5	R/C abut/cps	2	6	4	2	na				na				na			
495	Conc-R/C sbst abut/cps	All	All	3				Do nothing	na	na	na	R/C abut/cps	3	0	0	0	na				na				na			
496	Conc-R/C sbst abut/cps	All	All	3				Wash	10	4	1	R/C abut/cps	3	1	1	1	na				na				na			
497	Conc-P/S sbstr cools	All	All	3				Seal	15	10	5	R/C abut/cps	3	5	3	2	na				na				na			

Table E-1.12a Catalog of preservation actions

E-12A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
498	Conc-P/S sbstr cols	Dlm/Spl/Ptch	1080	1	Do nothing	na	na	na	na	204	0.00	each
499	Conc-P/S sbstr cols	Dlm/Spl/Ptch	1080	2	Clean and patch	na	na	na	na	204	70.00	each
500	Conc-P/S sbstr cols	Dlm/Spl/Ptch	1080	3	Clean and patch	na	na	na	na	204	70.00	each
501	Conc-P/S sbstr cols	Dlm/Spl/Ptch	1080	4	Replace	na	na	na	na	204	5000.00	each
502	Conc-P/S sbstr cols	Exposed Rebar	1090	1	Do nothing	na	na	na	na	204	0.00	each
503	Conc-P/S sbstr cols	Exposed Rebar	1090	2	Clean and patch	na	na	na	na	204	150.00	each
504	Conc-P/S sbstr cols	Exposed Rebar	1090	3	Clean and patch	na	na	na	na	204	200.00	each
505	Conc-P/S sbstr cols	Exposed Rebar	1090	4	Replace	na	na	na	na	204	5000.00	each
506	Conc-P/S sbstr cols	Expsd Prestressng	1100	1	Do nothing	na	na	na	na	204	0.00	each
507	Conc-P/S sbstr cols	Expsd Prestressng	1100	2	Clean and patch	na	na	na	na	204	250.00	each
508	Conc-P/S sbstr cols	Expsd Prestressng	1100	3	Clean and patch	na	na	na	na	204	400.00	each
509	Conc-P/S sbstr cols	Expsd Prestressng	1100	4	Replace	na	na	na	na	204	5000.00	each
510	Conc-P/S sbstr cols	Cracking (PSC)	1110	1	Do nothing	na	na	na	na	204	0.00	each
511	Conc-P/S sbstr cols	Cracking (PSC)	1110	2	Seal cracks	na	na	na	na	204	10.00	each
512	Conc-P/S sbstr cols	Cracking (PSC)	1110	3	Seal cracks	na	na	na	na	204	15.00	each
513	Conc-P/S sbstr cols	Cracking (PSC)	1110	4	Replace	na	na	na	na	204	5000.00	each
514	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	1	Do nothing	na	na	na	na	204	0.00	each
515	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	2	Seal cracks	na	na	na	na	204	10.00	each
516	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	3	Seal cracks	na	na	na	na	204	15.00	each
517	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	4	Replace	na	na	na	na	204	5000.00	each
518	Conc-P/S sbstr cols	All	All	1	Do nothing	na	na	na	na	204	0.00	each
519	Conc-P/S sbstr cols	All	All	1	Wash	na	na	na	na	204	30.00	each
520	Conc-P/S sbstr cols	All	All	1	Seal	na	na	na	na	204	300.00	each
521	Conc-P/S sbstr cols	All	All	2	Do nothing	na	na	na	na	204	0.00	each
522	Conc-P/S sbstr cols	All	All	2	Wash	na	na	na	na	204	30.00	each
523	Conc-P/S sbstr cols	All	All	2	Seal	na	na	na	na	204	300.00	each
524	Conc-P/S sbstr cols	All	All	3	Do nothing	na	na	na	na	204	0.00	each
525	Conc-P/S sbstr cols	All	All	3	Wash	na	na	na	na	204	30.00	each
526	Conc-P/S sbstr cols	All	All	3	Seal	na	na	na	na	204	300.00	each
527	Conc-P/S sbstr cps	Dlm/Spl/Ptch	1080	1	Do nothing	na	na	na	na	233	0.00	ft.
528	Conc-P/S sbstr cps	Dlm/Spl/Ptch	1080	2	Clean and patch	na	na	na	na	233	70.00	ft.
529	Conc-P/S sbstr cps	Dlm/Spl/Ptch	1080	3	Clean and patch	na	na	na	na	233	70.00	ft.
530	Conc-P/S sbstr cps	Dlm/Spl/Ptch	1080	4	Replace	na	na	na	na	233	5000.00	ft.
531	Conc-P/S sbstr cps	Exposed Rebar	1090	1	Do nothing	na	na	na	na	233	0.00	ft.
532	Conc-P/S sbstr cps	Exposed Rebar	1090	2	Clean and patch	na	na	na	na	233	150.00	ft.
533	Conc-P/S sbstr cps	Exposed Rebar	1090	3	Clean and patch	na	na	na	na	233	200.00	ft.
534	Conc-P/S sbstr cps	Exposed Rebar	1090	4	Replace	na	na	na	na	233	5000.00	ft.
535	Conc-P/S sbstr cps	Expsd Prestressng	1100	1	Do nothing	na	na	na	na	233	0.00	ft.
536	Conc-P/S sbstr cps	Expsd Prestressng	1100	2	Clean and patch	na	na	na	na	233	250.00	ft.
537	Conc-P/S sbstr cps	Expsd Prestressng	1100	3	Clean and patch	na	na	na	na	233	400.00	ft.
538	Conc-P/S sbstr cps	Expsd Prestressng	1100	4	Replace	na	na	na	na	233	5000.00	ft.
539	Conc-P/S sbstr cps	Cracking (PSC)	1110	1	Do nothing	na	na	na	na	233	0.00	ft.
540	Conc-P/S sbstr cps	Cracking (PSC)	1110	2	Seal cracks	na	na	na	na	233	10.00	ft.
541	Conc-P/S sbstr cps	Cracking (PSC)	1110	3	Seal cracks	na	na	na	na	233	15.00	ft.
542	Conc-P/S sbstr cps	Cracking (PSC)	1110	4	Replace	na	na	na	na	233	5000.00	ft.
543	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	1	Do nothing	na	na	na	na	233	0.00	ft.
544	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	2	Seal cracks	na	na	na	na	233	10.00	ft.
545	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	3	Seal cracks	na	na	na	na	233	15.00	ft.
546	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	4	Replace	na	na	na	na	233	5000.00	ft.
547	Conc-P/S sbstr cps	All	All	1	Do nothing	na	na	na	na	233	0.00	ft.
548	Conc-P/S sbstr cps	All	All	1	Wash	na	na	na	na	233	30.00	ft.
549	Conc-P/S sbstr cps	All	All	1	Seal	na	na	na	na	233	300.00	ft.
550	Conc-P/S sbstr cps	All	All	2	Do nothing	na	na	na	na	233	0.00	ft.
551	Conc-P/S sbstr cps	All	All	2	Wash	na	na	na	na	233	30.00	ft.
552	Conc-P/S sbstr cps	All	All	2	Seal	na	na	na	na	233	300.00	ft.
553	Conc-P/S sbstr cps	All	All	3	Do nothing	na	na	na	na	233	0.00	ft.
554	Conc-P/S sbstr cps	All	All	3	Wash	na	na	na	na	233	30.00	ft.
555	Conc-P/S sbstr cps	All	All	3	Seal	na	na	na	na	233	300.00	ft.

Table E-1.12b Impacts of preservation actions

E-12B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
498	Conc-P/S sbstr cols	Dlm/Spill/Ptch	1080	1	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
499	Conc-P/S sbstr cols	Dlm/Spill/Ptch	1080	2	Clean and patch	P/S sbstr cols	Extend life	na	na	na	na	na	na
500	Conc-P/S sbstr cols	Dlm/Spill/Ptch	1080	3	Clean and patch	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
501	Conc-P/S sbstr cols	Dlm/Spill/Ptch	1080	4	Replace	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
502	Conc-P/S sbstr cols	Exposed Rebar	1090	1	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
503	Conc-P/S sbstr cols	Exposed Rebar	1090	2	Clean and patch	P/S sbstr cols	Extend life	na	na	na	na	na	na
504	Conc-P/S sbstr cols	Exposed Rebar	1090	3	Clean and patch	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
505	Conc-P/S sbstr cols	Exposed Rebar	1090	4	Replace	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
506	Conc-P/S sbstr cols	Expsd Prestressng	1100	1	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
507	Conc-P/S sbstr cols	Expsd Prestressng	1100	2	Clean and patch	P/S sbstr cols	Extend life	na	na	na	na	na	na
508	Conc-P/S sbstr cols	Expsd Prestressng	1100	3	Clean and patch	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
509	Conc-P/S sbstr cols	Expsd Prestressng	1100	4	Replace	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
510	Conc-P/S sbstr cols	Cracking (PSC)	1110	1	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
511	Conc-P/S sbstr cols	Cracking (PSC)	1110	2	Seal cracks	P/S sbstr cols	Extend life	na	na	na	na	na	na
512	Conc-P/S sbstr cols	Cracking (PSC)	1110	3	Seal cracks	P/S sbstr cols	Extend life	na	na	na	na	na	na
513	Conc-P/S sbstr cols	Cracking (PSC)	1110	4	Replace	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
514	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	1	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
515	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	2	Seal cracks	P/S sbstr cols	Extend life	na	na	na	na	na	na
516	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	3	Seal cracks	P/S sbstr cols	Extend life	na	na	na	na	na	na
517	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	4	Replace	P/S sbstr cols	Increase condition state	na	na	na	na	na	na
518	Conc-P/S sbstr cols	All	All	1	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
519	Conc-P/S sbstr cols	All	All	1	Wash	P/S sbstr cols	Extend life	na	na	na	na	na	na
520	Conc-P/S sbstr cols	All	All	1	Seal	P/S sbstr cols	Extend life	na	na	na	na	na	na
521	Conc-P/S sbstr cols	All	All	2	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
522	Conc-P/S sbstr cols	All	All	2	Wash	P/S sbstr cols	Extend life	na	na	na	na	na	na
523	Conc-P/S sbstr cols	All	All	2	Seal	P/S sbstr cols	Extend life	na	na	na	na	na	na
524	Conc-P/S sbstr cols	All	All	3	Do nothing	P/S sbstr cols	None	na	na	na	na	na	na
525	Conc-P/S sbstr cols	All	All	3	Wash	P/S sbstr cols	Extend life	na	na	na	na	na	na
526	Conc-P/S sbstr cols	All	All	3	Seal	P/S sbstr cols	Extend life	na	na	na	na	na	na
527	Conc-P/S sbstr cps	Dlm/Spill/Ptch	1080	1	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
528	Conc-P/S sbstr cps	Dlm/Spill/Ptch	1080	2	Clean and patch	P/S sbstr cps	Extend life	na	na	na	na	na	na
529	Conc-P/S sbstr cps	Dlm/Spill/Ptch	1080	3	Clean and patch	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
530	Conc-P/S sbstr cps	Dlm/Spill/Ptch	1080	4	Replace	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
531	Conc-P/S sbstr cps	Exposed Rebar	1090	1	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
532	Conc-P/S sbstr cps	Exposed Rebar	1090	2	Clean and patch	P/S sbstr cps	Extend life	na	na	na	na	na	na
533	Conc-P/S sbstr cps	Exposed Rebar	1090	3	Clean and patch	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
534	Conc-P/S sbstr cps	Exposed Rebar	1090	4	Replace	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
535	Conc-P/S sbstr cps	Expsd Prestressng	1100	1	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
536	Conc-P/S sbstr cps	Expsd Prestressng	1100	2	Clean and patch	P/S sbstr cps	Extend life	na	na	na	na	na	na
537	Conc-P/S sbstr cps	Expsd Prestressng	1100	3	Clean and patch	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
538	Conc-P/S sbstr cps	Expsd Prestressng	1100	4	Replace	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
539	Conc-P/S sbstr cps	Cracking (PSC)	1110	1	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
540	Conc-P/S sbstr cps	Cracking (PSC)	1110	2	Seal cracks	P/S sbstr cps	Extend life	na	na	na	na	na	na
541	Conc-P/S sbstr cps	Cracking (PSC)	1110	3	Seal cracks	P/S sbstr cps	Extend life	na	na	na	na	na	na
542	Conc-P/S sbstr cps	Cracking (PSC)	1110	4	Replace	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
543	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	1	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
544	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	2	Seal cracks	P/S sbstr cps	Extend life	na	na	na	na	na	na
545	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	3	Seal cracks	P/S sbstr cps	Extend life	na	na	na	na	na	na
546	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	4	Replace	P/S sbstr cps	Increase condition state	na	na	na	na	na	na
547	Conc-P/S sbstr cps	All	All	1	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
548	Conc-P/S sbstr cps	All	All	1	Wash	P/S sbstr cps	Extend life	na	na	na	na	na	na
549	Conc-P/S sbstr cps	All	All	1	Seal	P/S sbstr cps	Extend life	na	na	na	na	na	na
550	Conc-P/S sbstr cps	All	All	2	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
551	Conc-P/S sbstr cps	All	All	2	Wash	P/S sbstr cps	Extend life	na	na	na	na	na	na
552	Conc-P/S sbstr cps	All	All	2	Seal	P/S sbstr cps	Extend life	na	na	na	na	na	na
553	Conc-P/S sbstr cps	All	All	3	Do nothing	P/S sbstr cps	None	na	na	na	na	na	na
554	Conc-P/S sbstr cps	All	All	3	Wash	P/S sbstr cps	Extend life	na	na	na	na	na	na
555	Conc-P/S sbstr cps	All	All	3	Seal	P/S sbstr cps	Extend life	na	na	na	na	na	na

Table E-1.12c Metrics for preservation actions

E-12C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	
1																													
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Secondary Element No. 1	Element No. 1	Element Added Life (yrs)	Secondary Element No. 2	Element No. 2	Element Added Life (yrs)	Secondary Element No. 3	Element No. 3	Element Added Life (yrs)				
3	Service Environ.		Code		SE1 SE23 SE4				SE1 SE23 SE4					SE1 SE23 SE4				SE1 SE23 SE4				SE1 SE23 SE4				SE1 SE23 SE4			
498	Conc-P/S sbstr cols	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	P/S sbstr cols	1	0	0	0	na				na				na				
499	Conc-P/S sbstr cols	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	P/S sbstr cols	2	10	8	6	na				na				na				
500	Conc-P/S sbstr cols	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	P/S sbstr cols	2	8	6	4	na				na				na				
501	Conc-P/S sbstr cols	Dim/Spill/Ptch	1080	4				Replace	50	40	30	P/S sbstr cols	1	50	40	30	na				na				na				
502	Conc-P/S sbstr cols	Exposed Rebar	1090	1				Do nothing	na	na	na	P/S sbstr cols	1	0	0	0	na				na				na				
503	Conc-P/S sbstr cols	Exposed Rebar	1090	2				Clean and patch	20	14	8	P/S sbstr cols	2	10	8	6	na				na				na				
504	Conc-P/S sbstr cols	Exposed Rebar	1090	3				Clean and patch	20	14	8	P/S sbstr cols	2	8	6	4	na				na				na				
505	Conc-P/S sbstr cols	Exposed Rebar	1090	4				Replace	50	40	30	P/S sbstr cols	1	50	40	30	na				na				na				
506	Conc-P/S sbstr cols	Expsd Prestsrssng	1100	1				Do nothing	na	na	na	P/S sbstr cols	1	0	0	0	na				na				na				
507	Conc-P/S sbstr cols	Expsd Prestsrssng	1100	2				Clean and patch	20	14	8	P/S sbstr cols	2	12	10	8	na				na				na				
508	Conc-P/S sbstr cols	Expsd Prestsrssng	1100	3				Clean and patch	20	14	8	P/S sbstr cols	2	12	10	8	na				na				na				
509	Conc-P/S sbstr cols	Expsd Prestsrssng	1100	4				Replace	50	40	30	P/S sbstr cols	1	50	40	30	na				na				na				
510	Conc-P/S sbstr cols	Cracking (PSC)	1110	1				Do nothing	na	na	na	P/S sbstr cols	1	0	0	0	na				na				na				
511	Conc-P/S sbstr cols	Cracking (PSC)	1110	2				Seal cracks	20	14	8	P/S sbstr cols	2	16	10	6	na				na				na				
512	Conc-P/S sbstr cols	Cracking (PSC)	1110	3				Seal cracks	20	14	8	P/S sbstr cols	2	16	10	6	na				na				na				
513	Conc-P/S sbstr cols	Cracking (PSC)	1110	4				Replace	50	40	30	P/S sbstr cols	1	50	40	30	na				na				na				
514	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	P/S sbstr cols	1	0	0	0	na				na				na				
515	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	P/S sbstr cols	2	16	10	6	na				na				na				
516	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	P/S sbstr cols	2	16	10	6	na				na				na				
517	Conc-P/S sbstr cols	Efflor/Rust Stain	1120	4				Replace	50	40	30	P/S sbstr cols	1	50	40	30	na				na				na				
518	Conc-P/S sbstr cols	All	All	1				Do nothing	na	na	na	P/S sbstr cols	1	0	0	0	na				na				na				
519	Conc-P/S sbstr cols	All	All	1				Wash	10	4	1	P/S sbstr cols	1	1	1	1	na				na				na				
520	Conc-P/S sbstr cols	All	All	1				Seal	15	10	5	P/S sbstr cols	1	8	5	3	na				na				na				
521	Conc-P/S sbstr cols	All	All	2				Do nothing	na	na	na	P/S sbstr cols	2	0	0	0	na				na				na				
522	Conc-P/S sbstr cols	All	All	2				Wash	10	4	1	P/S sbstr cols	2	1	1	1	na				na				na				
523	Conc-P/S sbstr cols	All	All	2				Seal	15	10	5	P/S sbstr cols	2	6	4	2	na				na				na				
524	Conc-P/S sbstr cols	All	All	3				Do nothing	na	na	na	P/S sbstr cols	3	0	0	0	na				na				na				
525	Conc-P/S sbstr cols	All	All	3				Wash	10	4	1	P/S sbstr cols	3	1	1	1	na				na				na				
526	Conc-P/S sbstr cols	All	All	3				Seal	15	10	5	P/S sbstr cols	3	5	3	2	na				na				na				
527	Conc-P/S sbstr cps	Dim/Spill/Ptch	1080	1				Do nothing	na	na	na	P/S sbstr cps	1	0	0	0	na				na				na				
528	Conc-P/S sbstr cps	Dim/Spill/Ptch	1080	2				Clean and patch	20	14	8	P/S sbstr cps	2	10	8	6	na				na				na				
529	Conc-P/S sbstr cps	Dim/Spill/Ptch	1080	3				Clean and patch	20	14	8	P/S sbstr cps	2	8	6	4	na				na				na				
530	Conc-P/S sbstr cps	Dim/Spill/Ptch	1080	4				Replace	50	40	30	P/S sbstr cps	1	50	40	30	na				na				na				
531	Conc-P/S sbstr cps	Exposed Rebar	1090	1				Do nothing	na	na	na	P/S sbstr cps	1	0	0	0	na				na				na				
532	Conc-P/S sbstr cps	Exposed Rebar	1090	2				Clean and patch	20	14	8	P/S sbstr cps	2	10	8	6	na				na				na				
533	Conc-P/S sbstr cps	Exposed Rebar	1090	3				Clean and patch	20	14	8	P/S sbstr cps	2	8	6	4	na				na				na				
534	Conc-P/S sbstr cps	Exposed Rebar	1090	4				Replace	50	40	30	P/S sbstr cps	1	50	40	30	na				na				na				
535	Conc-P/S sbstr cps	Expsd Prestsrssng	1100	1				Do nothing	na	na	na	P/S sbstr cps	1	0	0	0	na				na				na				
536	Conc-P/S sbstr cps	Expsd Prestsrssng	1100	2				Clean and patch	20	14	8	P/S sbstr cps	2	12	10	8	na				na				na				
537	Conc-P/S sbstr cps	Expsd Prestsrssng	1100	3				Clean and patch	20	14	8	P/S sbstr cps	2	12	10	8	na				na				na				
538	Conc-P/S sbstr cps	Expsd Prestsrssng	1100	4				Replace	50	40	30	P/S sbstr cps	1	50	40	30	na				na				na				
539	Conc-P/S sbstr cps	Cracking (PSC)	1110	1				Do nothing	na	na	na	P/S sbstr cps	1	0	0	0	na				na				na				
540	Conc-P/S sbstr cps	Cracking (PSC)	1110	2				Seal cracks	20	14	8	P/S sbstr cps	2	16	10	6	na				na				na				
541	Conc-P/S sbstr cps	Cracking (PSC)	1110	3				Seal cracks	20	14	8	P/S sbstr cps	2	16	10	6	na				na				na				
542	Conc-P/S sbstr cps	Cracking (PSC)	1110	4				Replace	50	40	30	P/S sbstr cps	1	50	40	30	na				na				na				
543	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	P/S sbstr cps	1	0	0	0	na				na				na				
544	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	2				Seal cracks	20	14	8	P/S sbstr cps	2	16	10	6	na				na				na				
545	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	3				Seal cracks	20	14	8	P/S sbstr cps	2	16	10	6	na				na				na				
546	Conc-P/S sbstr cps	Efflor/Rust Stain	1120	4				Replace	50	40	30	P/S sbstr cps	1	50	40	30	na				na				na				
547	Conc-P/S sbstr cps	All	All	1				Do nothing	na	na	na	P/S sbstr cps	1	0	0	0	na				na				na				
548	Conc-P/S sbstr cps	All	All	1				Wash	10	4	1	P/S sbstr cps	1	1	1	1	na				na				na				
549	Conc-P/S sbstr cps	All	All	1				Seal	15	10	5	P/S sbstr cps	1	8	5	3	na				na				na				
550	Conc-P/S sbstr cps	All	All	2				Do nothing	na	na	na	P/S sbstr cps	2	0	0	0	na				na				na				
551	Conc-P/S sbstr cps	All	All	2				Wash	10	4	1	P/S sbstr cps	2	1	1	1	na				na				na				
552	Conc-P/S sbstr cps	All	All	2				Seal	15	10	5	P/S sbstr cps	2	6	4	2	na				na				na				
553	Conc-P/S sbstr cps	All	All	3				Do nothing	na	na	na	P/S sbstr cps	3	0	0	0	na				na				na				
554	Conc-P/S sbstr cps	All	All	3				Wash	10	4	1	P/S sbstr cps	3	1	1	1	na				na				na				
555	Conc-P/S sbstr cps	All	All	3				Seal	15	10	5	P/S sbstr cps	3	5	3	2	na				na				na				

Table E-1.13a Catalog of preservation actions

E-13A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
556	Masonry substr	Efflor/Rust Stain	1120	1	Do nothing	na	na	na	na	217	0.00	ft.
557	Masonry substr	Efflor/Rust Stain	1120	2	Clean	na	na	na	na	217	2.00	ft.
558	Masonry substr	Efflor/Rust Stain	1120	3	Clean	na	na	na	na	217	3.00	ft.
559	Masonry substr	Efflor/Rust Stain	1120	4	Repair/replace	na	na	na	na	217	5000.00	ft.
560	Masonry substr	Mortar Breakdown	1610	1	Do nothing	na	na	na	na	217	0.00	ft.
561	Masonry substr	Mortar Breakdown	1610	2	Clean & point	na	na	na	na	217	5.00	ft.
562	Masonry substr	Mortar Breakdown	1610	3	Clean & point	na	na	na	na	217	8.00	ft.
563	Masonry substr	Mortar Breakdown	1610	4	Repair/replace	na	na	na	na	217	5000.00	ft.
564	Masonry substr	Split/Spall (Msnry)	1620	1	Do nothing	na	na	na	na	217	0.00	ft.
565	Masonry substr	Split/Spall (Msnry)	1620	2	Clean & point	na	na	na	na	217	5.00	ft.
566	Masonry substr	Split/Spall (Msnry)	1620	3	Repair & point	na	na	na	na	217	12.00	ft.
567	Masonry substr	Split/Spall (Msnry)	1620	4	Repair/replace	na	na	na	na	217	5000.00	ft.
568	Masonry substr	Ptchd Area (Msnry)	1630	1	Do nothing	na	na	na	na	217	0.00	ft.
569	Masonry substr	Ptchd Area (Msnry)	1630	2	Do nothing	na	na	na	na	217	0.00	ft.
570	Masonry substr	Ptchd Area (Msnry)	1630	3	Replace patch	na	na	na	na	217	20.00	ft.
571	Masonry substr	Ptchd Area (Msnry)	1630	4	Repair/replace	na	na	na	na	217	5000.00	ft.
572	Masonry substr	Masonry Dsplcmnt	1640	1	Do nothing	na	na	na	na	217	0.00	ft.
573	Masonry substr	Masonry Dsplcmnt	1640	2	Clean & point	na	na	na	na	217	5.00	ft.
574	Masonry substr	Masonry Dsplcmnt	1640	3	Reset & point	na	na	na	na	217	15.00	ft.
575	Masonry substr	Masonry Dsplcmnt	1640	4	Repair/replace	na	na	na	na	217	5000.00	ft.

Table E-1.13b Impacts of preservation actions

E-13B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
556	Masonry substr	Efflor/Rust Stain	1120	1	Do nothing	Masonry substr	None	na	na	na	na	na	na
557	Masonry substr	Efflor/Rust Stain	1120	2	Clean	Masonry substr	Extend life	na	na	na	na	na	na
558	Masonry substr	Efflor/Rust Stain	1120	3	Clean	Masonry substr	Extend life	na	na	na	na	na	na
559	Masonry substr	Efflor/Rust Stain	1120	4	Repair/replace	Masonry substr	Increase condition state	na	na	na	na	na	na
560	Masonry substr	Mortar Breakdown	1610	1	Do nothing	Masonry substr	None	na	na	na	na	na	na
561	Masonry substr	Mortar Breakdown	1610	2	Clean & point	Masonry substr	Extend life	na	na	na	na	na	na
562	Masonry substr	Mortar Breakdown	1610	3	Clean & point	Masonry substr	Increase condition state	na	na	na	na	na	na
563	Masonry substr	Mortar Breakdown	1610	4	Repair/replace	Masonry substr	Increase condition state	na	na	na	na	na	na
564	Masonry substr	Split/Spall (Msnry)	1620	1	Do nothing	Masonry substr	None	na	na	na	na	na	na
565	Masonry substr	Split/Spall (Msnry)	1620	2	Clean & point	Masonry substr	Extend life	na	na	na	na	na	na
566	Masonry substr	Split/Spall (Msnry)	1620	3	Repair & point	Masonry substr	Increase condition state	na	na	na	na	na	na
567	Masonry substr	Split/Spall (Msnry)	1620	4	Repair/replace	Masonry substr	Increase condition state	na	na	na	na	na	na
568	Masonry substr	Ptchd Area (Msnry)	1630	1	Do nothing	Masonry substr	None	na	na	na	na	na	na
569	Masonry substr	Ptchd Area (Msnry)	1630	2	Do nothing	Masonry substr	None	na	na	na	na	na	na
570	Masonry substr	Ptchd Area (Msnry)	1630	3	Replace patch	Masonry substr	Increase condition state	na	na	na	na	na	na
571	Masonry substr	Ptchd Area (Msnry)	1630	4	Repair/replace	Masonry substr	Increase condition state	na	na	na	na	na	na
572	Masonry substr	Masonry Dsplcmnt	1640	1	Do nothing	Masonry substr	None	na	na	na	na	na	na
573	Masonry substr	Masonry Dsplcmnt	1640	2	Clean & point	Masonry substr	Extend life	na	na	na	na	na	na
574	Masonry substr	Masonry Dsplcmnt	1640	3	Reset & point	Masonry substr	Increase condition state	na	na	na	na	na	na
575	Masonry substr	Masonry Dsplcmnt	1640	4	Repair/replace	Masonry substr	Increase condition state	na	na	na	na	na	na

Table E-1.13c Metrics for preservation actions

E-13C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
556	Masonry substr	Efflor/Rust Stain	1120	1				Do nothing	na	na	na	Masonry subst	1	0	0	0	na				na				na			
557	Masonry substr	Efflor/Rust Stain	1120	2				Clean	20	15	10	Masonry subst	1	0	0	0	na				na				na			
558	Masonry substr	Efflor/Rust Stain	1120	3				Clean	20	15	10	Masonry subst	2	0	0	0	na				na				na			
559	Masonry substr	Efflor/Rust Stain	1120	4				Clean/repair	40	30	20	Masonry subst	1	30	25	20	na				na				na			
560	Masonry substr	Mortar Breakdown	1610	1				Do nothing	na	na	na	Masonry subst	1	0	0	0	na				na				na			
561	Masonry substr	Mortar Breakdown	1610	2				Clean & point	30	25	20	Masonry subst	1	25	20	15	na				na				na			
562	Masonry substr	Mortar Breakdown	1610	3				Clean & point	30	25	20	Masonry subst	1	25	20	15	na				na				na			
563	Masonry substr	Mortar Breakdown	1610	4				Repair/replace	50	40	30	Masonry subst	1	40	32	25	na				na				na			
564	Masonry substr	Split/Spall (Msnry)	1620	1				Do nothing	na	na	na	Masonry subst	1	0	0	0	na				na				na			
565	Masonry substr	Split/Spall (Msnry)	1620	2				Clean & point	30	25	20	Masonry subst	1	25	20	15	na				na				na			
566	Masonry substr	Split/Spall (Msnry)	1620	3				Repair & point	35	30	25	Masonry subst	1	30	25	20	na				na				na			
567	Masonry substr	Split/Spall (Msnry)	1620	4				Repair/replace	50	40	30	Masonry subst	1	40	32	25	na				na				na			
568	Masonry substr	Ptchd Area (Msnry)	1630	1				Do nothing	na	na	na	Masonry subst	1	0	0	0	na				na				na			
569	Masonry substr	Ptchd Area (Msnry)	1630	2				Do nothing	na	na	na	Masonry subst	2	0	0	0	na				na				na			
570	Masonry substr	Ptchd Area (Msnry)	1630	3				Replace patch	35	30	25	Masonry subst	2	30	25	20	na				na				na			
571	Masonry substr	Ptchd Area (Msnry)	1630	4				Repair/replace	50	40	30	Masonry subst	1	40	32	25	na				na				na			
572	Masonry substr	Masonry Dsplcmnt	1640	1				Do nothing	na	na	na	Masonry subst	1	0	0	0	na				na				na			
573	Masonry substr	Masonry Dsplcmnt	1640	2				Clean & point	30	25	20	Masonry subst	1	25	20	15	na				na				na			
574	Masonry substr	Masonry Dsplcmnt	1640	3				Reset & point	35	30	25	Masonry subst	1	30	25	20	na				na				na			
575	Masonry substr	Masonry Dsplcmnt	1640	4				Repair/replace	50	40	30	Masonry subst	1	40	32	25	na				na				na			

Table E-1.14a Catalog of preservation actions

E-14A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
576	Tmbr substr-cols	Connection	1020	1	Do nothing	na	na	na	na	206	0.00	each
577	Tmbr substr-cols	Connection	1020	2	Do nothing	na	na	na	na	206	0.00	each
578	Tmbr substr-cols	Connection	1020	3	Tighten or nail	na	na	na	na	206	100.00	each
579	Tmbr substr-cols	Connection	1020	4	Replace connection	na	na	na	na	206	500.00	each
580	Tmbr substr-cols	Decay/Sectn Loss	1140	1	Do nothing	na	na	na	na	206	0.00	each
581	Tmbr substr-cols	Decay/Sectn Loss	1140	2	Do nothing	na	na	na	na	206	0.00	each
582	Tmbr substr-cols	Decay/Sectn Loss	1140	3	Repair	na	na	na	na	206	1000.00	each
583	Tmbr substr-cols	Decay/Sectn Loss	1140	4	Replace timbers	na	na	na	na	206	2000.00	each
584	Tmbr substr-cols	Check/Shake	1150	1	Do nothing	na	na	na	na	206	0.00	each
585	Tmbr substr-cols	Check/Shake	1150	2	Do nothing	na	na	na	na	206	0.00	each
586	Tmbr substr-cols	Check/Shake	1150	3	Repair	na	na	na	na	206	1000.00	each
587	Tmbr substr-cols	Check/Shake	1150	4	Replace timbers	na	na	na	na	206	2000.00	each
588	Tmbr substr-cols	Crack (Timber)	1160	1	Do nothing	na	na	na	na	206	0.00	each
589	Tmbr substr-cols	Crack (Timber)	1160	2	Do nothing	na	na	na	na	206	0.00	each
590	Tmbr substr-cols	Crack (Timber)	1160	3	Repair	na	na	na	na	206	1000.00	each
591	Tmbr substr-cols	Crack (Timber)	1160	4	Replace timbers	na	na	na	na	206	2000.00	each
592	Tmbr substr-cols	Split/Delamination	1170	1	Do nothing	na	na	na	na	206	0.00	each
593	Tmbr substr-cols	Split/Delamination	1170	2	Do nothing	na	na	na	na	206	0.00	each
594	Tmbr substr-cols	Split/Delamination	1170	3	Repair	na	na	na	na	206	1000.00	each
595	Tmbr substr-cols	Split/Delamination	1170	4	Replace timbers	na	na	na	na	206	2000.00	each
596	Tmbr substr-cols	Abrasion	1180	1	Do nothing	na	na	na	na	206	0.00	each
597	Tmbr substr-cols	Abrasion	1180	2	Do nothing	na	na	na	na	206	0.00	each
598	Tmbr substr-cols	Abrasion	1180	3	Repair	na	na	na	na	206	1000.00	each
599	Tmbr substr-cols	Abrasion	1180	4	Replace timbers	na	na	na	na	206	2000.00	each
600	Tmbr substr-cols	All	All	1	Do nothing	na	na	na	na	206	0.00	each
601	Tmbr substr-cols	All	All	1	Clean	na	na	na	na	206	50.00	each
602	Tmbr substr-cols	All	All	2	Do nothing	na	na	na	na	206	0.00	each
603	Tmbr substr-cols	All	All	2	Clean	na	na	na	na	206	75.00	each
604	Tmbr substr-cols	All	All	3	Do nothing	na	na	na	na	206	0.00	each
605	Tmbr substr-cols	All	All	3	Clean	na	na	na	na	206	100.00	each

Table E-1.14b Impacts of preservation actions

E-14B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
576	Tmbr subtr-cols	Connection	1020	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
577	Tmbr subtr-cols	Connection	1020	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
578	Tmbr subtr-cols	Connection	1020	3	Tighten or nail	Tmbr cols	Increase condition state	na	na	na	na	na	na
579	Tmbr subtr-cols	Connection	1020	4	Replace connection	Tmbr cols	Increase condition state	na	na	na	na	na	na
580	Tmbr subtr-cols	Decay/Sectn Loss	1140	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
581	Tmbr subtr-cols	Decay/Sectn Loss	1140	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
582	Tmbr subtr-cols	Decay/Sectn Loss	1140	3	Repair	Tmbr cols	Increase condition state	na	na	na	na	na	na
583	Tmbr subtr-cols	Decay/Sectn Loss	1140	4	Replace timbers	Tmbr cols	Increase condition state	na	na	na	na	na	na
584	Tmbr subtr-cols	Check/Shake	1150	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
585	Tmbr subtr-cols	Check/Shake	1150	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
586	Tmbr subtr-cols	Check/Shake	1150	3	Repair	Tmbr cols	Increase condition state	na	na	na	na	na	na
587	Tmbr subtr-cols	Check/Shake	1150	4	Replace timbers	Tmbr cols	Increase condition state	na	na	na	na	na	na
588	Tmbr subtr-cols	Crack (Timber)	1160	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
589	Tmbr subtr-cols	Crack (Timber)	1160	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
590	Tmbr subtr-cols	Crack (Timber)	1160	3	Repair	Tmbr cols	Increase condition state	na	na	na	na	na	na
591	Tmbr subtr-cols	Crack (Timber)	1160	4	Replace timbers	Tmbr cols	Increase condition state	na	na	na	na	na	na
592	Tmbr subtr-cols	Split/Delamination	1170	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
593	Tmbr subtr-cols	Split/Delamination	1170	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
594	Tmbr subtr-cols	Split/Delamination	1170	3	Repair	Tmbr cols	Increase condition state	na	na	na	na	na	na
595	Tmbr subtr-cols	Split/Delamination	1170	4	Replace timbers	Tmbr cols	Increase condition state	na	na	na	na	na	na
596	Tmbr subtr-cols	Abrasion	1180	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
597	Tmbr subtr-cols	Abrasion	1180	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
598	Tmbr subtr-cols	Abrasion	1180	3	Repair	Tmbr cols	Increase condition state	na	na	na	na	na	na
599	Tmbr subtr-cols	Abrasion	1180	4	Replace timbers	Tmbr cols	Increase condition state	na	na	na	na	na	na
600	Tmbr subtr-cols	All	All	1	Do nothing	Tmbr cols	None	na	na	na	na	na	na
601	Tmbr subtr-cols	All	All	1	Clean	Tmbr cols	Extend life	na	na	na	na	na	na
602	Tmbr subtr-cols	All	All	2	Do nothing	Tmbr cols	None	na	na	na	na	na	na
603	Tmbr subtr-cols	All	All	2	Clean	Tmbr cols	Extend life	na	na	na	na	na	na
604	Tmbr subtr-cols	All	All	3	Do nothing	Tmbr cols	None	na	na	na	na	na	na
605	Tmbr subtr-cols	All	All	3	Clean	Tmbr cols	Extend life	na	na	na	na	na	na

Table E-1.14c Metrics for preservation actions

E-14C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
576	Tmbr substr-cols	Connection	1020	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
577	Tmbr substr-cols	Connection	1020	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
578	Tmbr substr-cols	Connection	1020	3				Tighten or nail	10	10	10	Tmbr cols	2	8	7	6	na				na				na			
579	Tmbr substr-cols	Connection	1020	4				Replace connection	25	25	25	Tmbr cols	1	12	10	8	na				na				na			
580	Tmbr substr-cols	Decay/Sectn Loss	1140	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
581	Tmbr substr-cols	Decay/Sectn Loss	1140	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
582	Tmbr substr-cols	Decay/Sectn Loss	1140	3				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
583	Tmbr substr-cols	Decay/Sectn Loss	1140	4				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
584	Tmbr substr-cols	Check/Shake	1150	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
585	Tmbr substr-cols	Check/Shake	1150	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
586	Tmbr substr-cols	Check/Shake	1150	3				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
587	Tmbr substr-cols	Check/Shake	1150	4				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
588	Tmbr substr-cols	Crack (Timber)	1160	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
589	Tmbr substr-cols	Crack (Timber)	1160	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
590	Tmbr substr-cols	Crack (Timber)	1160	3				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
591	Tmbr substr-cols	Crack (Timber)	1160	4				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
592	Tmbr substr-cols	Split/Delamination	1170	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
593	Tmbr substr-cols	Split/Delamination	1170	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
594	Tmbr substr-cols	Split/Delamination	1170	3				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
595	Tmbr substr-cols	Split/Delamination	1170	4				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
596	Tmbr substr-cols	Abrasion	1180	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
597	Tmbr substr-cols	Abrasion	1180	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
598	Tmbr substr-cols	Abrasion	1180	3				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
599	Tmbr substr-cols	Abrasion	1180	4				Replace timbers	25	21	18	Tmbr cols	1	25	21	18	na				na				na			
600	Tmbr substr-cols	All	All	1				Do nothing	na	na	na	Tmbr cols	1	0	0	0	na				na				na			
601	Tmbr substr-cols	All	All	1				Clean	10	4	1	Tmbr cols	1	1	1	1	na				na				na			
602	Tmbr substr-cols	All	All	2				Do nothing	na	na	na	Tmbr cols	2	0	0	0	na				na				na			
603	Tmbr substr-cols	All	All	2				Clean	10	4	1	Tmbr cols	2	1	1	1	na				na				na			
604	Tmbr substr-cols	All	All	3				Do nothing	na	na	na	Tmbr cols	3	0	0	0	na				na				na			
605	Tmbr substr-cols	All	All	3				Clean	10	4	1	Tmbr cols	3	1	1	1	na				na				na			

Table E-1.15a Catalog of preservation actions

E-15A

	A	B	C	D	E	F	G	H	I	J	K	L
1												
2			Defect			Deck		Superstructure		Substructure		
3	Material	Defect	Code	Condition	Preservation Action	Elements	Cost (\$)	Elements	Cost (\$)	Elements	Cost (\$)	Units
606	Tmbr substr-abut/caps	Connection	1020	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
607	Tmbr substr-abut/caps	Connection	1020	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
608	Tmbr substr-abut/caps	Connection	1020	3	Tighten or nail	na	na	na	na	216, 235	100.00	ft.
609	Tmbr substr-abut/caps	Connection	1020	4	Replace connection	na	na	na	na	216, 235	500.00	ft.
610	Tmbr substr-abut/caps	Decay/Section Loss	1140	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
611	Tmbr substr-abut/caps	Decay/Section Loss	1140	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
612	Tmbr substr-abut/caps	Decay/Section Loss	1140	3	Repair	na	na	na	na	216, 235	1000.00	ft.
613	Tmbr substr-abut/caps	Decay/Section Loss	1140	4	Replace timbers	na	na	na	na	216, 235	2000.00	ft.
614	Tmbr substr-abut/caps	Check/Shake	1150	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
615	Tmbr substr-abut/caps	Check/Shake	1150	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
616	Tmbr substr-abut/caps	Check/Shake	1150	3	Repair	na	na	na	na	216, 235	1000.00	ft.
617	Tmbr substr-abut/caps	Check/Shake	1150	4	Replace timbers	na	na	na	na	216, 235	2000.00	ft.
618	Tmbr substr-abut/caps	Crack (Timber)	1160	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
619	Tmbr substr-abut/caps	Crack (Timber)	1160	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
620	Tmbr substr-abut/caps	Crack (Timber)	1160	3	Repair	na	na	na	na	216, 235	1000.00	ft.
621	Tmbr substr-abut/caps	Crack (Timber)	1160	4	Replace timbers	na	na	na	na	216, 235	2000.00	ft.
622	Tmbr substr-abut/caps	Split/Delamination (Ti	1170	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
623	Tmbr substr-abut/caps	Split/Delamination (Ti	1170	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
624	Tmbr substr-abut/caps	Split/Delamination (Ti	1170	3	Repair	na	na	na	na	216, 235	1000.00	ft.
625	Tmbr substr-abut/caps	Split/Delamination (Ti	1170	4	Replace timbers	na	na	na	na	216, 235	2000.00	ft.
626	Tmbr substr-abut/caps	Abrasion	1180	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
627	Tmbr substr-abut/caps	Abrasion	1180	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
628	Tmbr substr-abut/caps	Abrasion	1180	3	Repair	na	na	na	na	216, 235	1000.00	ft.
629	Tmbr substr-abut/caps	Abrasion	1180	4	Replace timbers	na	na	na	na	216, 235	2000.00	ft.
630	Tmbr substr-abut/caps	All	All	1	Do nothing	na	na	na	na	216, 235	0.00	ft.
631	Tmbr substr-abut/caps	All	All	1	Clean	na	na	na	na	216, 235	50.00	ft.
632	Tmbr substr-abut/caps	All	All	2	Do nothing	na	na	na	na	216, 235	0.00	ft.
633	Tmbr substr-abut/caps	All	All	2	Clean	na	na	na	na	216, 235	75.00	ft.
634	Tmbr substr-abut/caps	All	All	3	Do nothing	na	na	na	na	216, 235	0.00	ft.
635	Tmbr substr-abut/caps	All	All	3	Clean	na	na	na	na	216, 235	100.00	ft.

Table E-1.15b Impacts of preservation actions

E-15B

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2			Defect			Primary Element		Secondary Element No. 1		Secondary Element No. 2		Secondary Element No. 3	
3	Material	Defect	Code	Condition	Preservation Action	Element	Direct Impact	Element	Indirect Impact	Element	Indirect Impact	Element	Indirect Impact
606	Tmbr substr-abut/caps	Connection	1020	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
607	Tmbr substr-abut/caps	Connection	1020	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
608	Tmbr substr-abut/caps	Connection	1020	3	Tighten or nail	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
609	Tmbr substr-abut/caps	Connection	1020	4	Replace connection	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
610	Tmbr substr-abut/caps	Decay/Section Loss	1140	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
611	Tmbr substr-abut/caps	Decay/Section Loss	1140	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
612	Tmbr substr-abut/caps	Decay/Section Loss	1140	3	Repair	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
613	Tmbr substr-abut/caps	Decay/Section Loss	1140	4	Replace timbers	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
614	Tmbr substr-abut/caps	Check/Shake	1150	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
615	Tmbr substr-abut/caps	Check/Shake	1150	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
616	Tmbr substr-abut/caps	Check/Shake	1150	3	Repair	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
617	Tmbr substr-abut/caps	Check/Shake	1150	4	Replace timbers	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
618	Tmbr substr-abut/caps	Crack (Timber)	1160	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
619	Tmbr substr-abut/caps	Crack (Timber)	1160	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
620	Tmbr substr-abut/caps	Crack (Timber)	1160	3	Repair	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
621	Tmbr substr-abut/caps	Crack (Timber)	1160	4	Replace timbers	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
622	Tmbr substr-abut/caps	Split/Delamination	1170	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
623	Tmbr substr-abut/caps	Split/Delamination	1170	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
624	Tmbr substr-abut/caps	Split/Delamination	1170	3	Repair	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
625	Tmbr substr-abut/caps	Split/Delamination	1170	4	Replace timbers	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
626	Tmbr substr-abut/caps	Abrasion	1180	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
627	Tmbr substr-abut/caps	Abrasion	1180	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
628	Tmbr substr-abut/caps	Abrasion	1180	3	Repair	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
629	Tmbr substr-abut/caps	Abrasion	1180	4	Replace timbers	Tmbr abut/caps	Increase condition state	na	na	na	na	na	na
630	Tmbr substr-abut/caps	All	All	1	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
631	Tmbr substr-abut/caps	All	All	1	Clean	Tmbr abut/caps	Extend life	na	na	na	na	na	na
632	Tmbr substr-abut/caps	All	All	2	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
633	Tmbr substr-abut/caps	All	All	2	Clean	Tmbr abut/caps	Extend life	na	na	na	na	na	na
634	Tmbr substr-abut/caps	All	All	3	Do nothing	Tmbr abut/caps	None	na	na	na	na	na	na
635	Tmbr substr-abut/caps	All	All	3	Clean	Tmbr abut/caps	Extend life	na	na	na	na	na	na

Table E-1.15c Metrics for preservation actions

E-15C

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB
1													Primary Element				Secondary Element No. 1				Secondary Element No. 2				Secondary Element No. 3			
2	Material	Defect	Defect	Condition before action	Time to Condition (yrs)			Preservation Action	Preservation Action Cycle (yrs)			Element	Condition after action	Element Added Life (yrs)			Element No. 1	Element Added Life (yrs)			Element No. 2	Element Added Life (yrs)			Element No. 3	Element Added Life (yrs)		
3	Service Environ.		Code		SE1	SE23	SE4		SE1	SE23	SE4			SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4		SE1	SE23	SE4
606	Tmbr substr-abut/caps	Connection	1020	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
607	Tmbr substr-abut/caps	Connection	1020	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
608	Tmbr substr-abut/caps	Connection	1020	3				Tighten or nail	10	10	10	Tmbr abut/cap	2	8	7	6	na				na				na			
609	Tmbr substr-abut/caps	Connection	1020	4				Replace connection	25	25	25	Tmbr abut/cap	1	12	10	8	na				na				na			
610	Tmbr substr-abut/caps	Decay/Section Loss	1140	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
611	Tmbr substr-abut/caps	Decay/Section Loss	1140	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
612	Tmbr substr-abut/caps	Decay/Section Loss	1140	3				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
613	Tmbr substr-abut/caps	Decay/Section Loss	1140	4				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
614	Tmbr substr-abut/caps	Check/Shake	1150	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
615	Tmbr substr-abut/caps	Check/Shake	1150	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
616	Tmbr substr-abut/caps	Check/Shake	1150	3				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
617	Tmbr substr-abut/caps	Check/Shake	1150	4				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
618	Tmbr substr-abut/caps	Crack (Timber)	1160	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
619	Tmbr substr-abut/caps	Crack (Timber)	1160	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
620	Tmbr substr-abut/caps	Crack (Timber)	1160	3				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
621	Tmbr substr-abut/caps	Crack (Timber)	1160	4				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
622	Tmbr substr-abut/caps	Split/Delamination (Timber)	1170	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
623	Tmbr substr-abut/caps	Split/Delamination (Timber)	1170	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
624	Tmbr substr-abut/caps	Split/Delamination (Timber)	1170	3				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
625	Tmbr substr-abut/caps	Split/Delamination (Timber)	1170	4				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
626	Tmbr substr-abut/caps	Abrasion	1180	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
627	Tmbr substr-abut/caps	Abrasion	1180	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
628	Tmbr substr-abut/caps	Abrasion	1180	3				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
629	Tmbr substr-abut/caps	Abrasion	1180	4				Replace timbers	25	21	18	Tmbr abut/cap	1	25	21	18	na				na				na			
630	Tmbr substr-abut/caps	All	All	1				Do nothing	na	na	na	Tmbr abut/cap	1	0	0	0	na				na				na			
631	Tmbr substr-abut/caps	All	All	1				Clean	10	5	1	Tmbr abut/cap	1	1	1	1	na				na				na			
632	Tmbr substr-abut/caps	All	All	2				Do nothing	na	na	na	Tmbr abut/cap	2	0	0	0	na				na				na			
633	Tmbr substr-abut/caps	All	All	2				Clean	5	3	1	Tmbr abut/cap	2	1	1	1	na				na				na			
634	Tmbr substr-abut/caps	All	All	3				Do nothing	na	na	na	Tmbr abut/cap	3	0	0	0	na				na				na			
635	Tmbr substr-abut/caps	All	All	3				Clean	5	3	1	Tmbr abut/cap	3	1	1	1	na				na				na			