APPENDIX K
RECALIBRATED JCP DISTRESS MODELS COEFFICIENTS

Please note that there were no JCP sections present in Zone 4 at the time of the analysis. If such pavements are constructed in Zone 4 in the future, the researchers recommend using the Zone 3 coefficients.

Failed Joints and Cracks																
Zone	1,2,3	1,2,3	1,2,3	1	1	1	2,3	2,3	2,3	1	1	1	2,3	2,3	2,3	FJC
Treatment	HR	HR	HR	LR	LR	LR	LR	LR	LR	PM	PM	PM	PM	PM	PM	Original
Traffic level	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	Model
α	2.47	6.32	8.87	48	51	56.3	45	50	56	89	93.5	96.33	88.87	94.11	97.54	37.02
β	0.61	0.58	0.61	1.02	1.02	1.02	1.02	1.02	1.02	0.99	1.03	1.02	0.98	1.03	1.02	5.21
ρ	5.89	8.79	7.98	10	7.9	7.7	10	8.5	8	8.5	7.2	6.2	8.99	7.66	5.98	7.95
Observations	2234	2316	3269	1249	1079	731	2513	2127	2214	1735	2102	364	2818	2633	1566	
% Change in RMSE	-33.6%	-23.2%	-56.2%	-29.5%	-9.8%	-2.8%	-36.4%	-15.0%	-0.3%	-5.2%	-9.4%	-5.8%	-9.7%	-9.0%	-18.9%	

Failures																	
Zone	1,2,3	1,2,3	1,2,3	2	2	2	2	2	2	1	1	1	1	3	3	3	FL
Treatment	HR	HR	HR	LR	LR	LR	PM	PM	PM	LR	LR	PM	PM	LR	PM	PM	Original
Traffic level	L	M	H	L	M	H	L	M	H	L,M	H	L	M,H	L,M,H	L,M	H	Model
α	7.02	4.34	6.21	8.09	9	10.01	33.32	34.78	39.98	8.47	9	25.46	41.7	37.65	25	30	47.67
β	0.71	0.72	0.71	0.705	0.7	0.7	0.51	0.52	0.51	0.71	0.74	0.74	0.74	0.36	0.6	0.6	0.36
ρ	49.78	15.03	12.11	12.91	11	9.98	7.21	5.99	4.99	6	5.5	1.95	1.58	40.12	8	8	47.89
Observations	2234	2316	3269	2513	2127	2214	2818	2633	1566	2328	731	1735	2466	107	529	40	
% Change in RMSE	6.3%	-2.8%	-5.3%	-5.2%	-6.5%	-9.0%	-25.6%	-24.9%	-31.1%	-14.5%	2.7%	-31.0%	-30.2%	-4.91%	-11.7%	-17.7%	

Appendix K continued

Longitudinal Cracks																
Zone	1,2,3	1,2,3	1,2,3	2	2	1	1	1&2	3	3	2	2	1	1	1&2	LC
Treatment	HR	HR	HR	LR	LR	LR	LR	LR	LR&PM	LR&PM	PM	PM	PM	PM	PM	Original
Traffic level	L	M	H	L	M	L	M	H	L,M	H	L	M	L	M	H	Model
α	23	33	34.47	40	35	45	39.56	45.7	43.21	50.15	40.97	44	40.3	52.3	60.12	34.47
β	0.6	0.56	0.52	0.53	0.51	0.53	0.5	0.499	0.498	0.47	0.487	0.48	0.485	0.469	0.45	0.52
ρ	238.4	235	240.75	232	222	213	204	198.6	190.23	178.65	187.3	180	185.43	175.6	176.4	240.75
Observations	2234	2316	3269	2513	2127	1249	1079	2945	555	121	2818	2633	1735	2102	1970	
% Change in RMSE	0.40%	0.10%	0.00%	-0.10%	-0.20%	-0.60%	-1.20%	-1.60%	-5.60%	-6.60%	-1.10%	-1.50%	-1.70%	-4.60%	-2.70%	

Concrete Patches																	
Zone	1,2,3	1,2,3	1	1	1	2	2	2	1	1	2	2	2	3	3	3	CP
Treatment	HR	HR	LR	LR	LR	LR	LR	LR	PM	PM	PM	PM	PM	LR	PM	PM	Original
Traffic level	L	M,H	L	M	H	L	M	H	L	M,H	L	M	H	L,M,H	L	M,H	Model
α	472.2	403.4	384.5	430.25	450.18	410	130.45	120.11	460.74	465	15.15	19.67	21.77	450.3	455.84	463.14	478.6
β	0.52	0.5	0.49	0.49	0.47	0.49	0.58	0.58	0.46	0.46	0.33	0.33	0.32	0.49	0.49	0.49	0.37
ρ	595.9	595.1	596.1	570.11	594	597.5	220.5	200	600	580	30.34	29.6	25.89	595.1	520.5	497.89	504.57
Observations	2234	5585	1249	1079	731	2513	2127	2214	1735	2466	2818	2633	1566	107	504	65	
% Change in RMSE	1.8%	7.0%	-93.7%	-91.7%	-92.1%	-92.8%	-88.4%	-90.1%	-82.0%	-71.1%	-54.9%	-40.9%	-25.2%	-90.2%	-7.9%	-38.5%	

Note: original model recommended for longitudinal cracks, heavy rehabilitation, heavy traffic (all zones).

Appendix K final page

Shattered Slabs					
Zone	1,2,3	1,2,3	1,2,3	1,2,3	SS
Treatment	HR	LR	PM	PM	Original
Traffic level	L,M,H	L,M,H	L,M	H	Model
α	13.00	12.10	13.08	13.03	80
β	0.71	0.59	0.61	0.55	1
ρ	300.00	298.00	235.00	265.00	30
Observations	7,819	10,020	9,817	1,970	
% Change in RMSE	-98%	-99.7%	-86%	-97%	

NOTE: For the above tables, Low Traffic is defined as having a projected 20 year 18KESAL forecast below 1,000,000; Medium Traffic is between 1,000,000 and 10,000,000; and High Traffic is greater than or equal to 10,000,000.