

**Data Supplement A:
Data from Kaplan-Meier Deterioration Analysis**

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List of Abbreviations and Acronyms

CI.....	Confidence Interval
Delam.....	Delamination
NBI.....	National Bridge Inventory
PSC.....	Prestressed Concrete
R/C.....	Reinforced Concrete
SS.....	Superstructure
Stl.....	Steel
Sub.....	Substructure
TICR.....	Time in Condition Rating

Introduction

The supplemental data included herein consists of the Kaplan-Meier (K-M) survival analysis results for nine states that participated in study TPF-5(388), “Developing Implementation Strategies for Risk Based Inspection (RBI).”

The data for each state includes a summary of the median Time in Condition Rating (TICR) for the bridge components of reinforced concrete (R/C) bridge decks, steel superstructures, prestressed concrete (PSC) superstructures, and substructures. Data in the summary tables includes the median TICR, the 95% confidence interval (CI) for the median TICR, the mean TICR, and the standard error for the median TICR. Following the table summary table, the results from the K-M survival analysis are shown for each component in each state. The following four graphs are shown for each component:

1. Service life graph showing the National Bridge Inventory (NBI) condition rating (CR) on the ordinate and the service life of the abscissa. The plot shows the median TICR value for the given component with error bars indicating the confidence interval.
2. Reliability graph showing the reliability (%) on the ordinate and the TICR on the abscissa. Data is shown for CR 8, 7, 6, 5, and 4. These data show the likelihood that the component has not transitioned to next lower CR at the time shown on the abscissa.
3. Deterioration graph, which is the complement of the reliability graph and shows the likelihood that the component has transitioned to the next lower CR at the time shown on the abscissa.
4. Cumulative hazard graph that shows the cumulative hazard on the ordinate and the TICR on the abscissa. These data show the integral of the instantaneous hazard and illustrate the likelihood that a given component has transitioned to a lower CR prior to the given time shown on the abscissa.

K-M results are shown of Alabama (AL), Connecticut (CT), Idaho (ID), Illinois (IL), Missouri (MO), New York (NY), Pennsylvania, Washington (WA), and Wisconsin (WI).

Kaplan Meier Analysis for Alabama

Table A.1. Kaplan-Meier analysis result for bridge components in Alabama.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	7	6	9	10.12	0.635
5	14	13	15	14.83	0.231
6	14	13	14	15.14	0.149
7	14	13	15	15.16	0.136
8	10	9	10	11.27	0.171
Prestressed Concrete Superstructure					
4	9.5	2	11	9.50	7.500
5	14	10	20	15.41	1.542
6	13	11	15	14.73	0.674
7	14	14	16	15.65	0.309
8	12	11	13	13.07	0.248
Reinforced Concrete Superstructure					
4	8	5	9	9.94	0.984
5	16	15	18	16.81	0.349
6	16	15	17	16.68	0.221
7	19	18	19	18.87	0.201
8	14	13	14	14.37	0.276
Steel Superstructure					
4	11	7	16	13.42	0.952
5	17	16	18	17.04	0.340
6	16	15	17	16.58	0.226
7	16	15	16	16.66	0.244
8	10	8	10	11.73	0.349
Substructure					
4	9	8	10	11.10	0.532
5	14	14	15	15.08	0.251
6	14	13	14	15.26	0.161
7	16	15	16	16.48	0.141
8	10	9	10	11.43	0.163

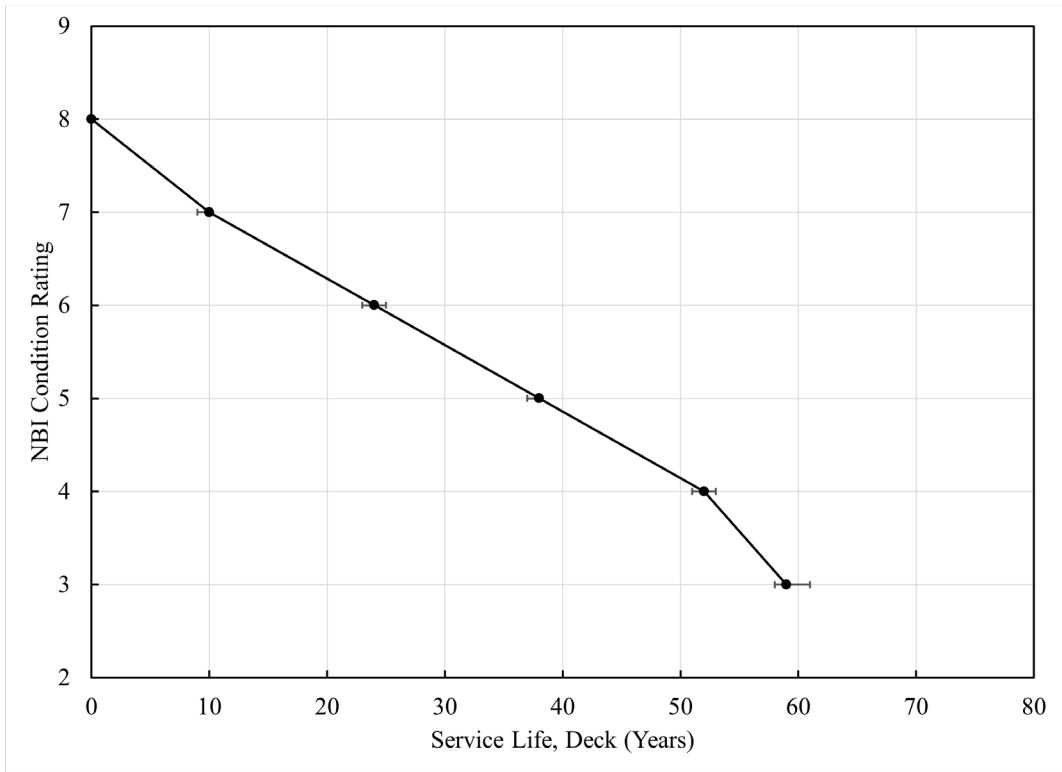


Figure A.1. Service life graph for bridge decks in Alabama.

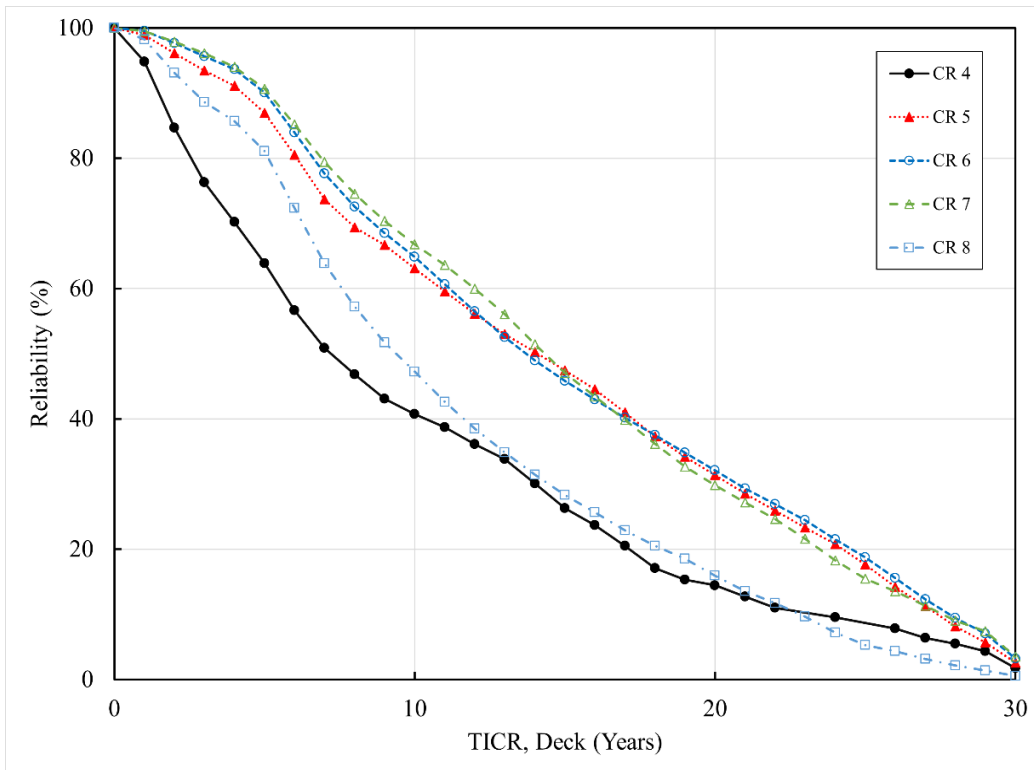


Figure A.2. Reliability graph for bridge decks in Alabama.

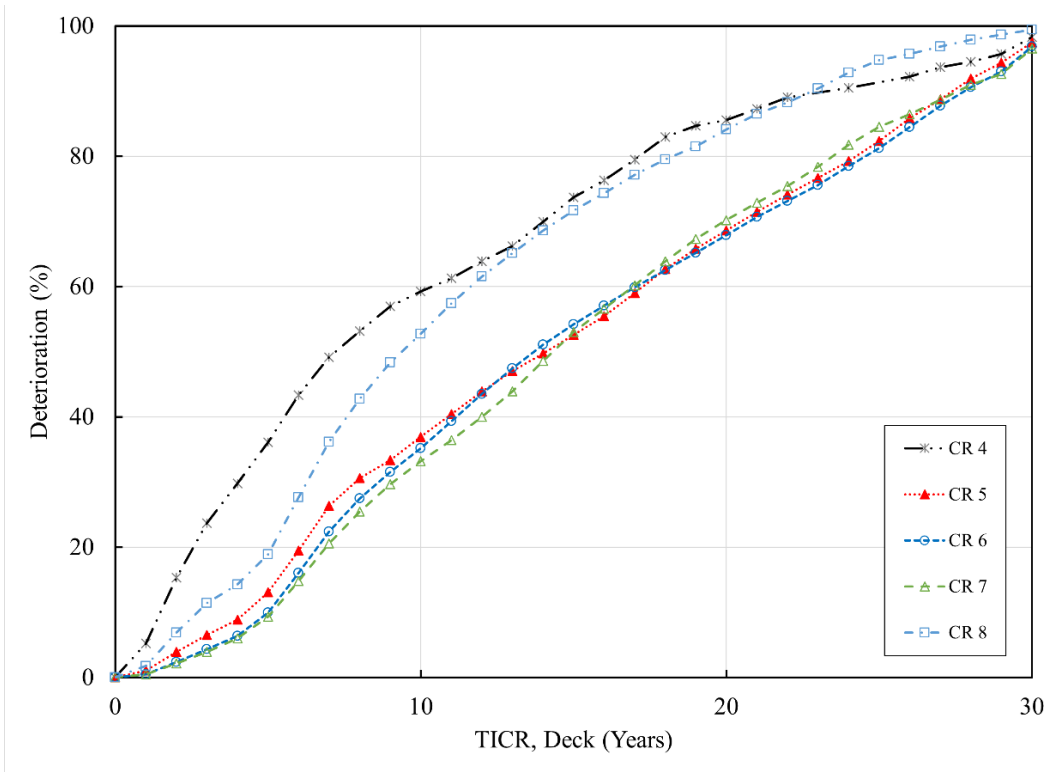


Figure A.3. Deterioration graph for bridge decks in Alabama.

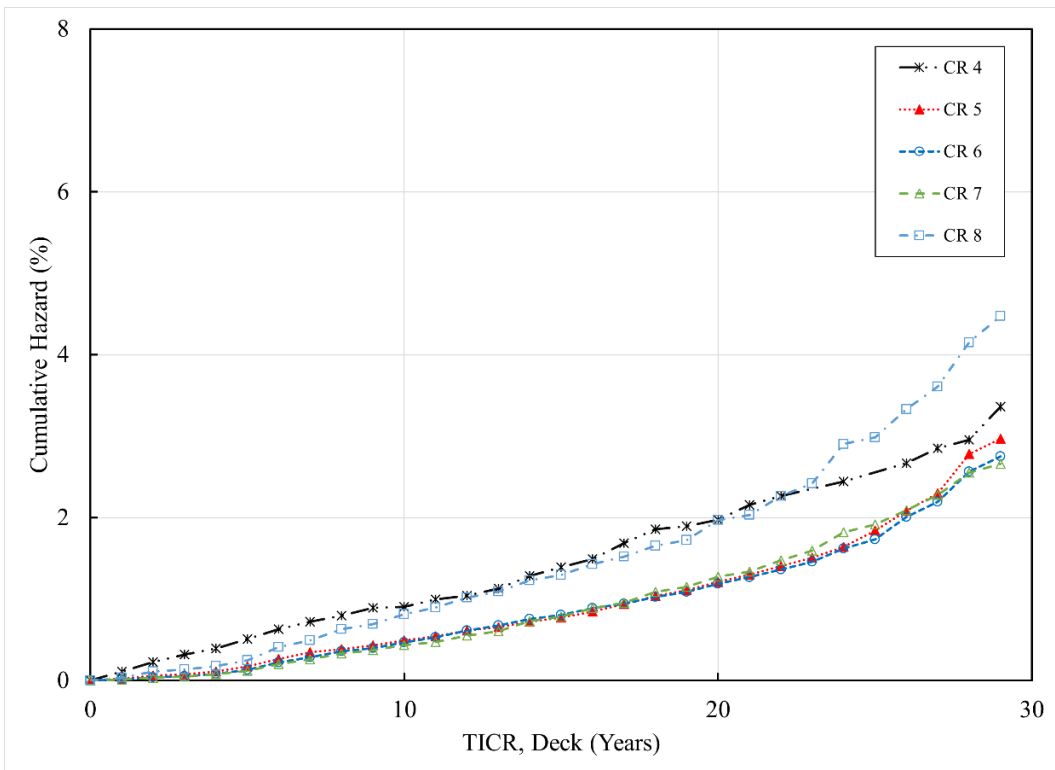


Figure A.4. Cumulative hazard graph for bridge decks in Alabama

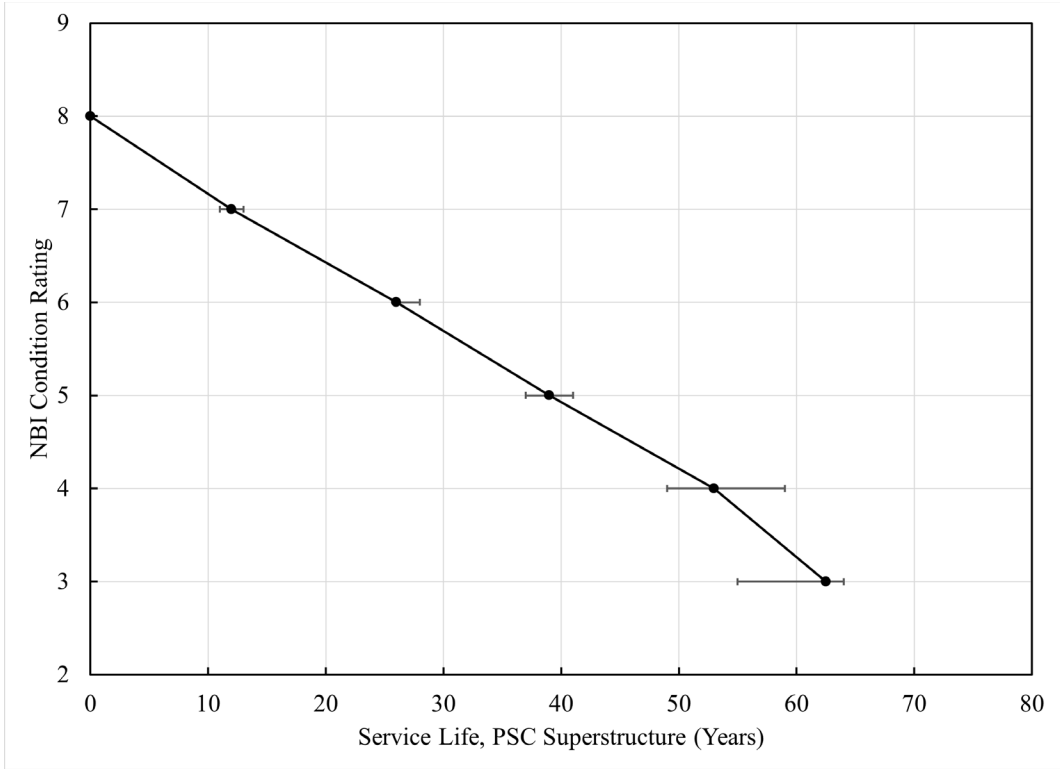


Figure A.5. Service life graph for PSC superstructures in Alabama.

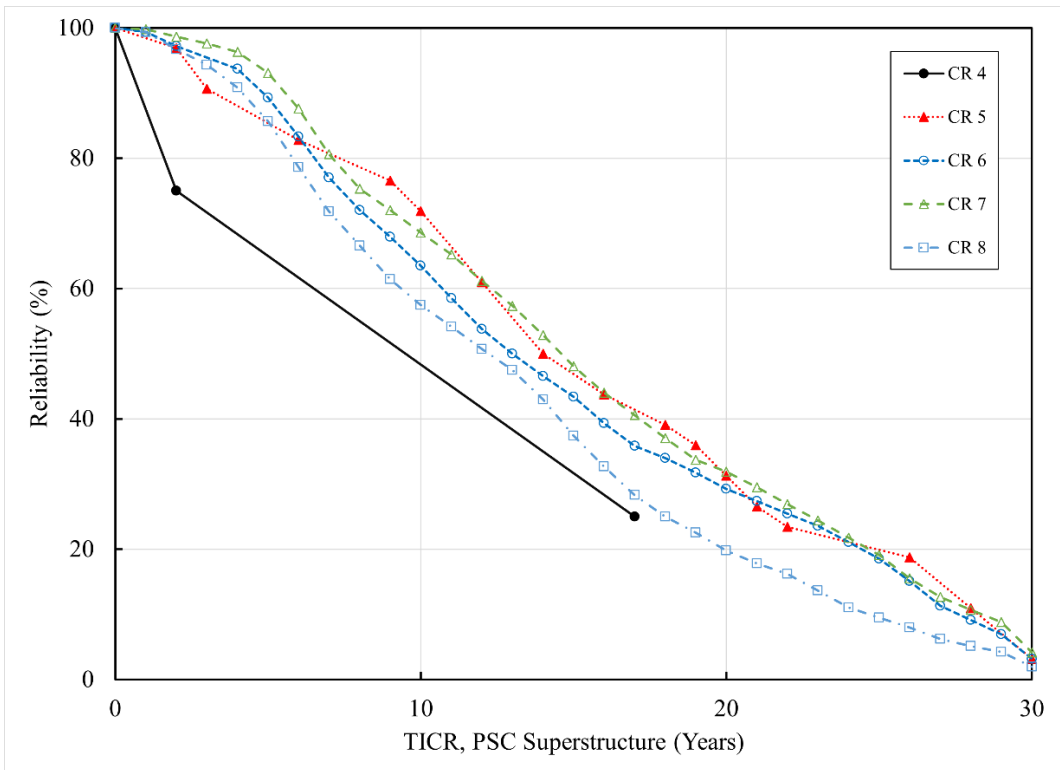


Figure A.6. Reliability graph for PSC superstructures in Alabama.

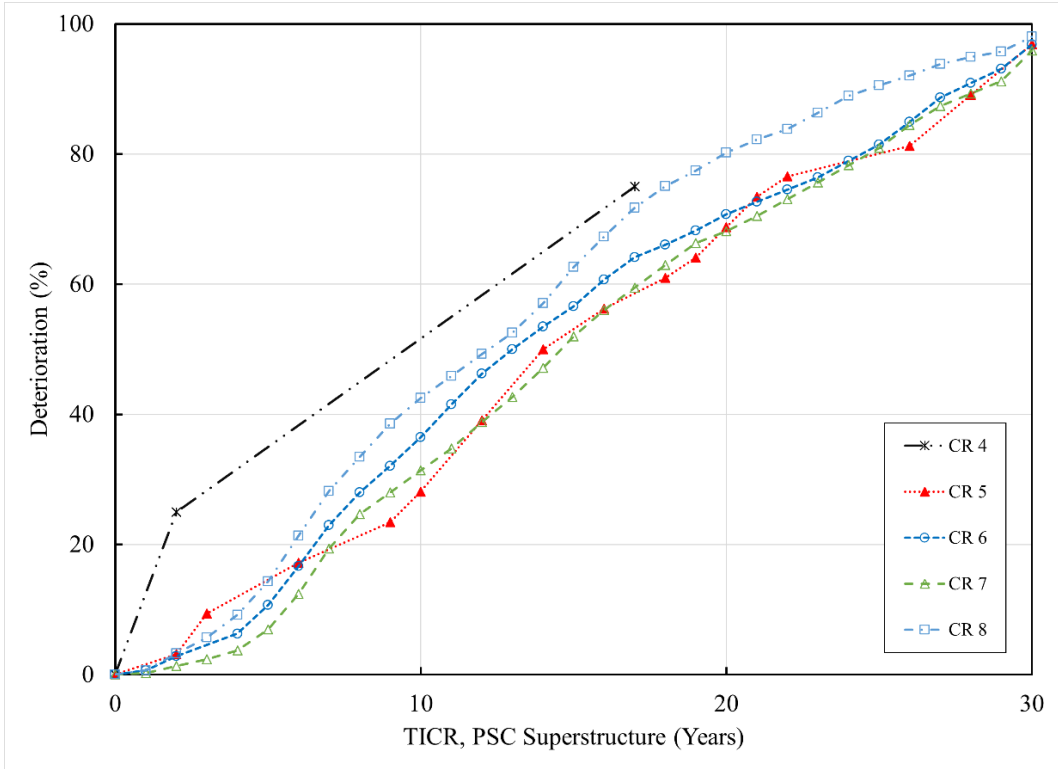


Figure A.7. Deterioration graph for PSC superstructures in Alabama.

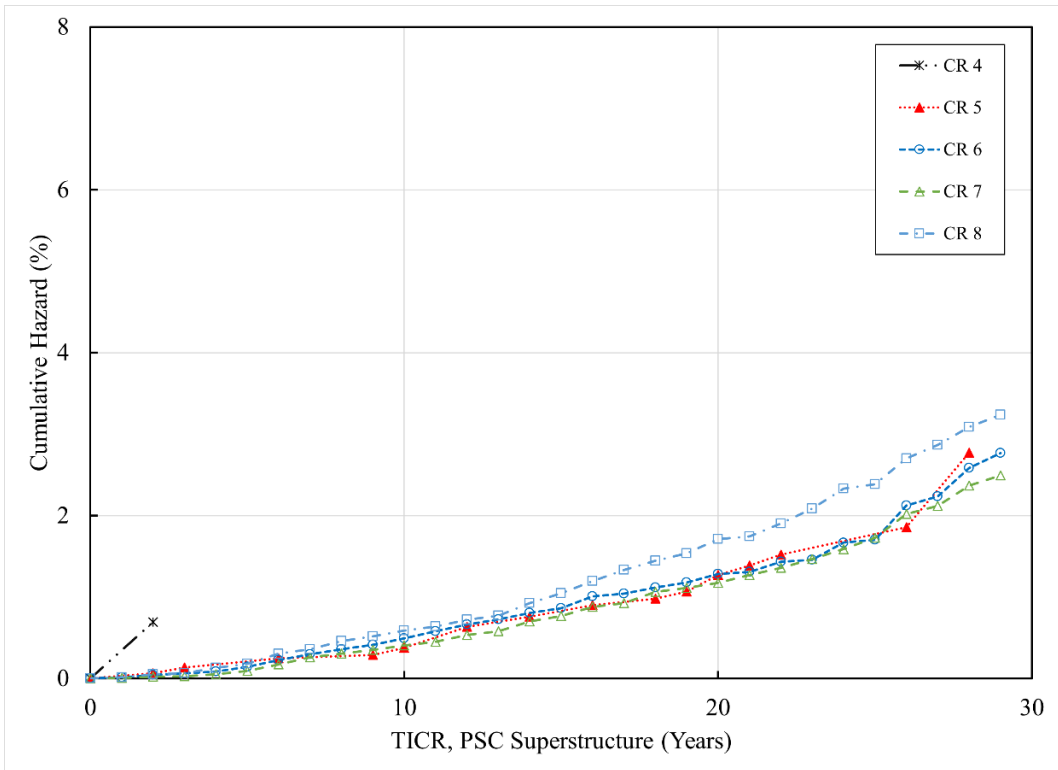


Figure A.8. Cumulative hazard graph for PSC superstructures in Alabama.

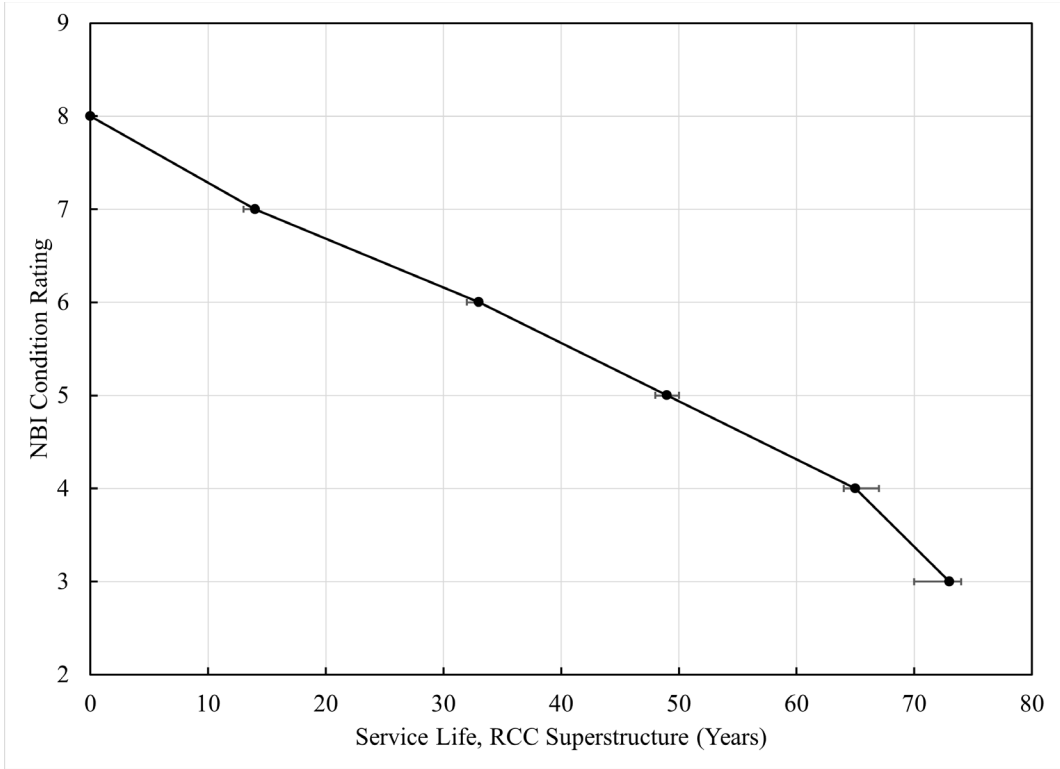


Figure A.9. Service life graph for R/C superstructures in Alabama.

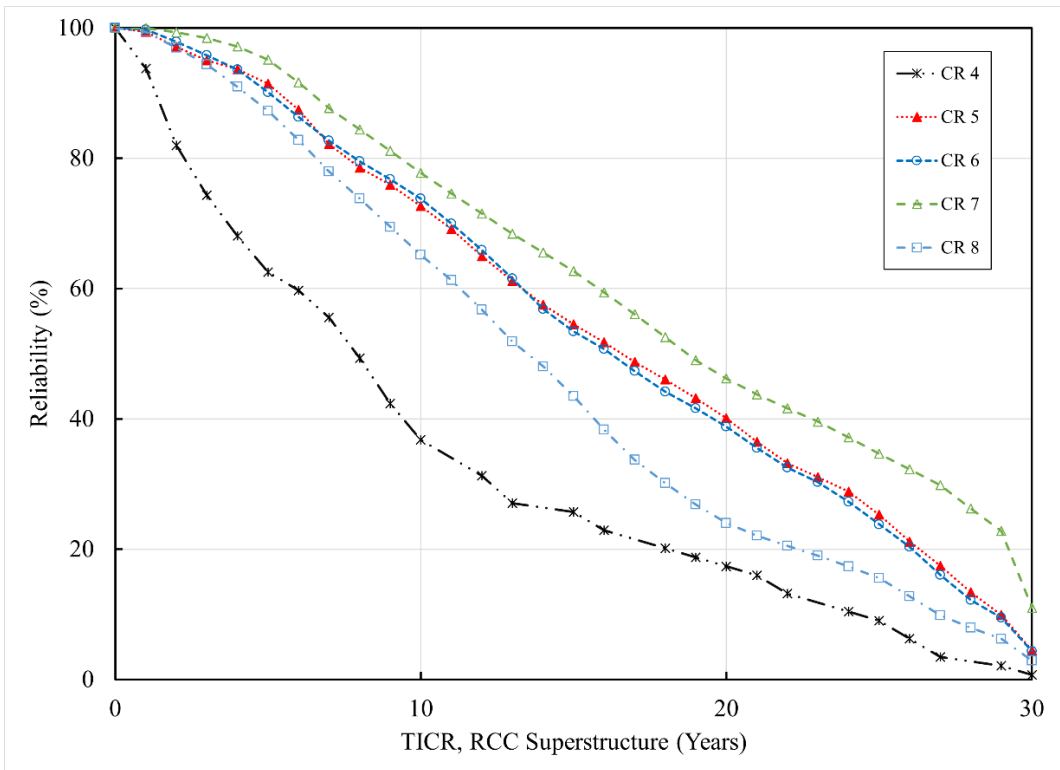


Figure A.10. Reliability graph for R/C superstructures in Alabama.

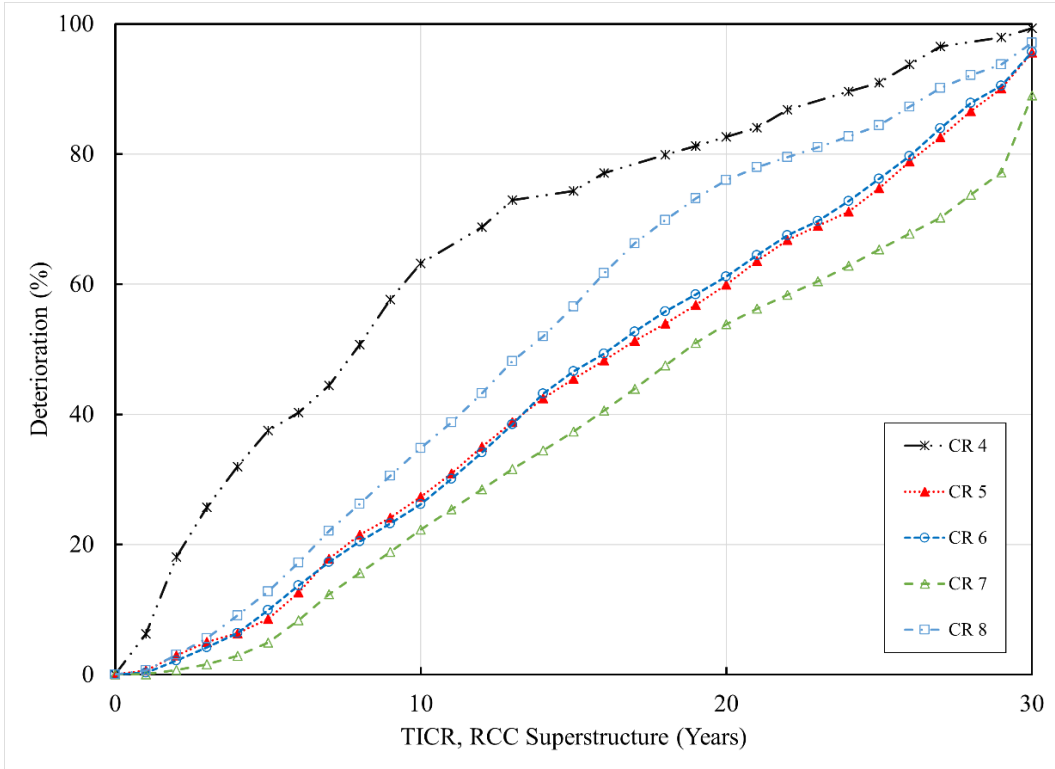


Figure A.11. Deterioration graph for R/C superstructures in Alabama.

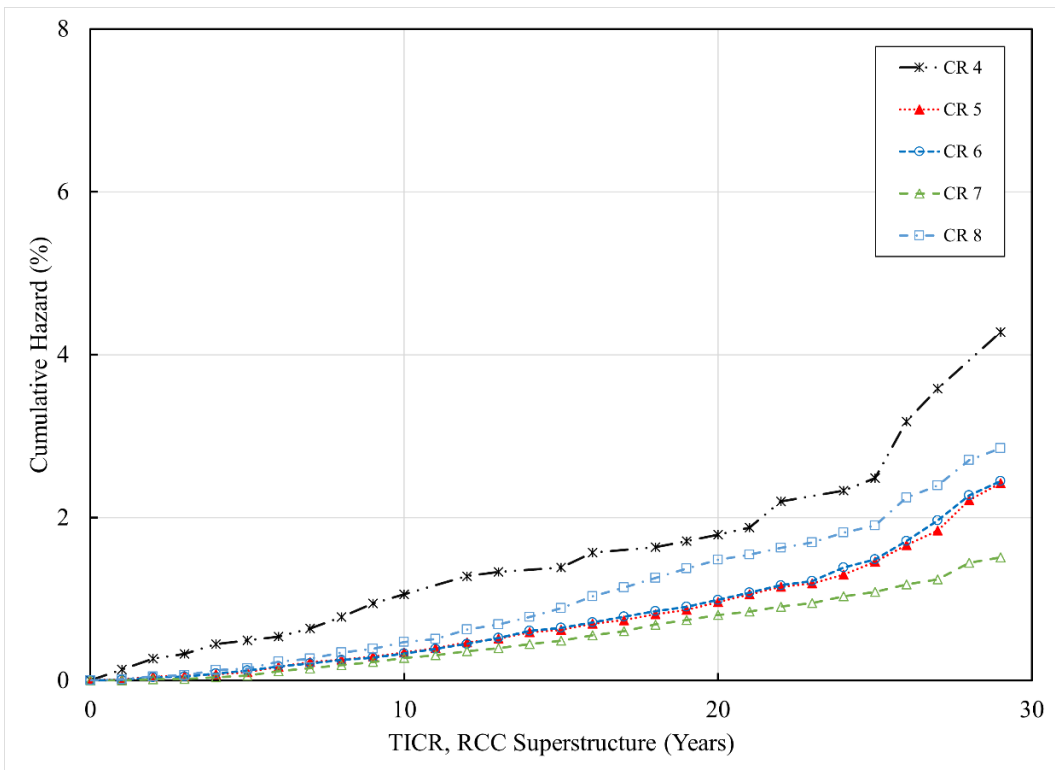


Figure A.12. Cumulative hazard graph for R/C superstructures in Alabama.

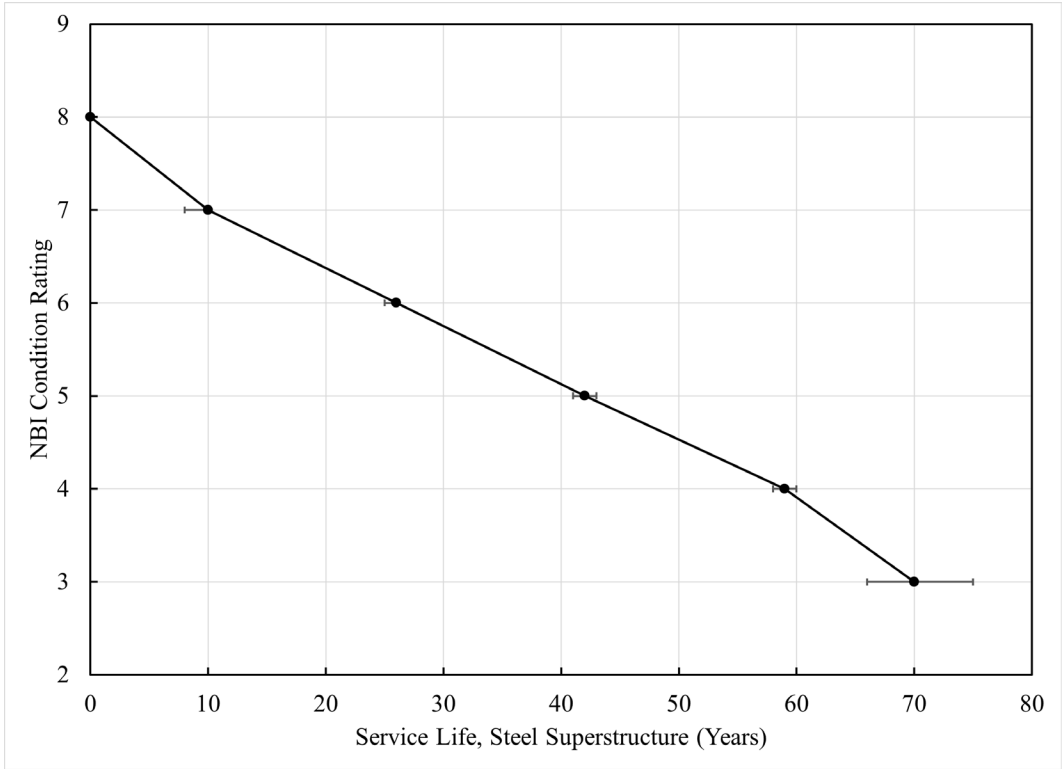


Figure A.13. Service life graph for steel superstructures in Alabama.

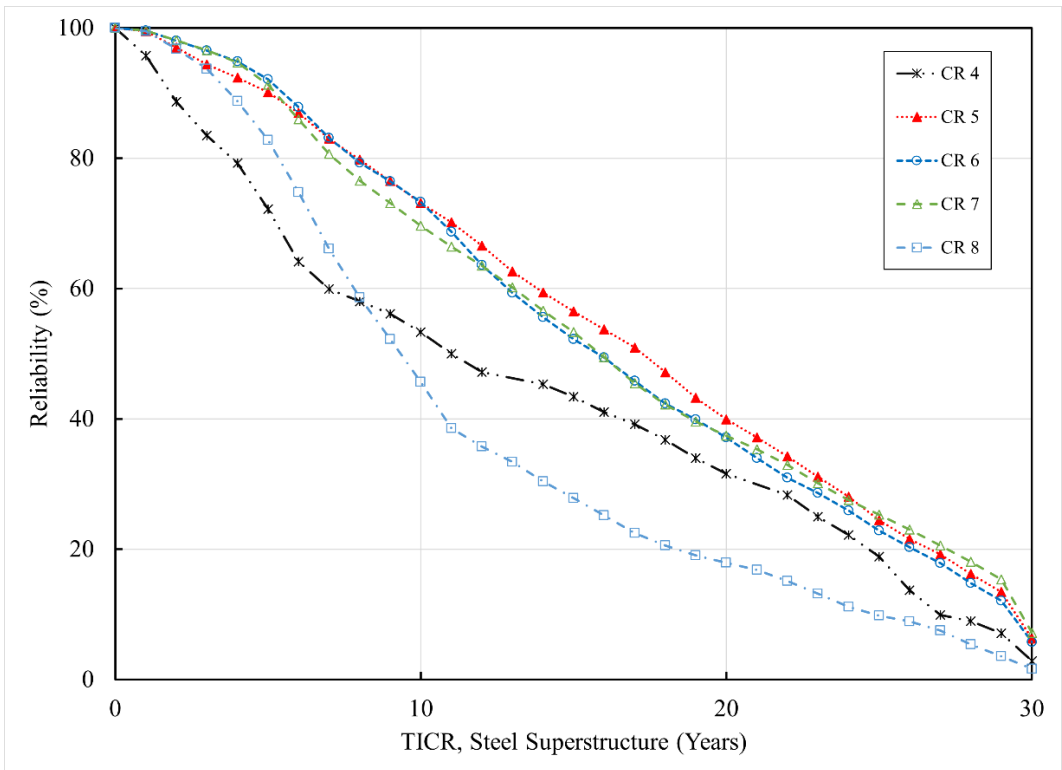


Figure A.14. Reliability graph for steel superstructures in Alabama.

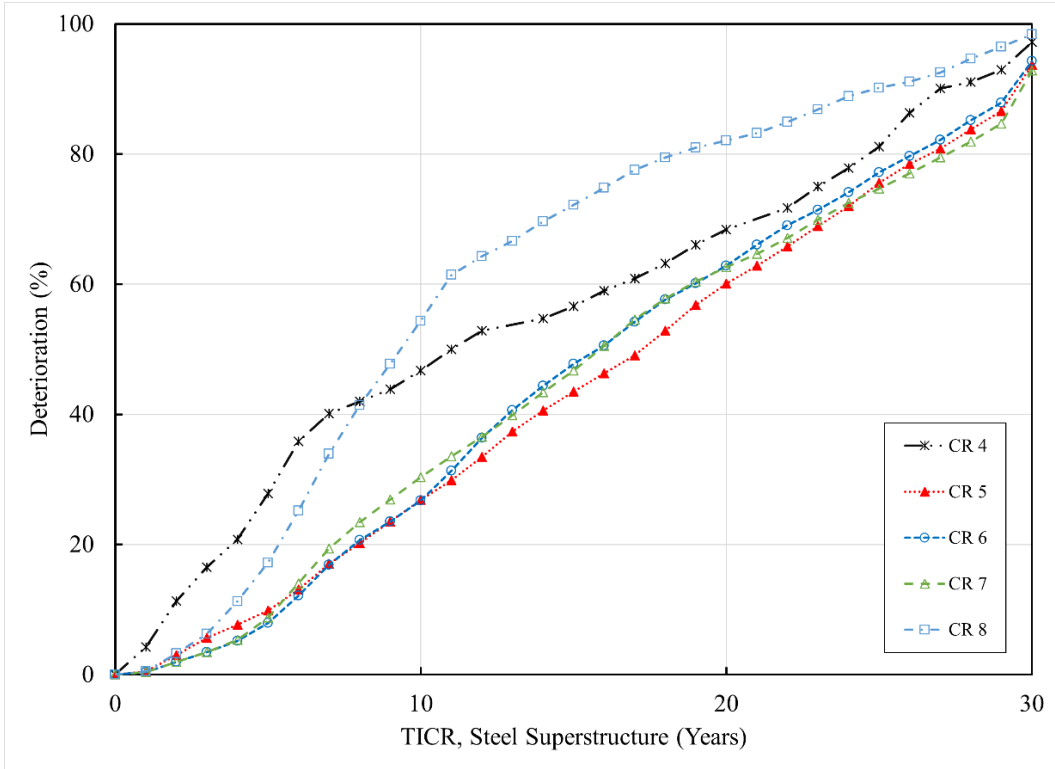


Figure A.15. Deterioration graph for steel superstructures in Alabama.

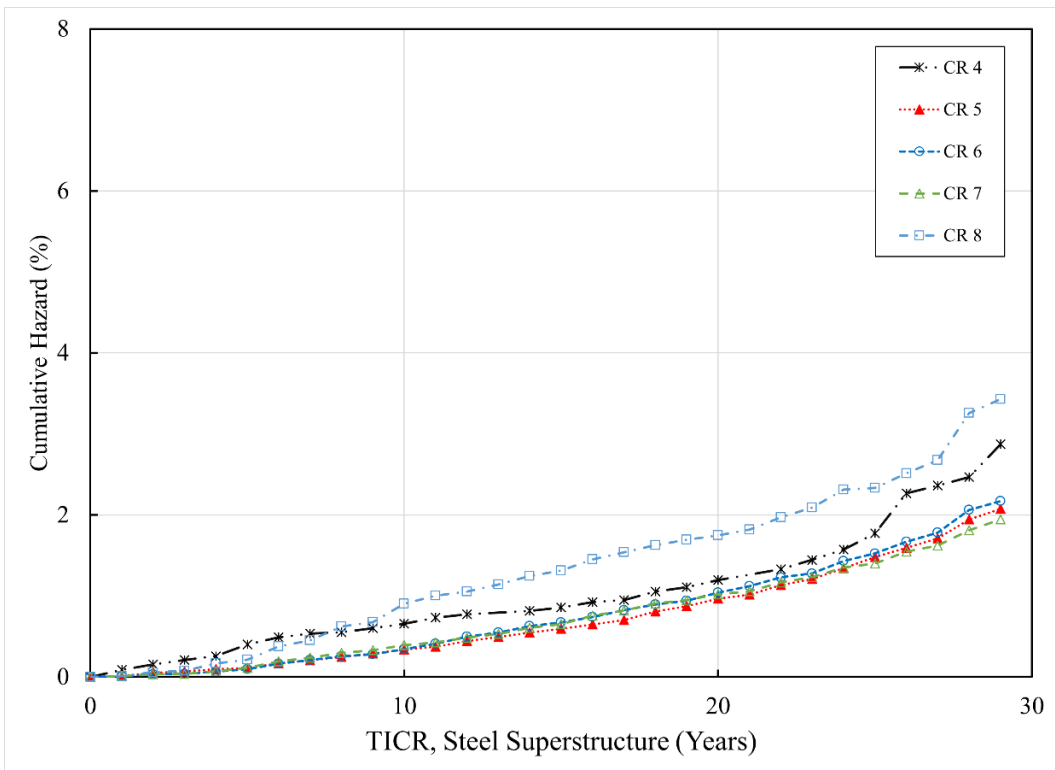


Figure A.16. Cumulative hazard graph for steel superstructures in Alabama.

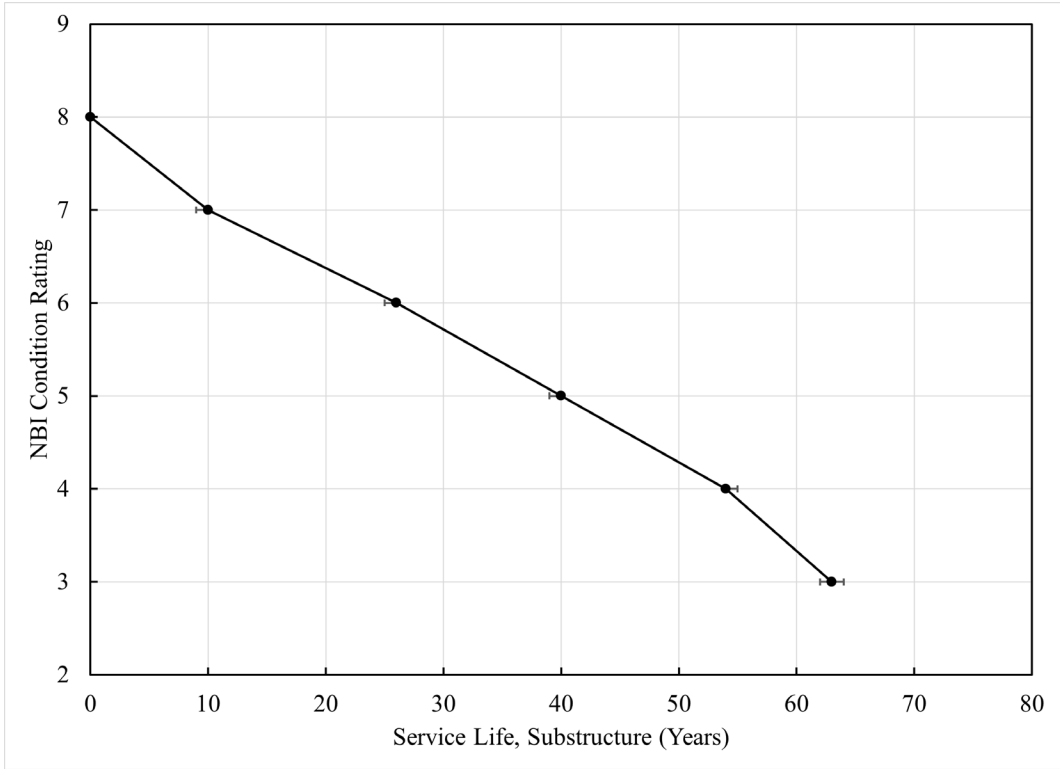


Figure A.17. Service life graph for substructures in Alabama.

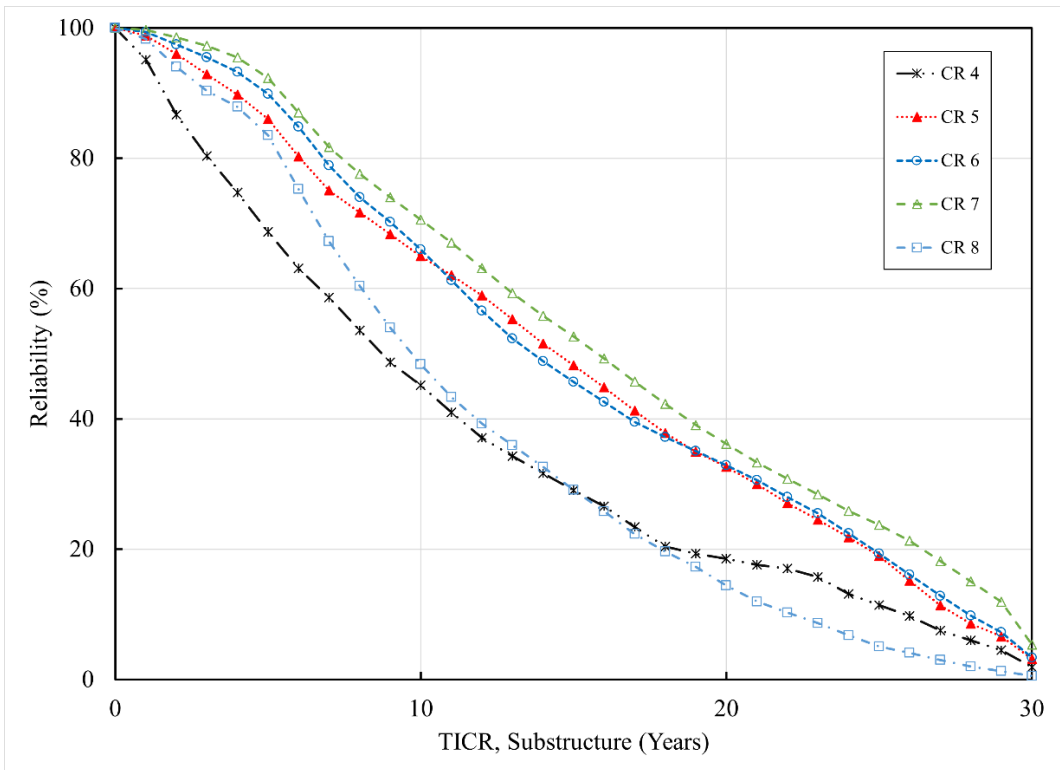


Figure A.18. Reliability graph for substructures in Alabama.

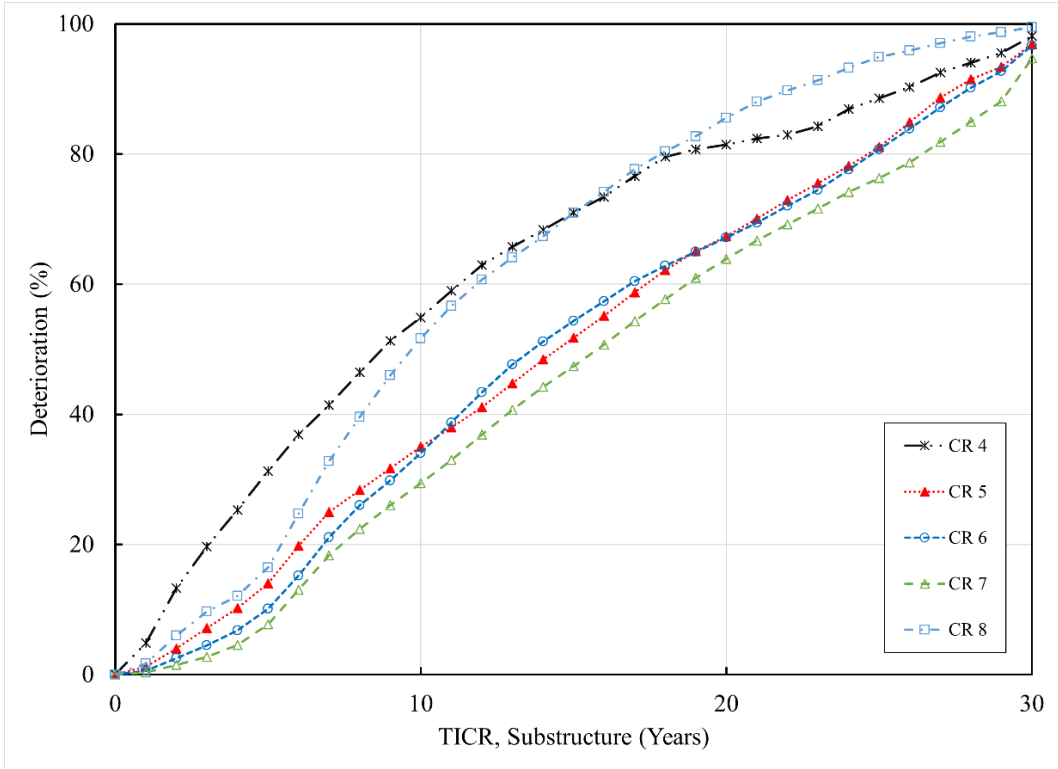


Figure A.19. Deterioration graph for substructures in Alabama.

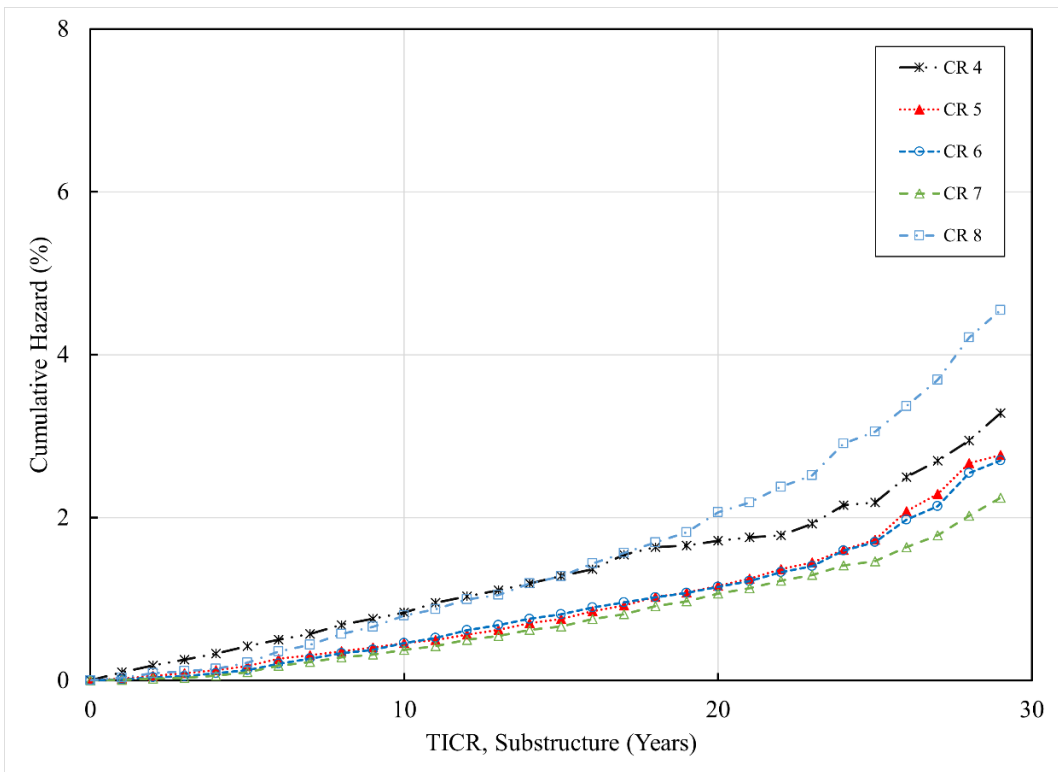


Figure A.20. Cumulative hazard graph for substructures in Alabama.

Kaplan Meier Analysis for Connecticut

Table A.2. Kaplan-Meier analysis result for bridge components in Connecticut.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	6	5	7	6.99	0.207
5	8	7	8	9.76	0.250
6	13	13	14	15.15	0.227
7	19	19	20	18.84	0.212
8	6	5	6	6.81	0.196
Prestressed Concrete Superstructure					
4	8	4	11	8.42	1.196
5	11	9	14	13.38	1.021
6	13	11	14	14.56	0.729
7	18	16	20	18.72	0.685
8	10	8	12	11.32	0.751
Reinforced Concrete Superstructure					
4	9	7	11	10.05	0.720
5	10	8	12	12.33	0.825
6	16	14	18	17.35	0.831
7	17	15	21	18.60	0.871
8	7.5	4	14	10.58	1.556
Steel Superstructure					
4	5	5	6	6.60	0.246
5	8	8	9	9.76	0.246
6	14	14	15	15.55	0.240
7	19	18	19	19.08	0.255
8	8	7	8	9.64	0.266
Substructure					
4	7	6	8	7.76	0.367
5	7	6	7	8.60	0.245
6	14	13	14	14.93	0.206
7	21	21	22	21.22	0.231
8	5	4	6	6.48	0.320

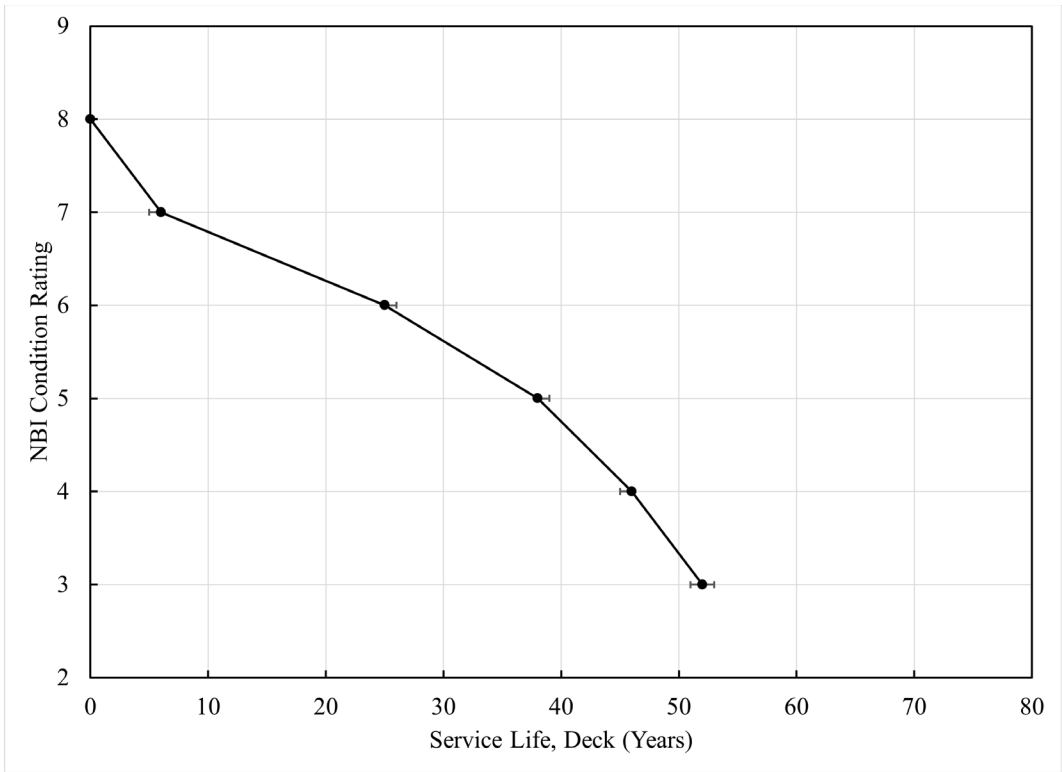


Figure A.21. Service life graph for bridge decks in Connecticut.

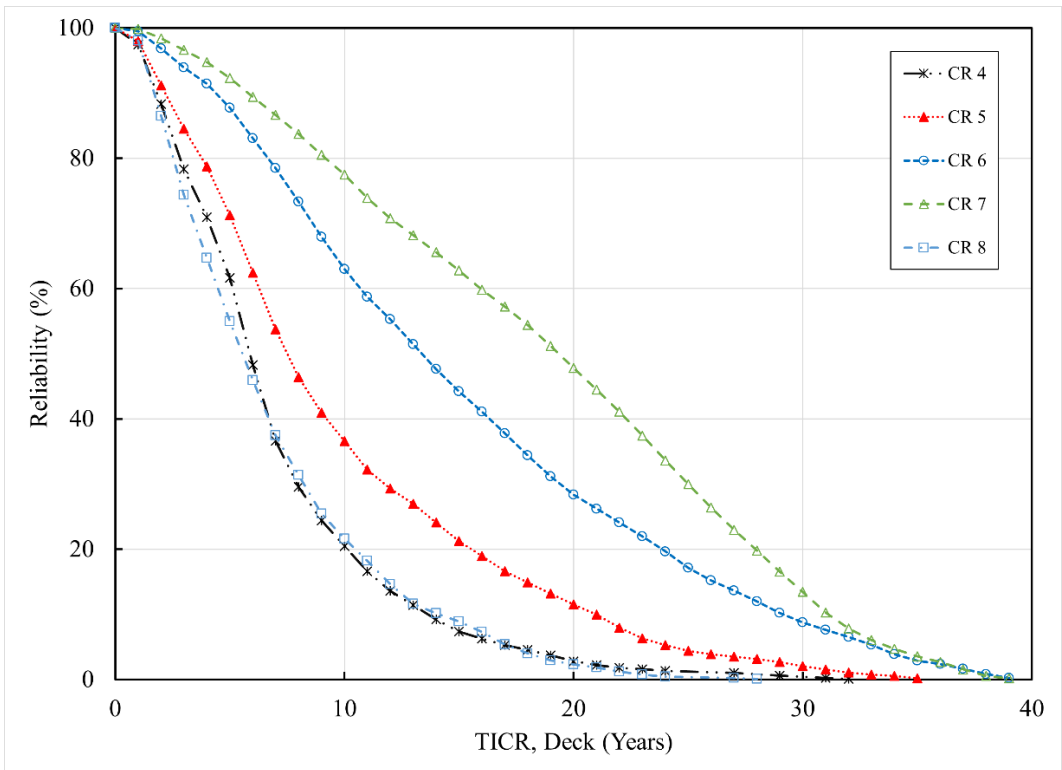


Figure A.22. Reliability graph for bridge decks in Connecticut.

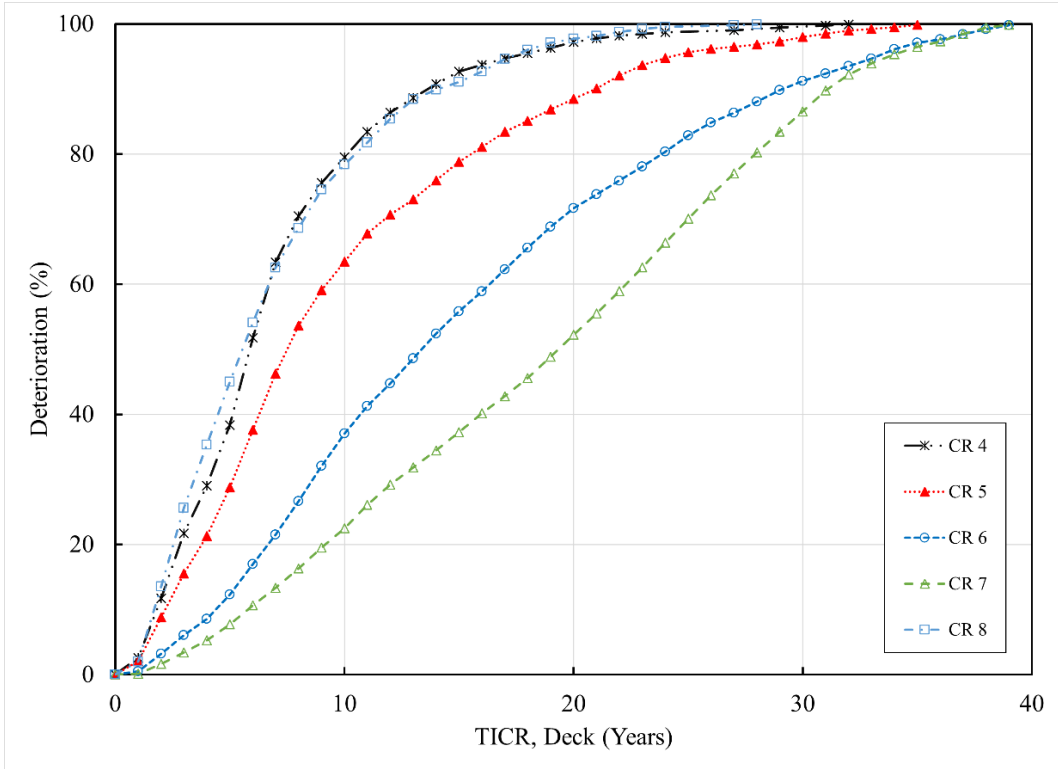


Figure A.23. Deterioration graph for bridge decks in Connecticut.

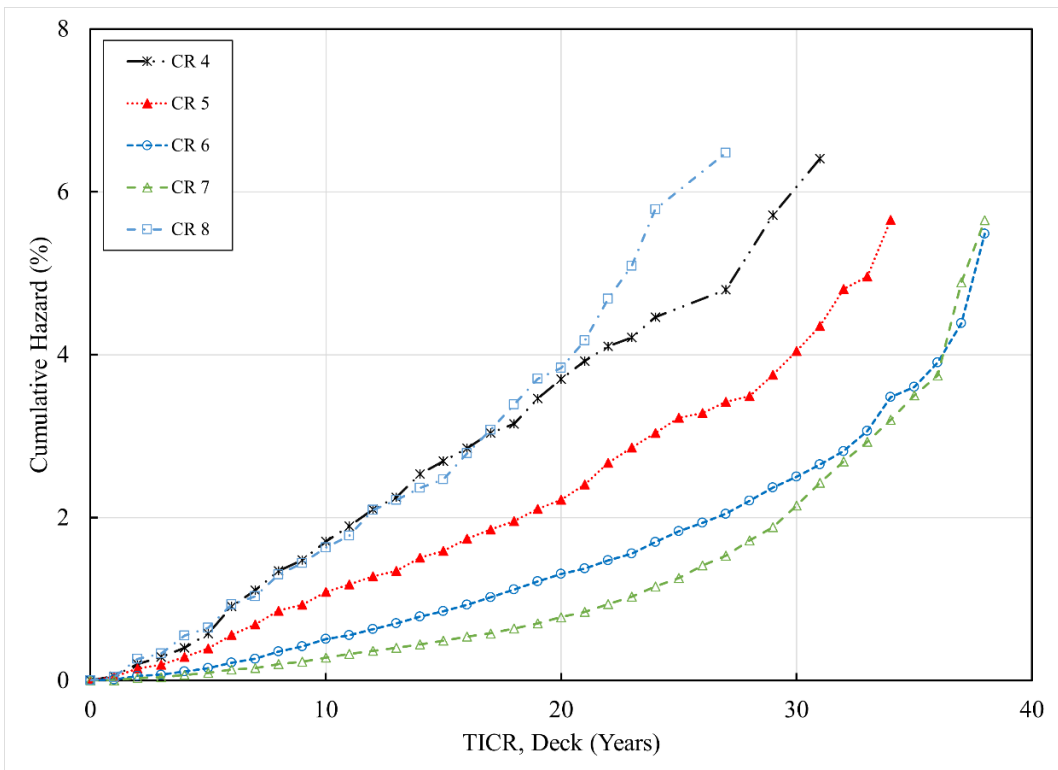


Figure A.24. Cumulative hazard graph for bridge decks in Connecticut.

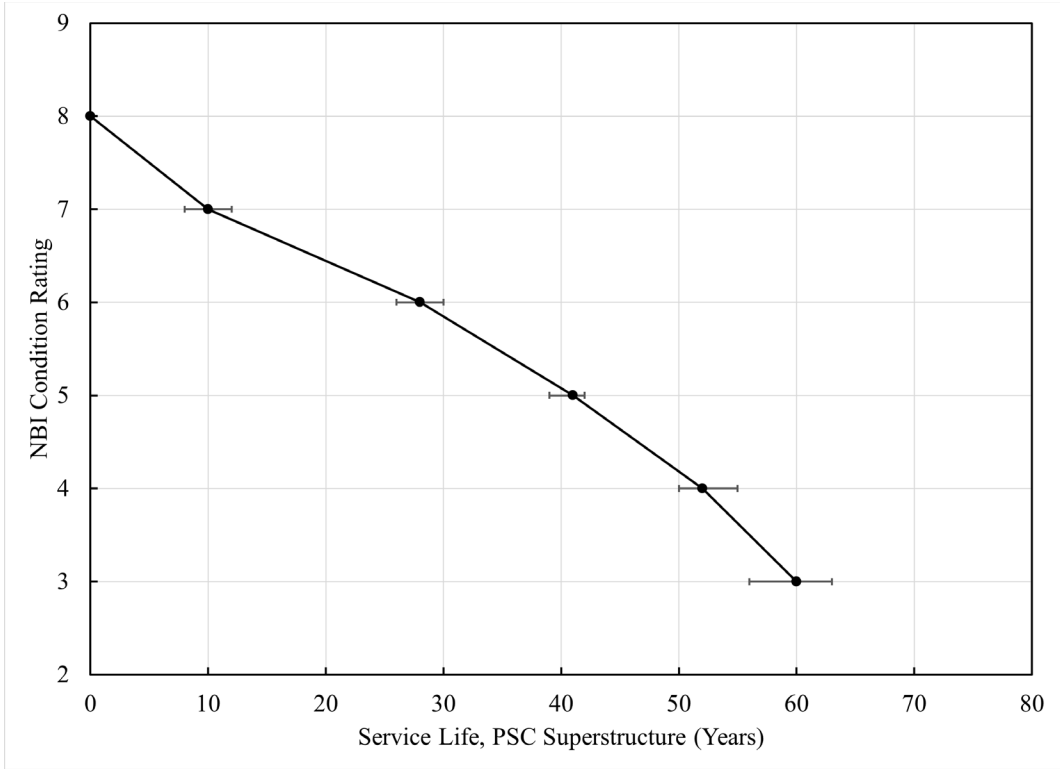


Figure A.25. Service life graph for PSC superstructures in Connecticut.

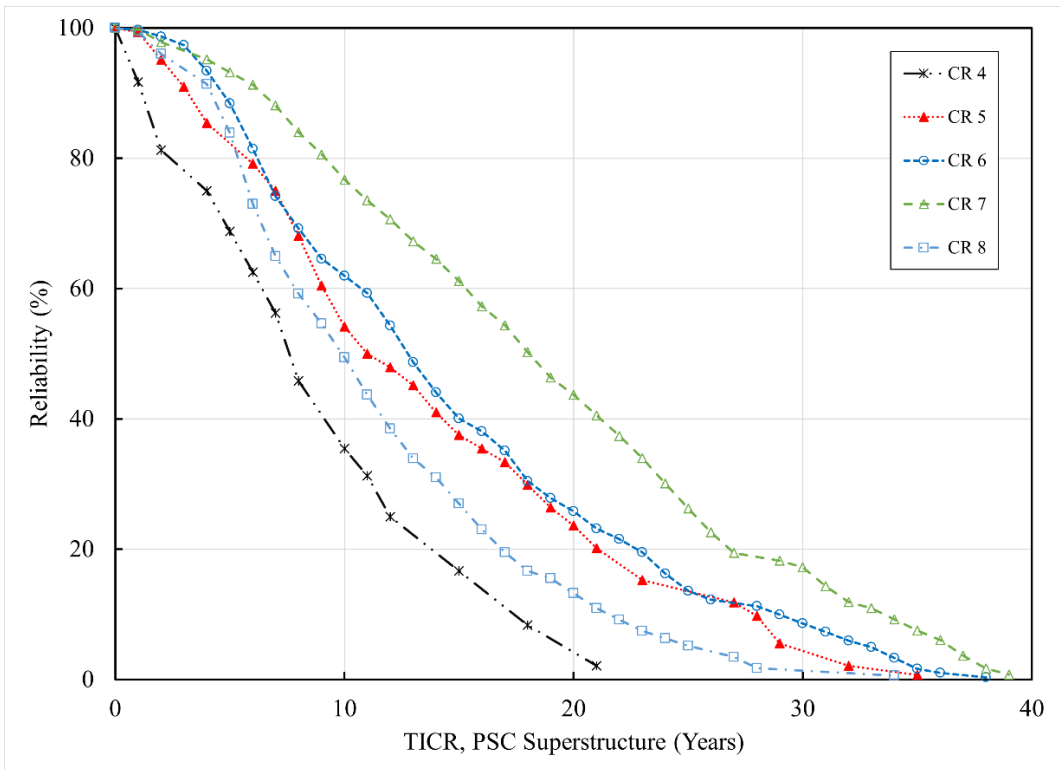


Figure A.26. Reliability graph for PSC superstructures in Connecticut.

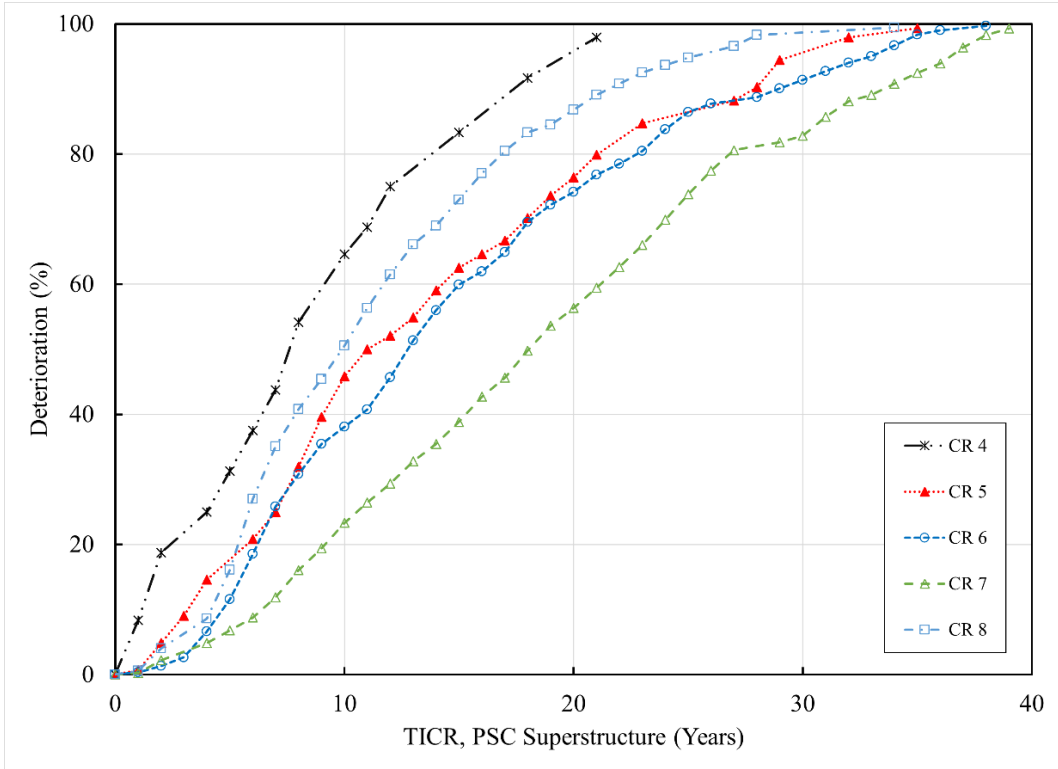


Figure A.27. Deterioration graph for PSC superstructures in Connecticut.

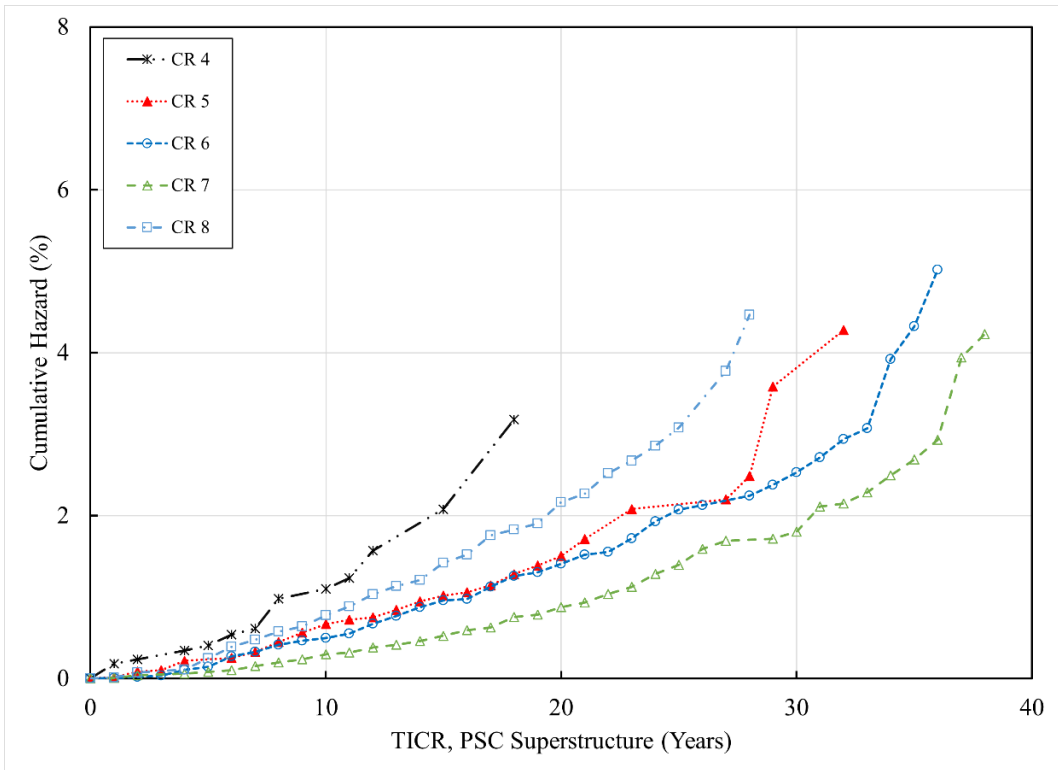


Figure A.28. Cumulative hazard graph for PSC superstructures in Connecticut.

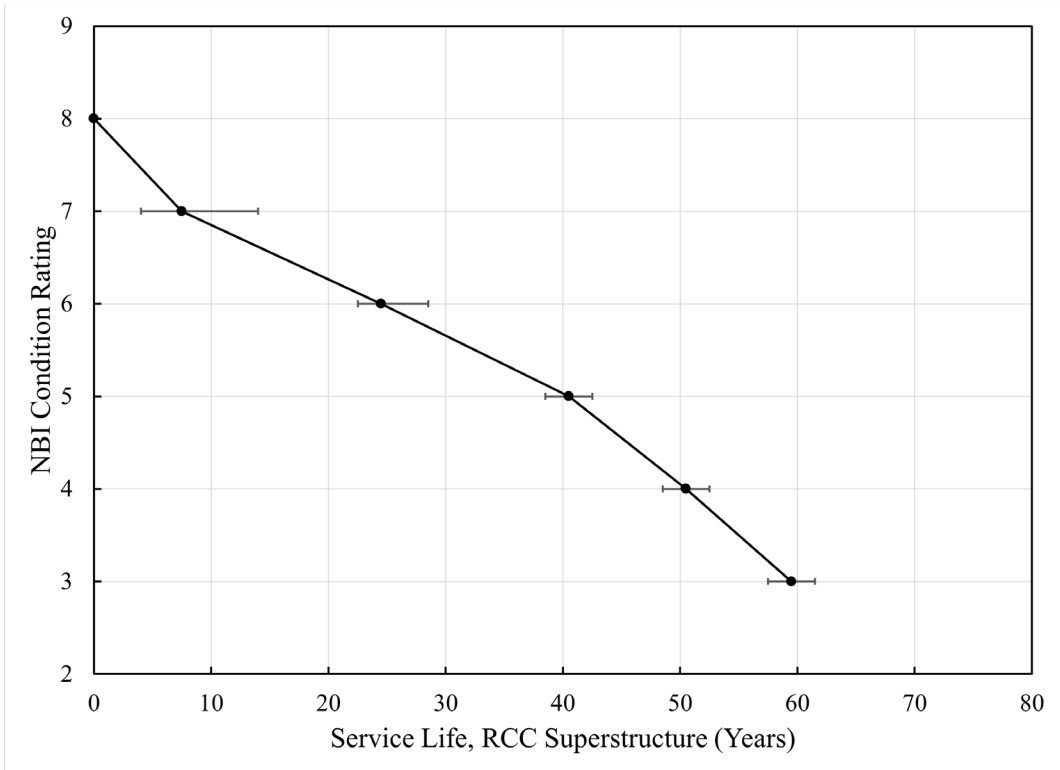


Figure A.29. Service life graph for R/C superstructures in Connecticut.

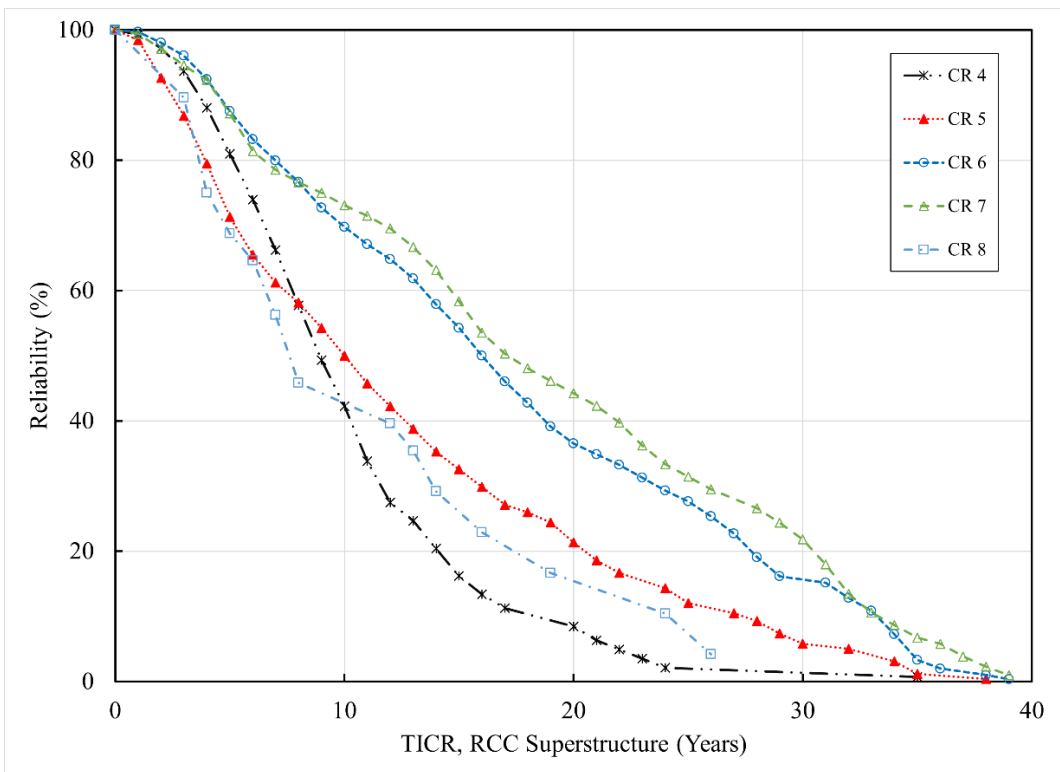


Figure A.30. Reliability graph for R/C superstructures in Connecticut.

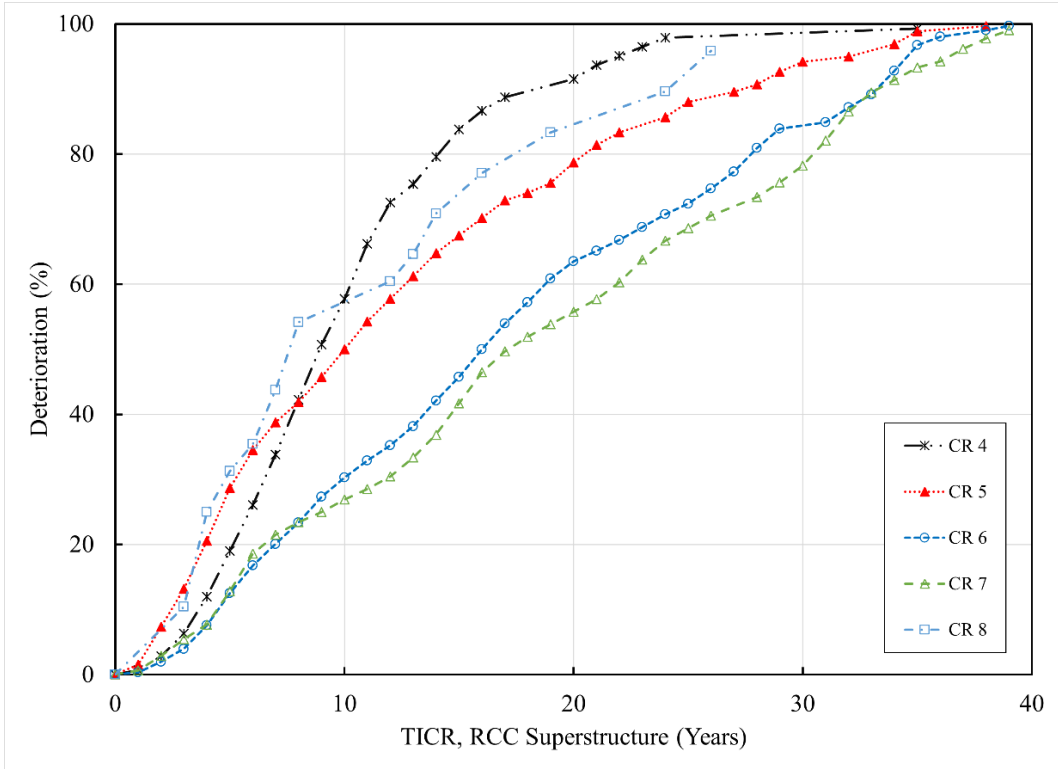


Figure A.31. Deterioration graph for R/C superstructures in Connecticut.

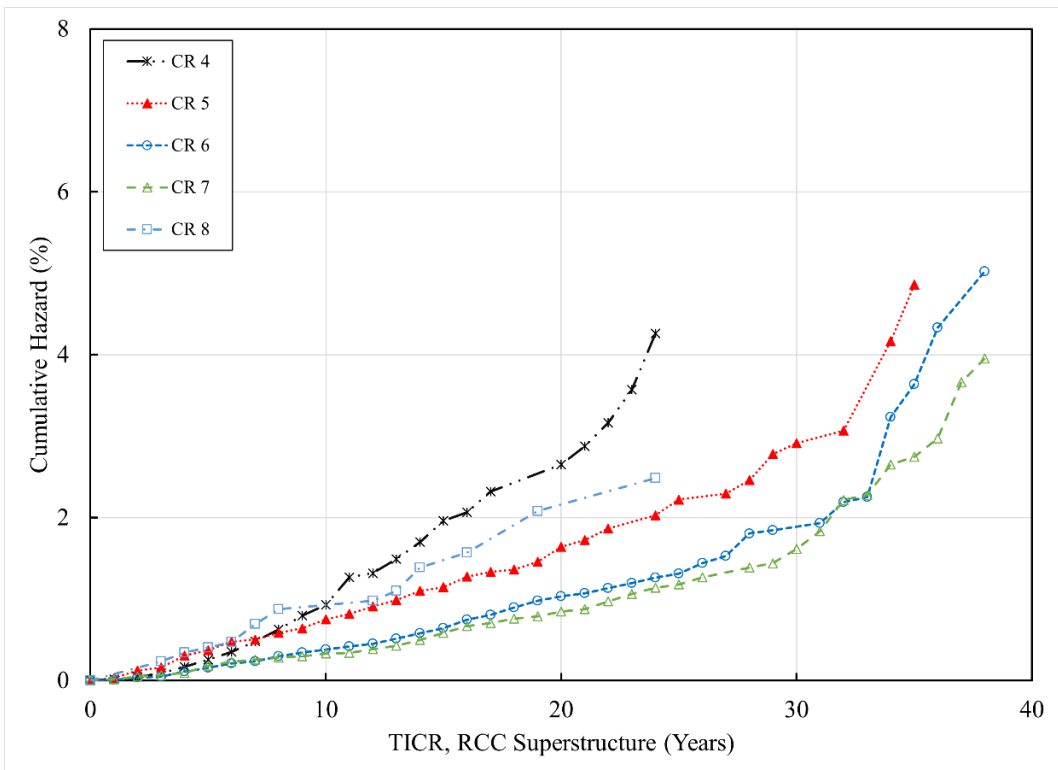


Figure A.32. Cumulative hazard graph for R/C superstructures in Connecticut.

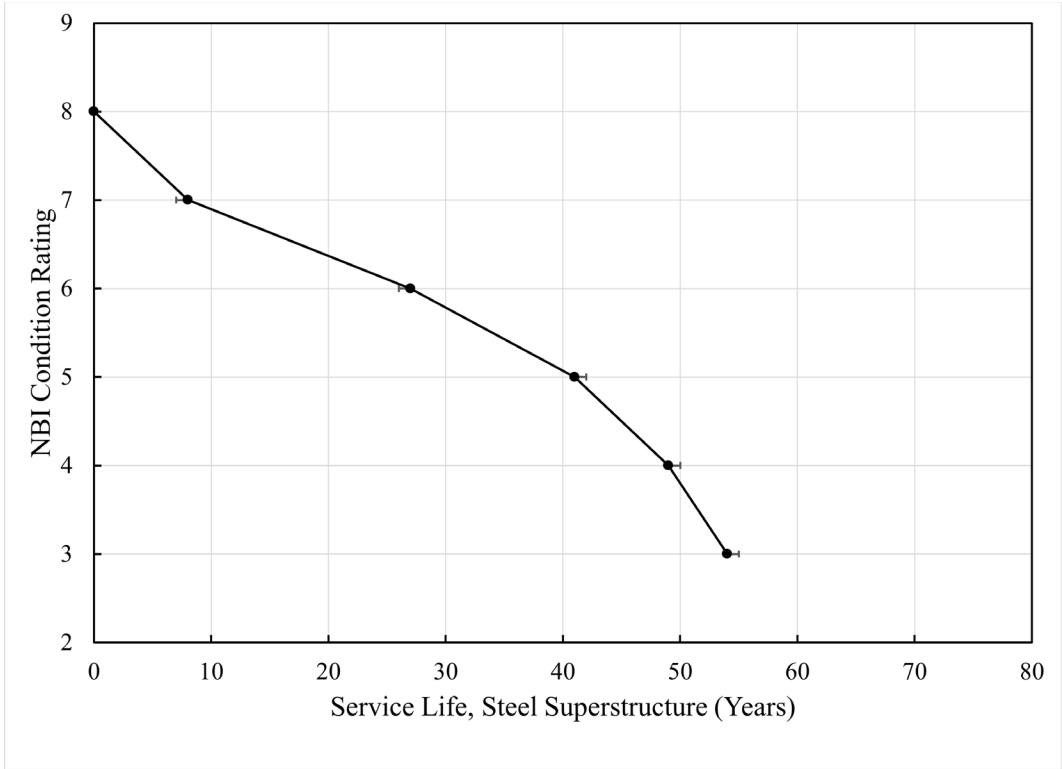


Figure A.33. Service life graph for steel superstructures in Connecticut.

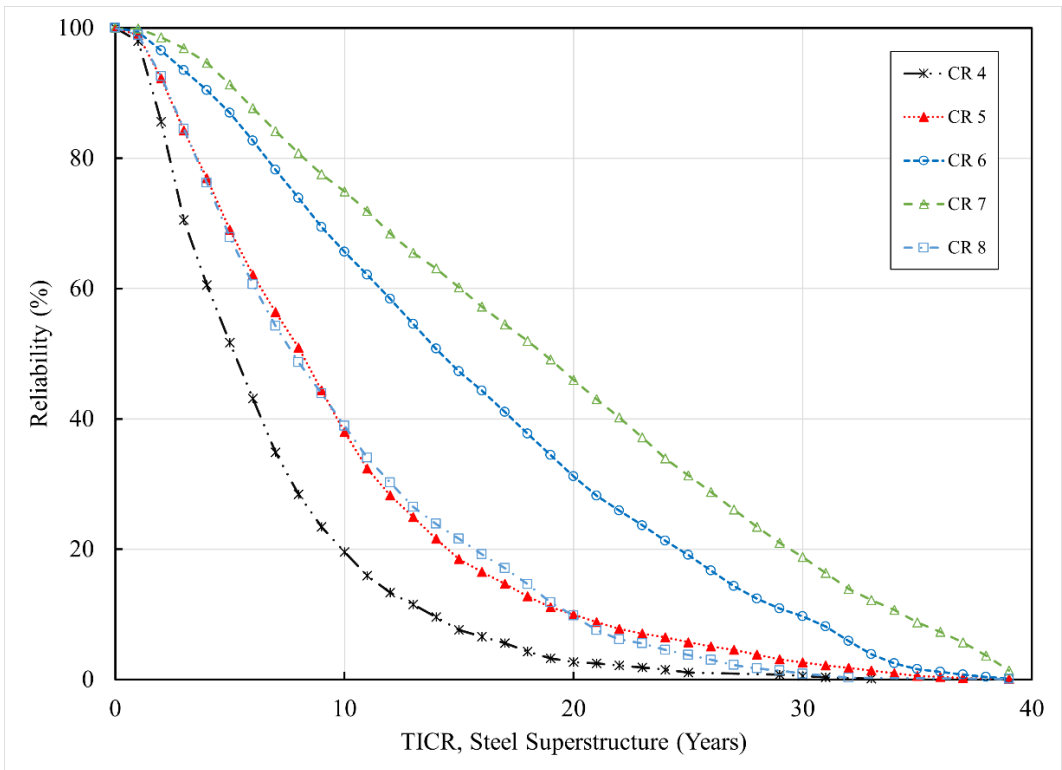


Figure A.34. Reliability graph for steel superstructures in Connecticut.

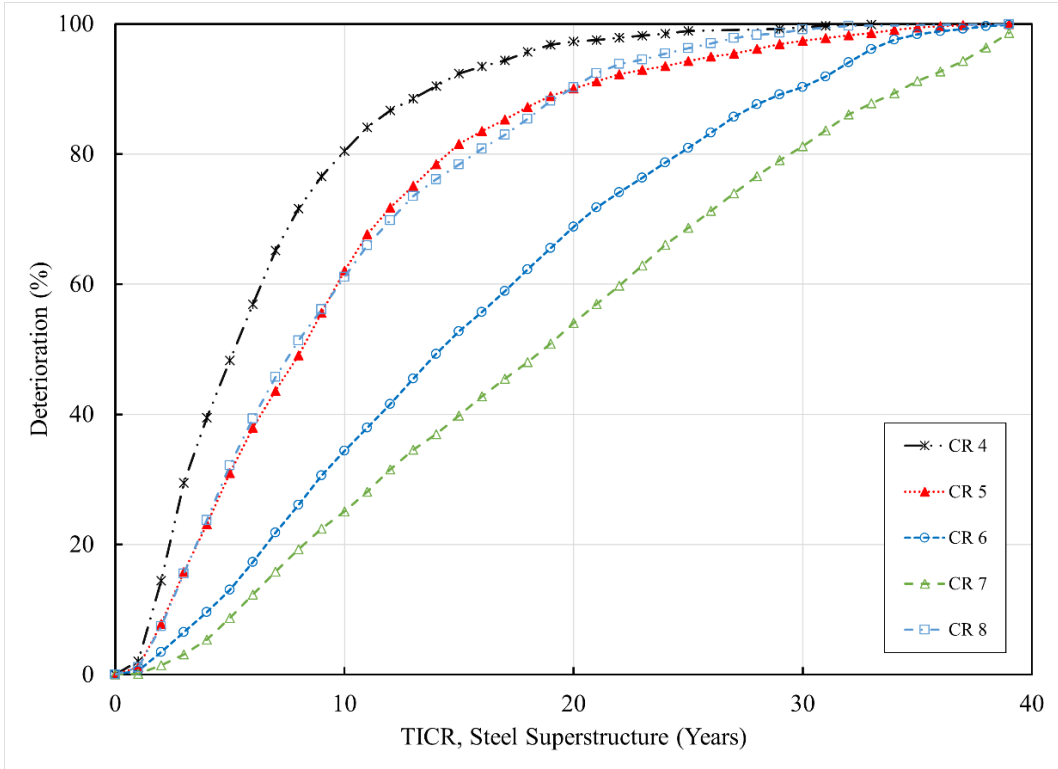


Figure A.35. Deterioration graph for steel superstructures in Connecticut.

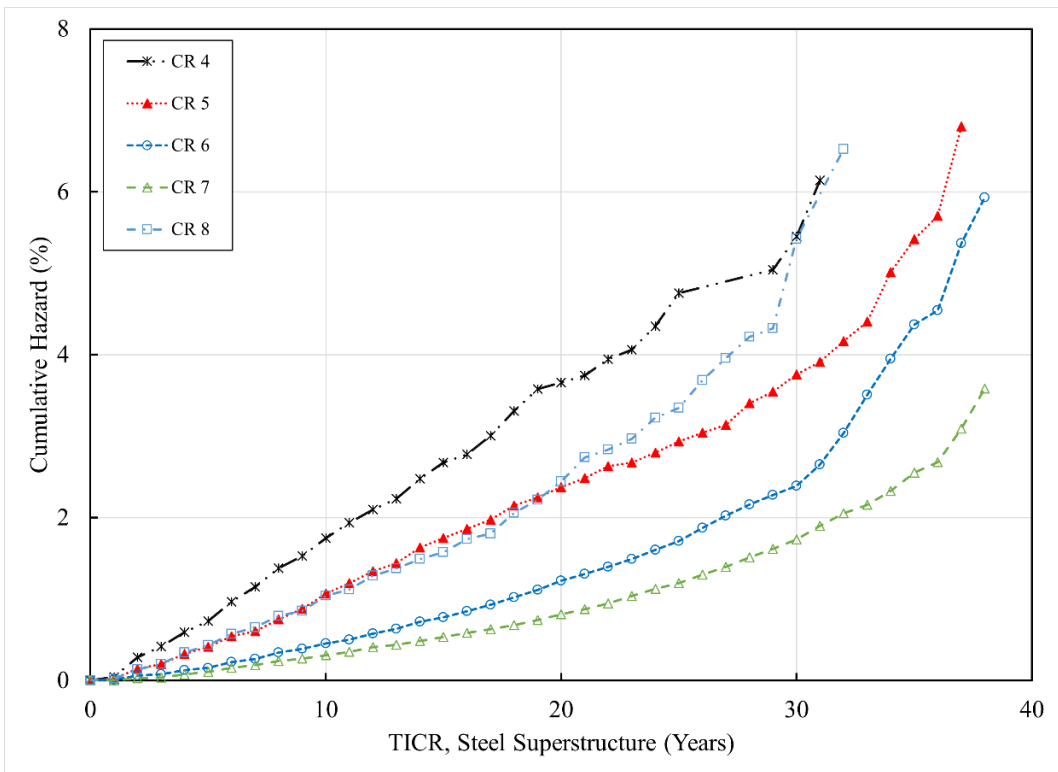


Figure A.36. Cumulative hazard graph for steel superstructures in Connecticut.

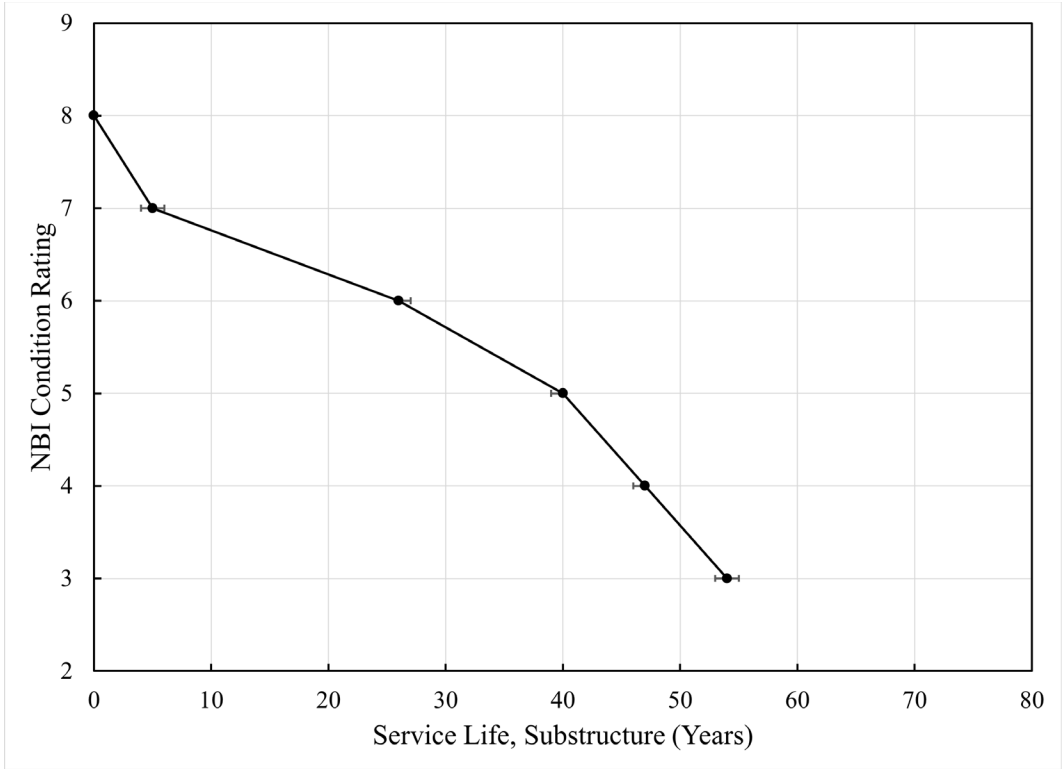


Figure A.37. Service life graph for substructures in Connecticut.

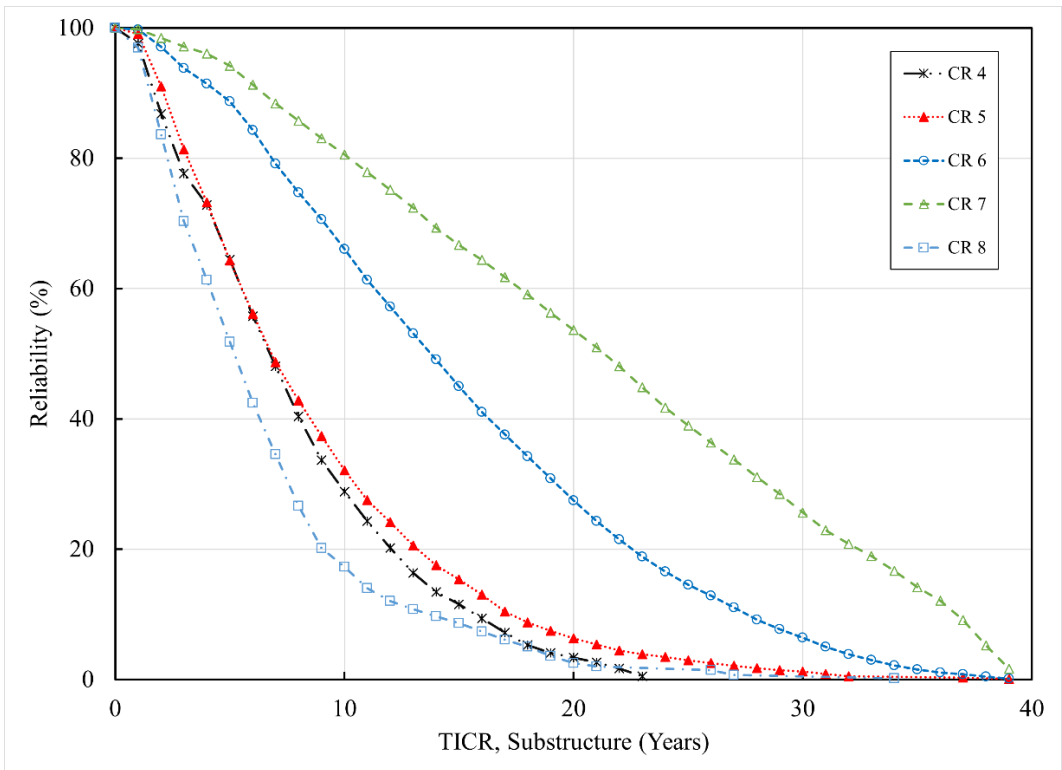


Figure A.38. Reliability graph for substructures in Connecticut.

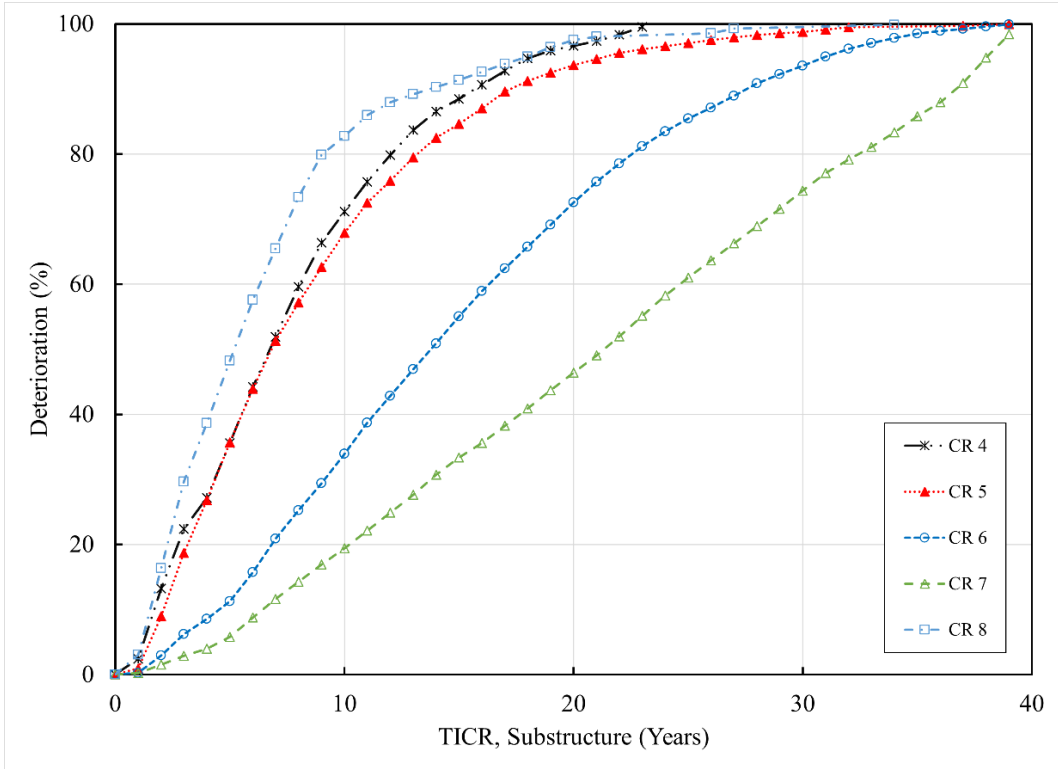


Figure A.39. Deterioration graph for substructures in Connecticut.

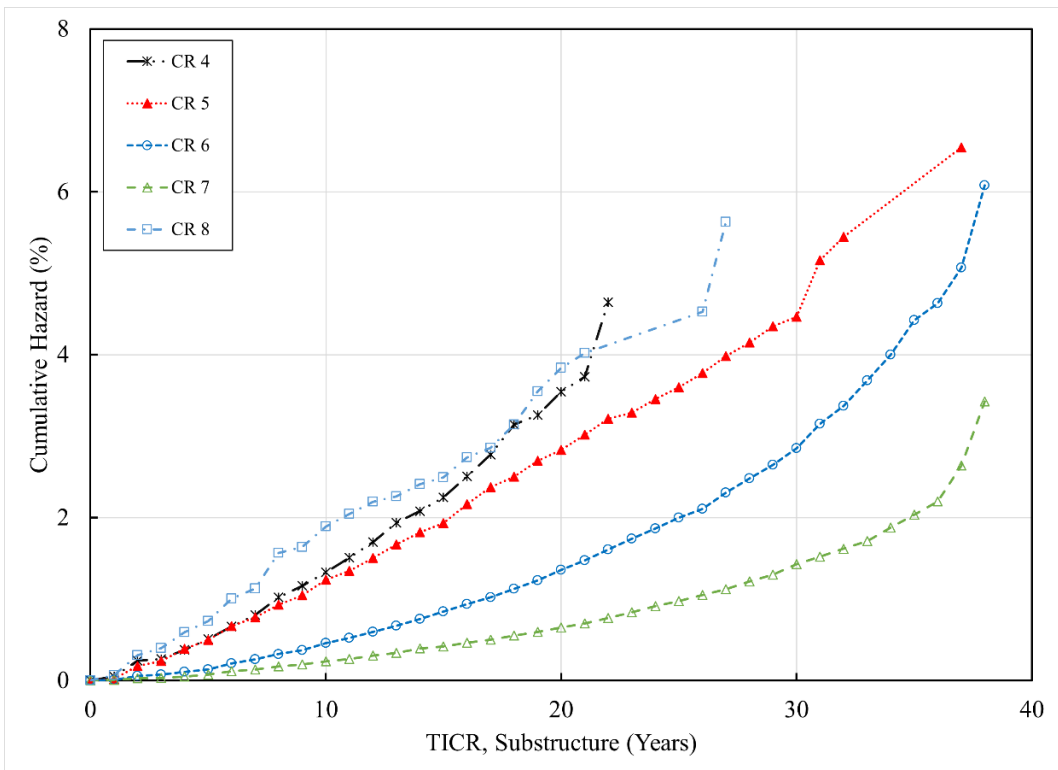


Figure A.40. Cumulative hazard graph for substructures in Connecticut.

Kaplan Meier Analysis for Idaho

Table A.3. Kaplan-Meier Analysis Result for Bridge Components in Idaho.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	6	5	7	6.26	0.362
5	8	7	8	9.36	0.322
6	13	13	14	14.29	0.212
7	9	8	10	11.90	0.175
8	7	6	8	8.11	0.139
Prestressed Concrete Superstructure					
4	6	2	10	7.15	1.463
5	6.5	5	10	8.90	0.854
6	12	12	14	13.75	0.449
7	14	13	15	14.70	0.352
8	8	7	9	11.92	0.250
Reinforced Concrete Superstructure					
4	8	6	9	9.90	1.534
5	9	7	11	11.24	0.832
6	16	15	18	15.86	0.398
7	11	10	11	13.21	0.373
8	8	7	9	8.64	0.272
Steel Superstructure					
4	7	6	8	7.49	0.587
5	8	8	11	11.27	0.738
6	11	11	12	13.71	0.441
7	11	9	12	13.32	0.340
8	8	7	8	9.06	0.272
Substructure					
4	6	6	8	8.13	0.592
5	10	9	10	11.27	0.313
6	15	14	16	15.04	0.230
7	9	8	10	11.98	0.195
8	7	6	8	8.31	0.135

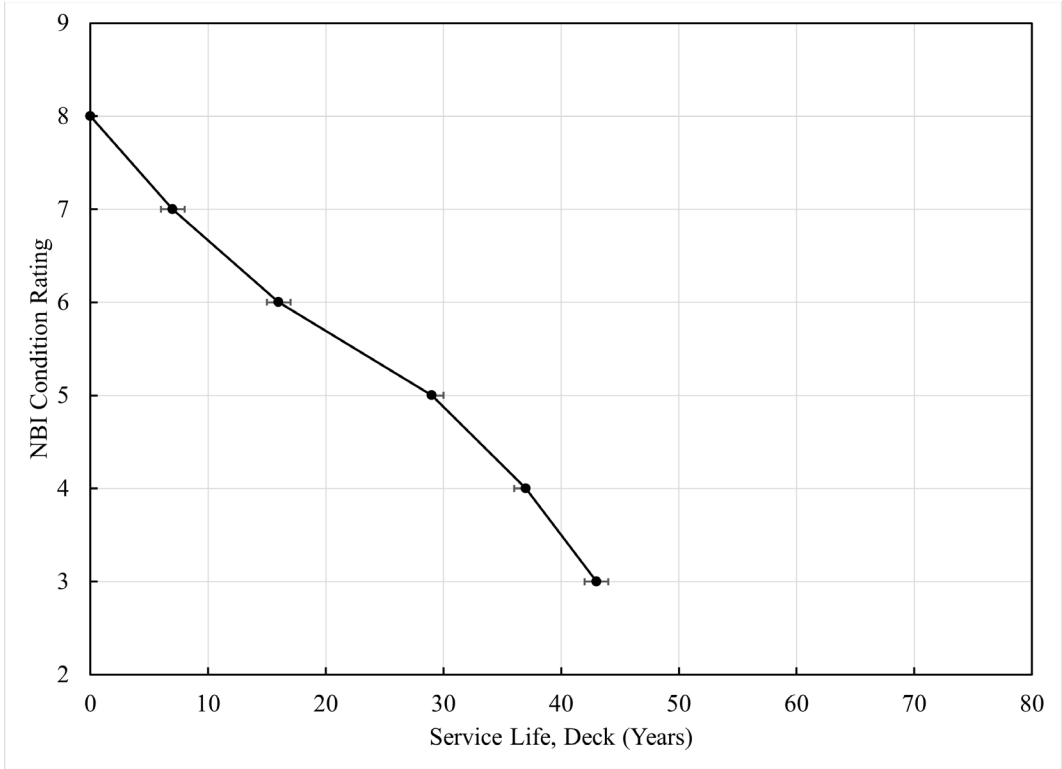


Figure A.41. Service life graph for bridge decks in Idaho.

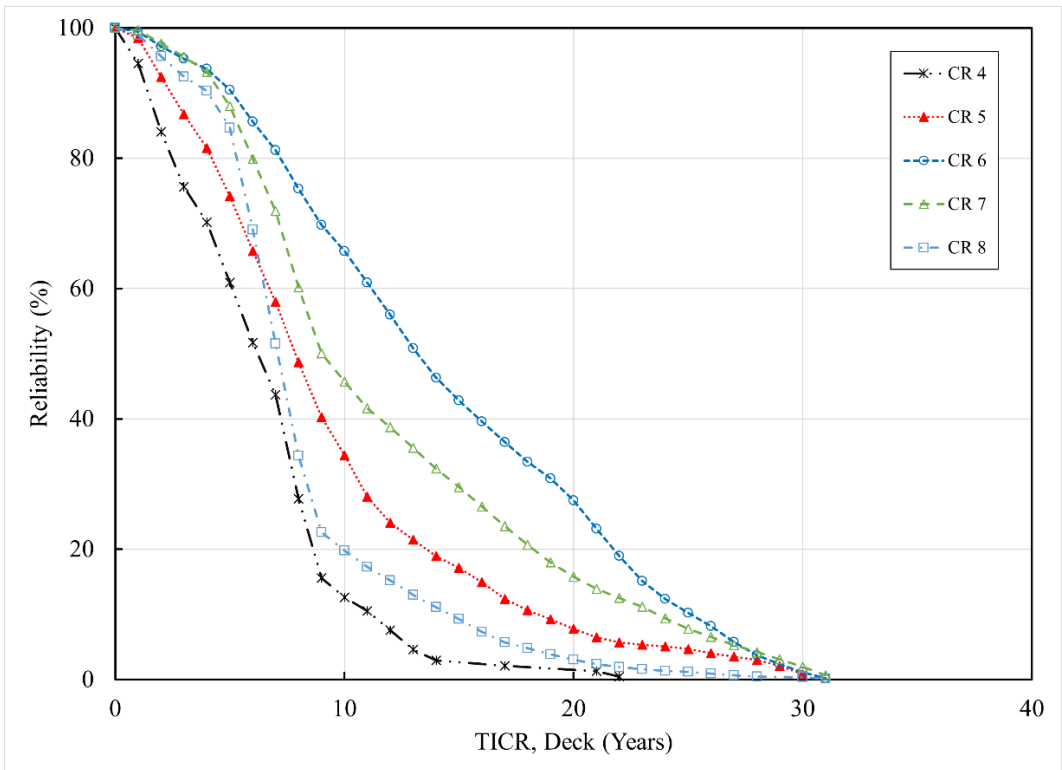


Figure A.42. Reliability graph for bridge decks in Idaho.

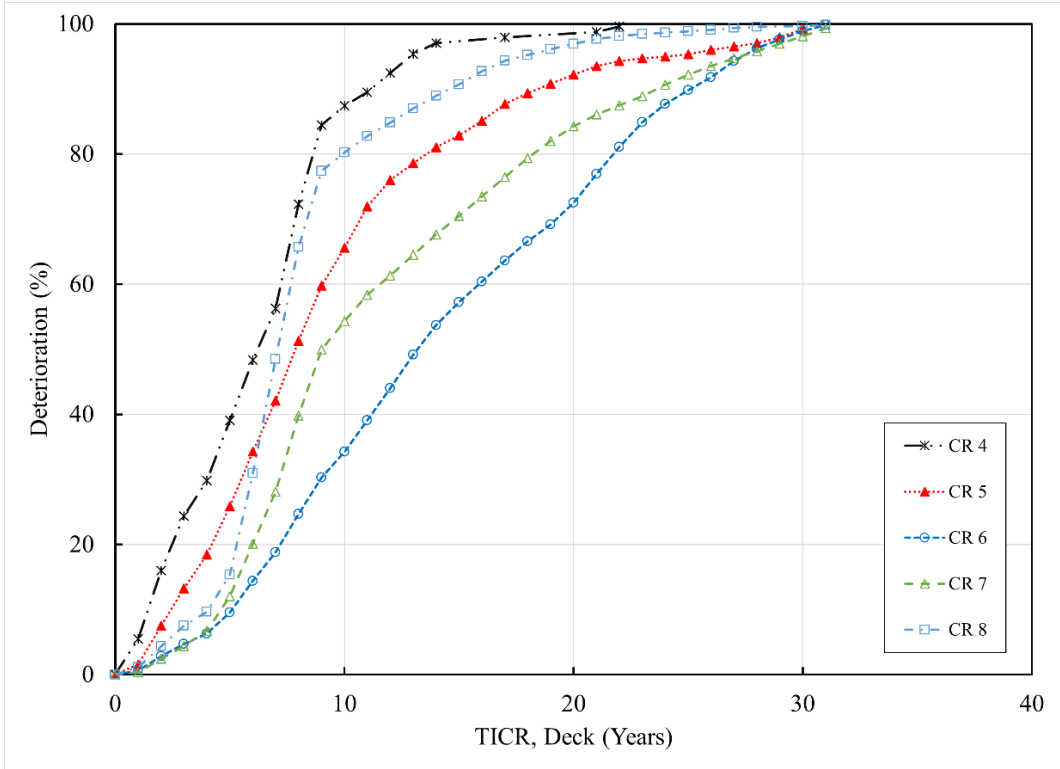


Figure A.43. Deterioration graph for bridge decks in Idaho.

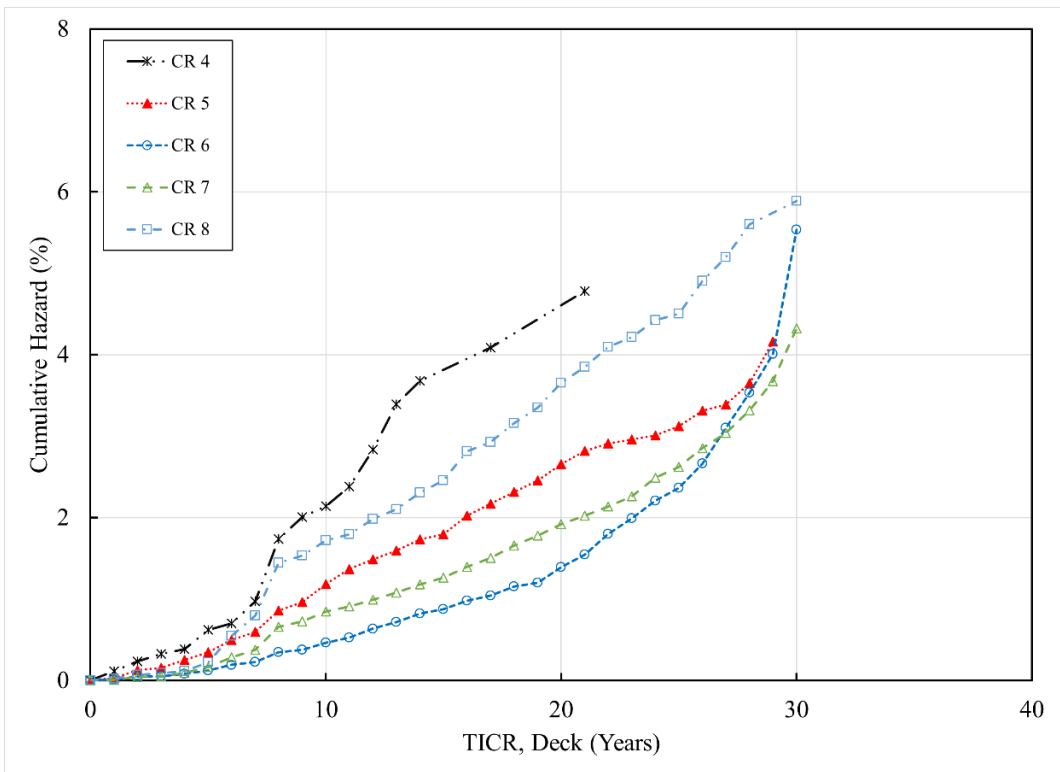


Figure A.44. Cumulative hazard graph for bridge decks in Idaho.

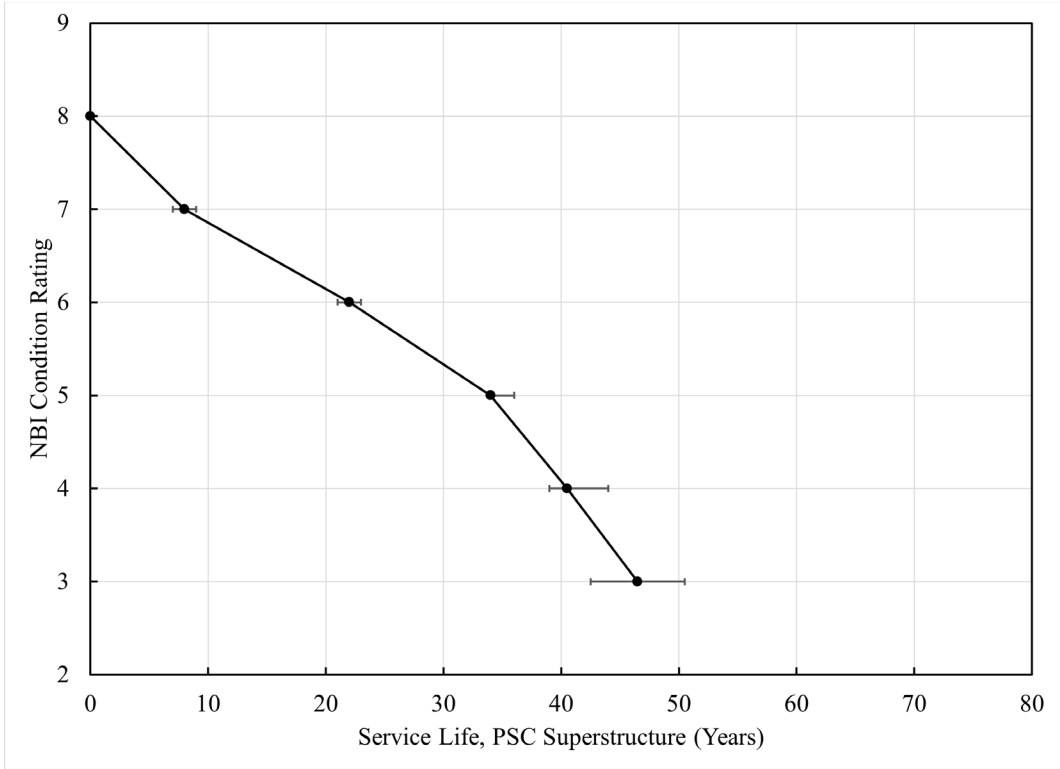


Figure A.45. Service life graph for PSC superstructures in Idaho.

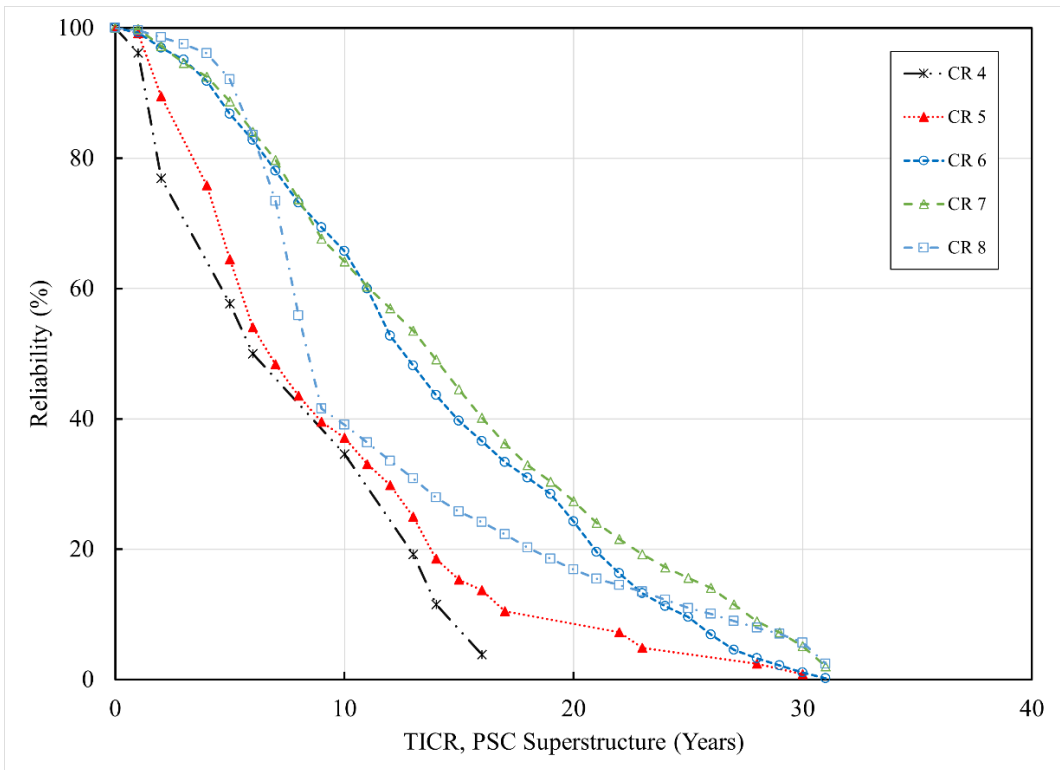


Figure A.46. Reliability graph for PSC superstructures in Idaho.

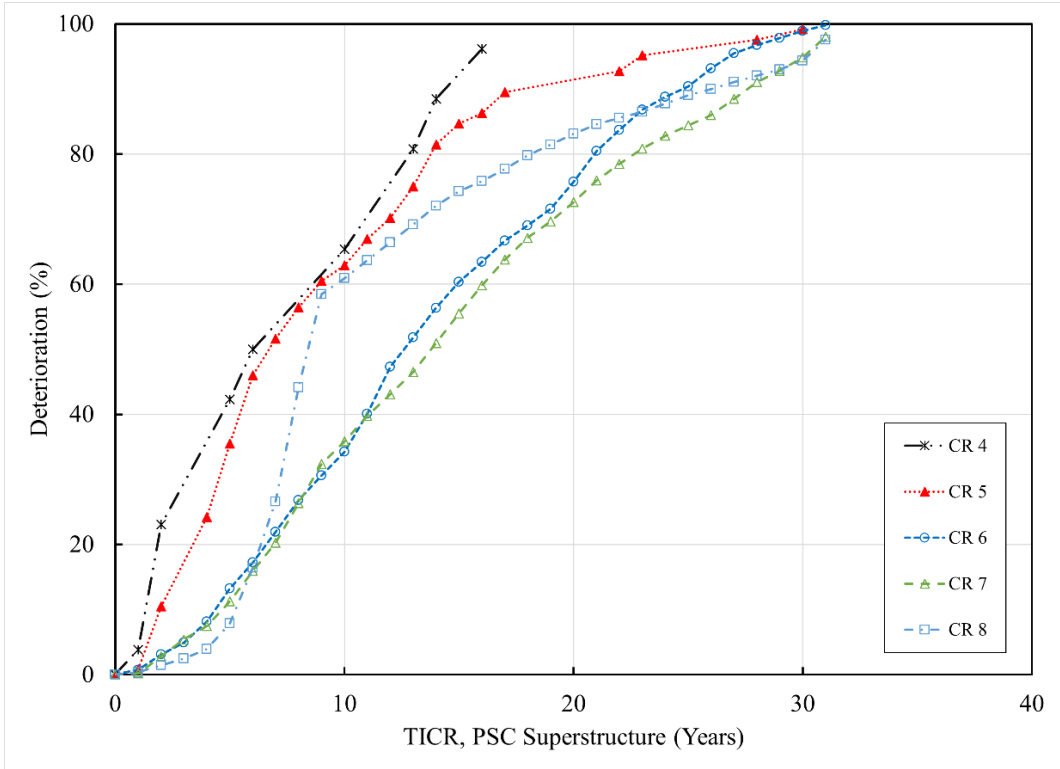


Figure A.47. Deterioration graph for PSC superstructures in Idaho.

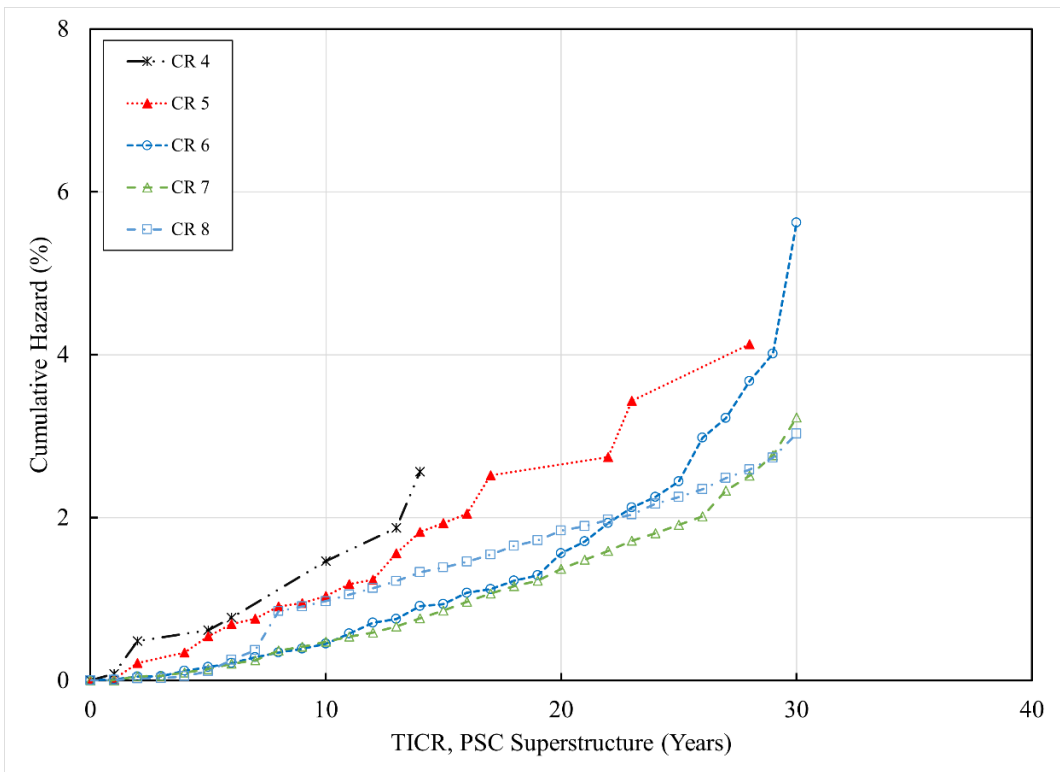


Figure A.48. Cumulative hazard graph for PSC superstructures in Idaho.

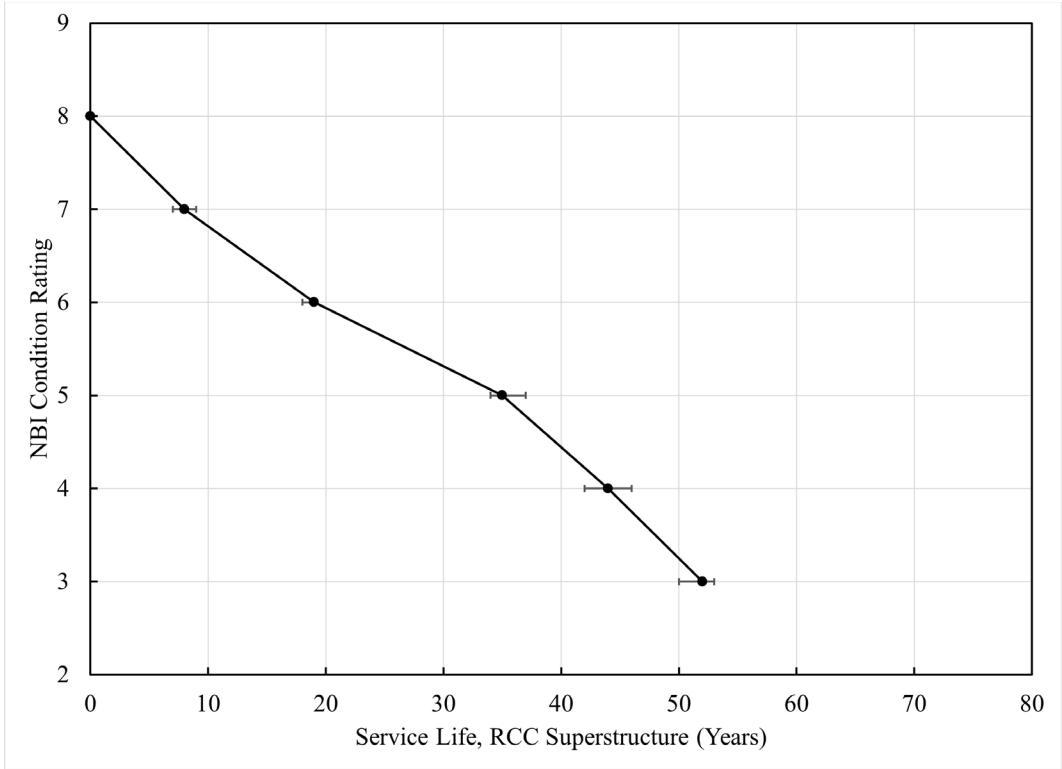


Figure A.49. Service life graph for R/C superstructures in Idaho.

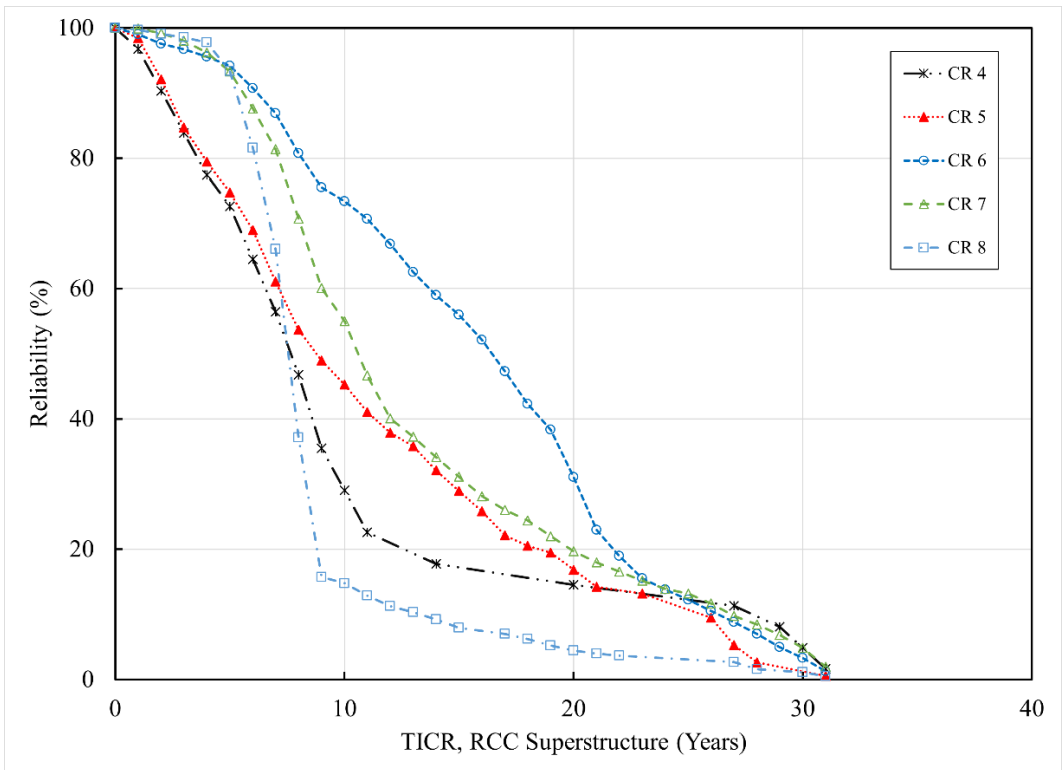


Figure A.50. Reliability graph for R/C superstructures in Idaho.

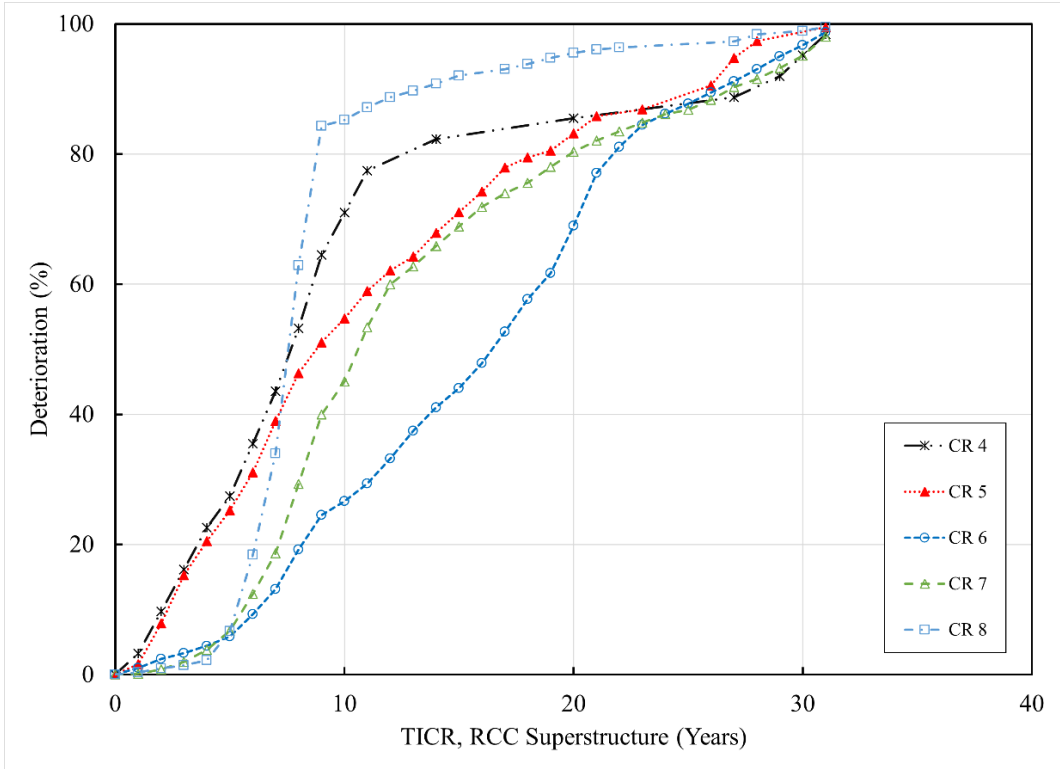


Figure A.51. Deterioration graph for R/C superstructures in Idaho.

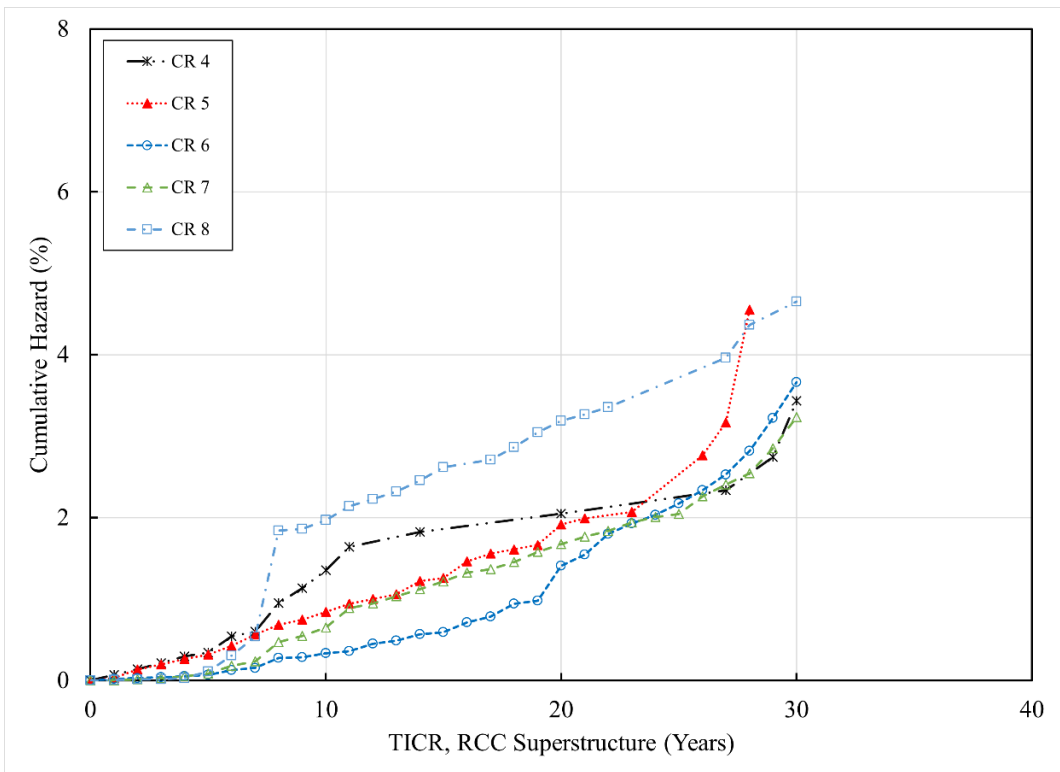


Figure A.52. Cumulative hazard graph for R/C superstructures in Idaho.

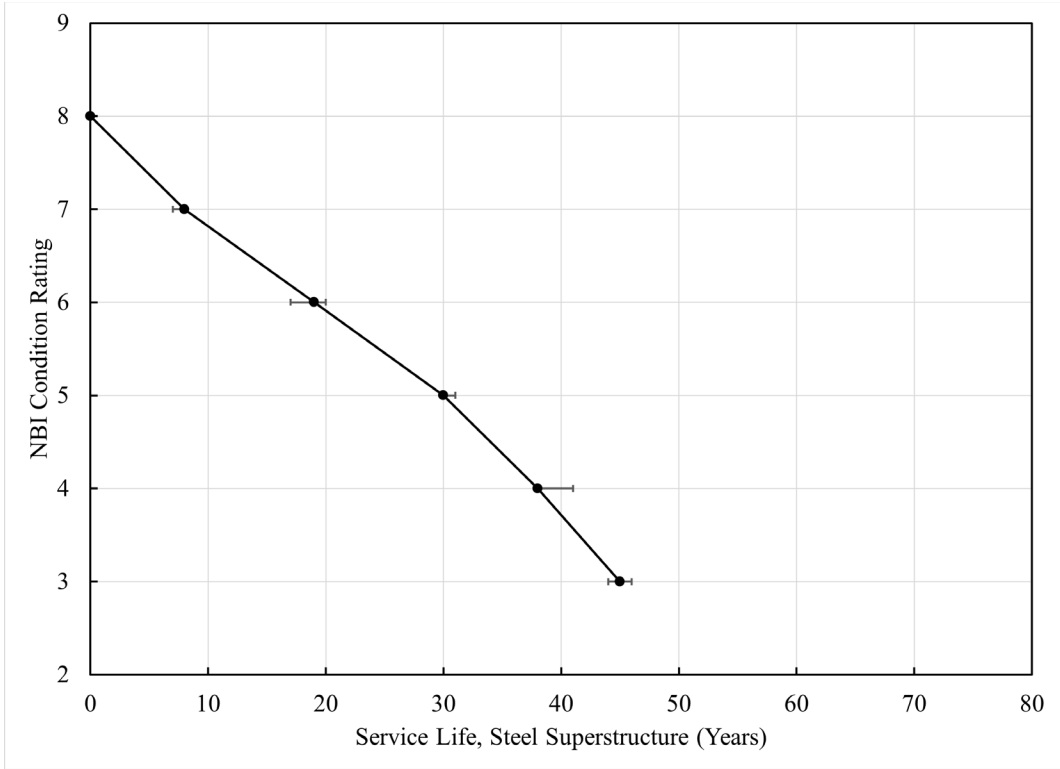


Figure A.53. Service life graph for steel superstructures in Idaho.

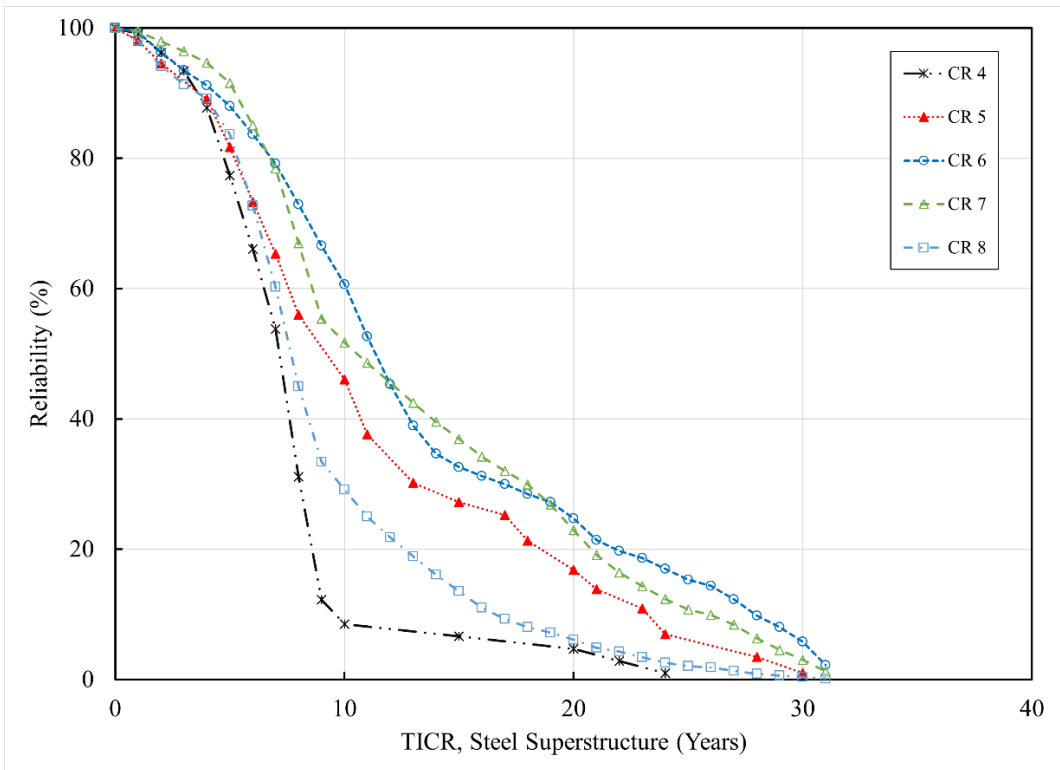


Figure A.54. Reliability graph for steel superstructures in Idaho.

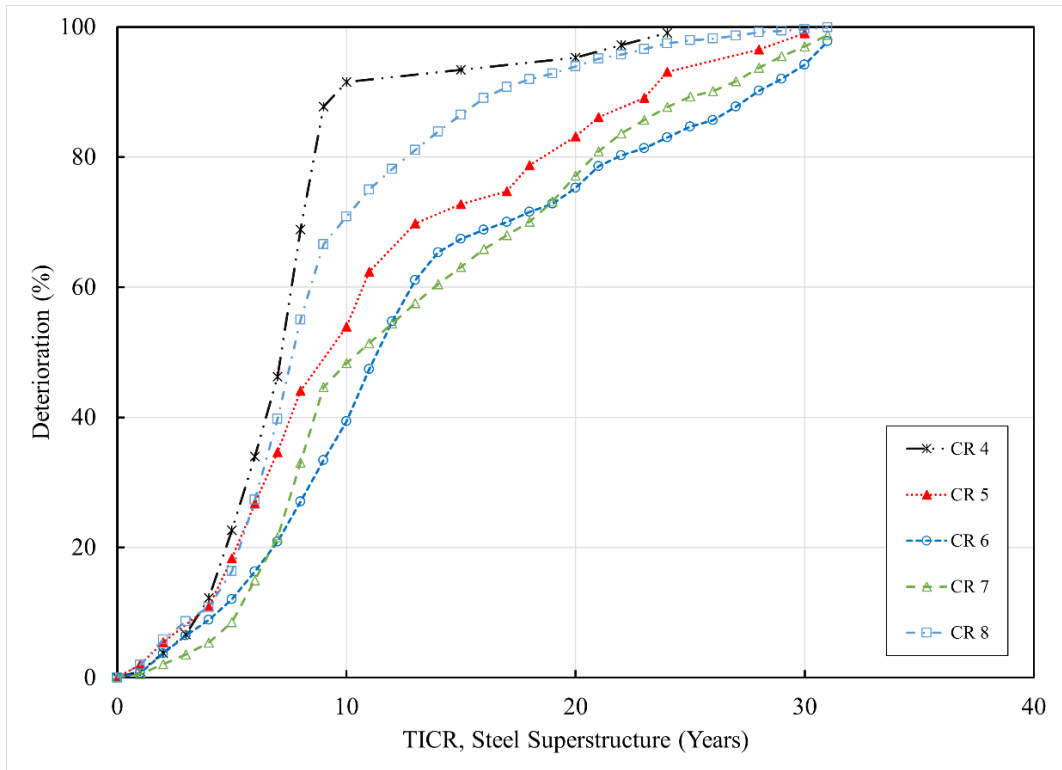


Figure A.55. Deterioration graph for steel superstructures in Idaho.

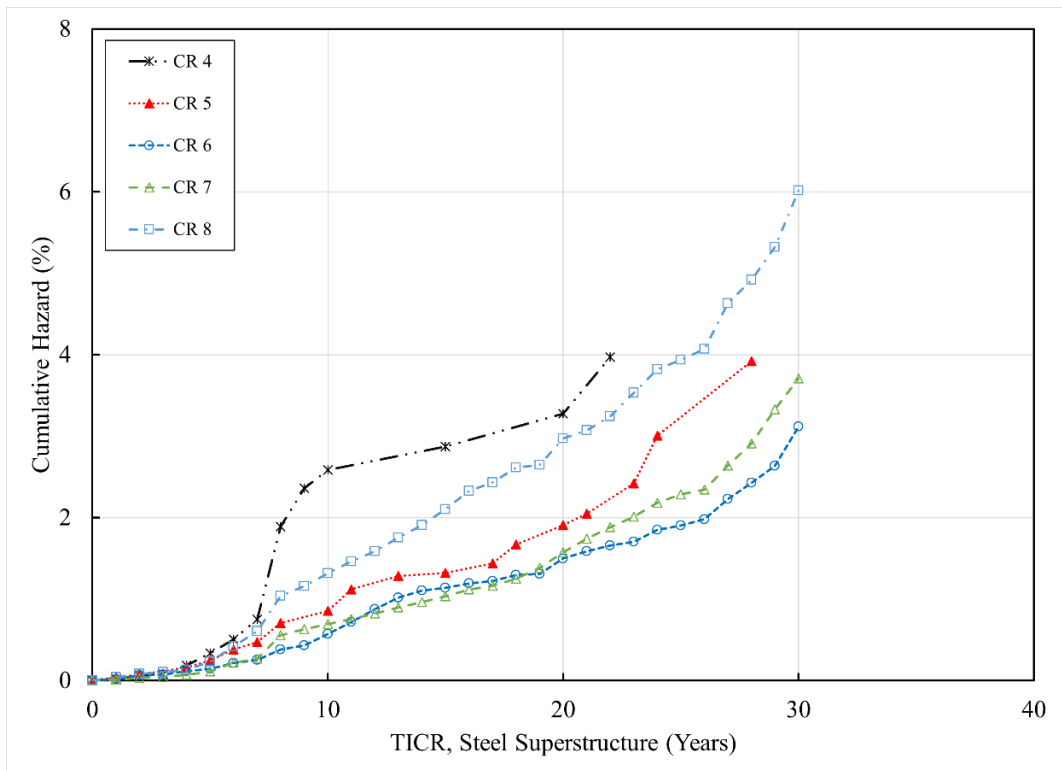


Figure A.56. Cumulative hazard graph for steel superstructures in Idaho.

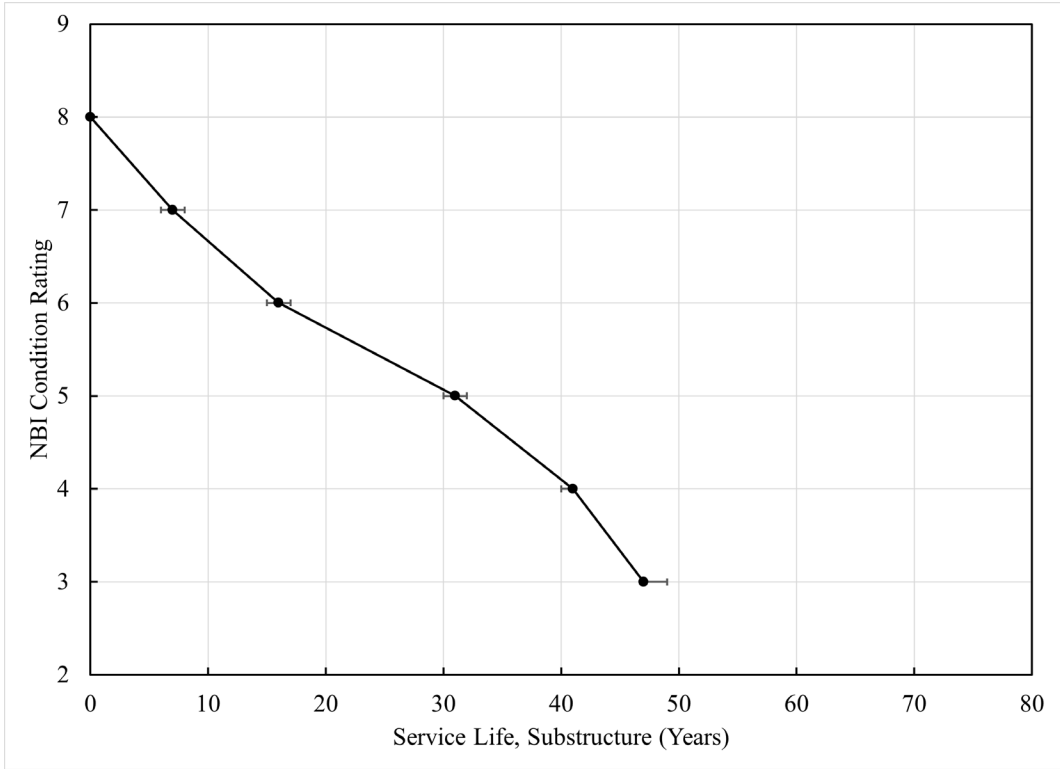


Figure A.57. Service life graph for substructures in Idaho.

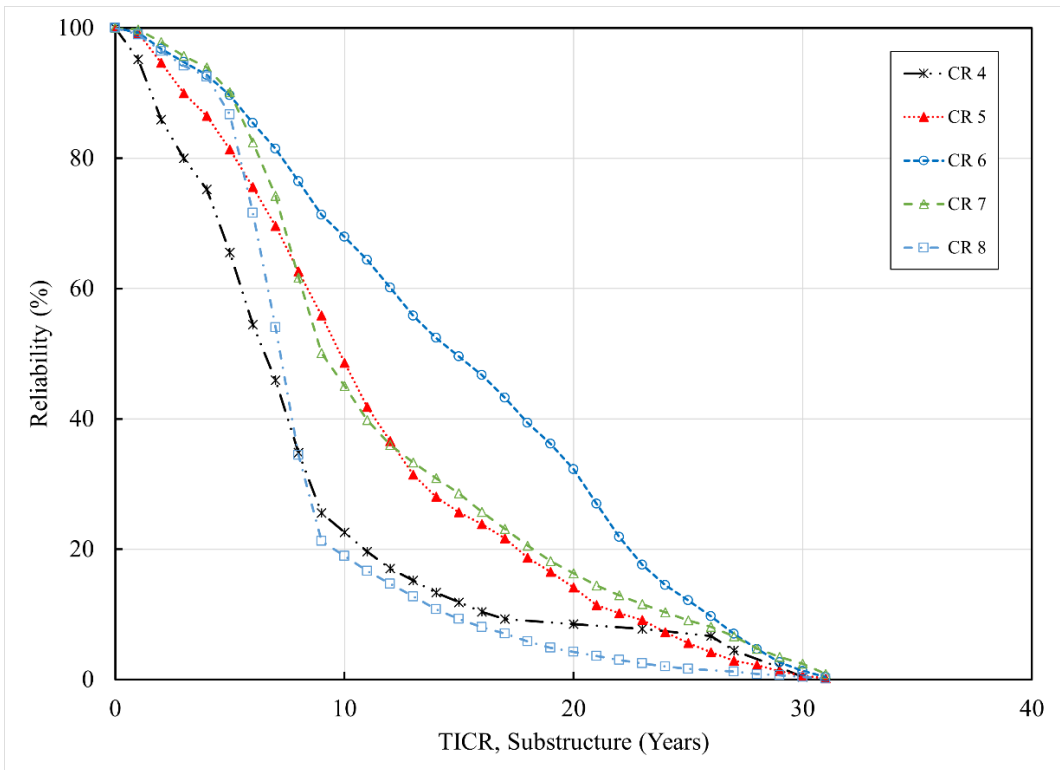


Figure A.58. Reliability graph for substructures in Idaho.

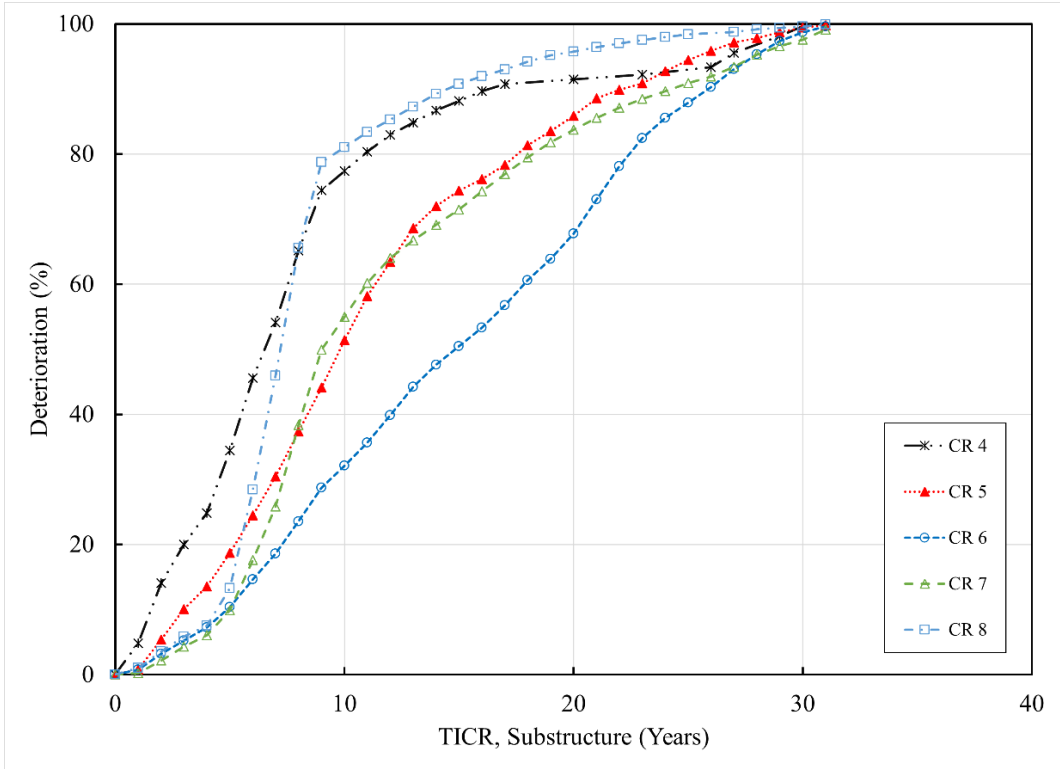


Figure A.59. Deterioration graph for substructures in Idaho.

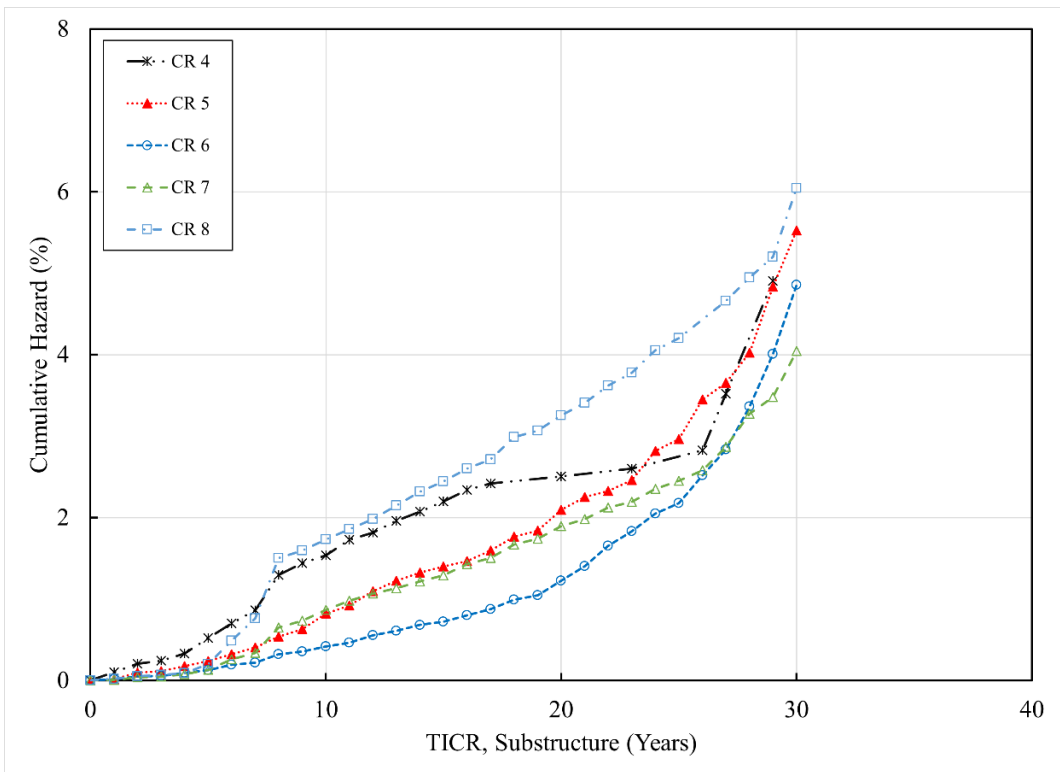


Figure A.60. Cumulative hazard graph for substructures in Idaho.

Kaplan Meier Analysis for Illinois

Table A.4. Kaplan-Meier Analysis Result for Bridge Components in Illinois.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	6	5	7	7.33	0.142
5	6	5	7	7.28	0.110
6	7	6	8	8.69	0.084
7	8	7	9	10.94	0.083
8	8	7	8	9.15	0.830
Prestressed Concrete Superstructure					
4	6.5	5	8	5.94	0.331
5	7	6	7	6.51	0.229
6	8	7	9	8.89	0.239
7	8	8	9	12.47	0.242
8	8	7	9	10.10	0.134
Reinforced Concrete Superstructure					
4	6	5	7	7.56	0.486
5	8	7	8	9.40	0.370
6	8	7	9	10.98	0.330
7	16	14	18	16.53	0.314
8	12	11	14	14.81	0.317
Steel Superstructure					
4	6	5	6	7.02	0.220
5	7	6	8	8.02	0.125
6	8	7	9	10.30	0.102
7	9	9	10	13.7	0.113
8	8	7	9	8.90	0.086
Substructure					
4	5	4	5	6.27	0.203
5	7	6	8	8.09	0.129
6	8	7	9	9.50	0.096
7	8	7	9	12.20	0.093
8	8	7	9	9.46	0.077

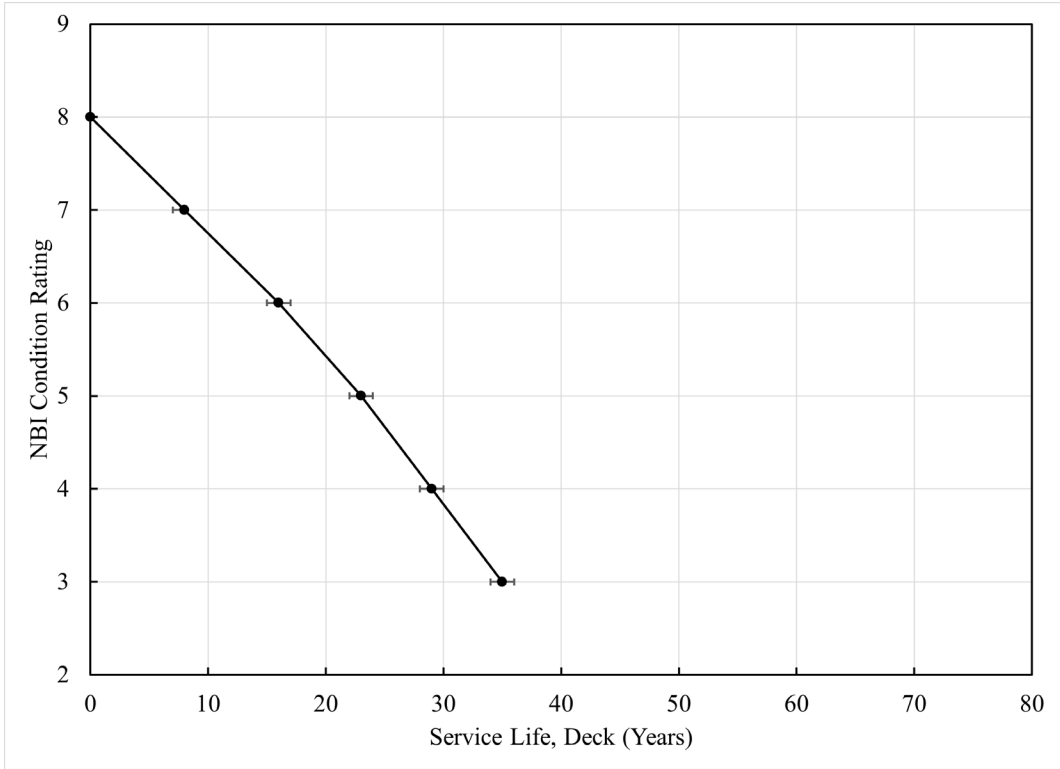


Figure A.61. Service life graph for bridge decks in Illinois.

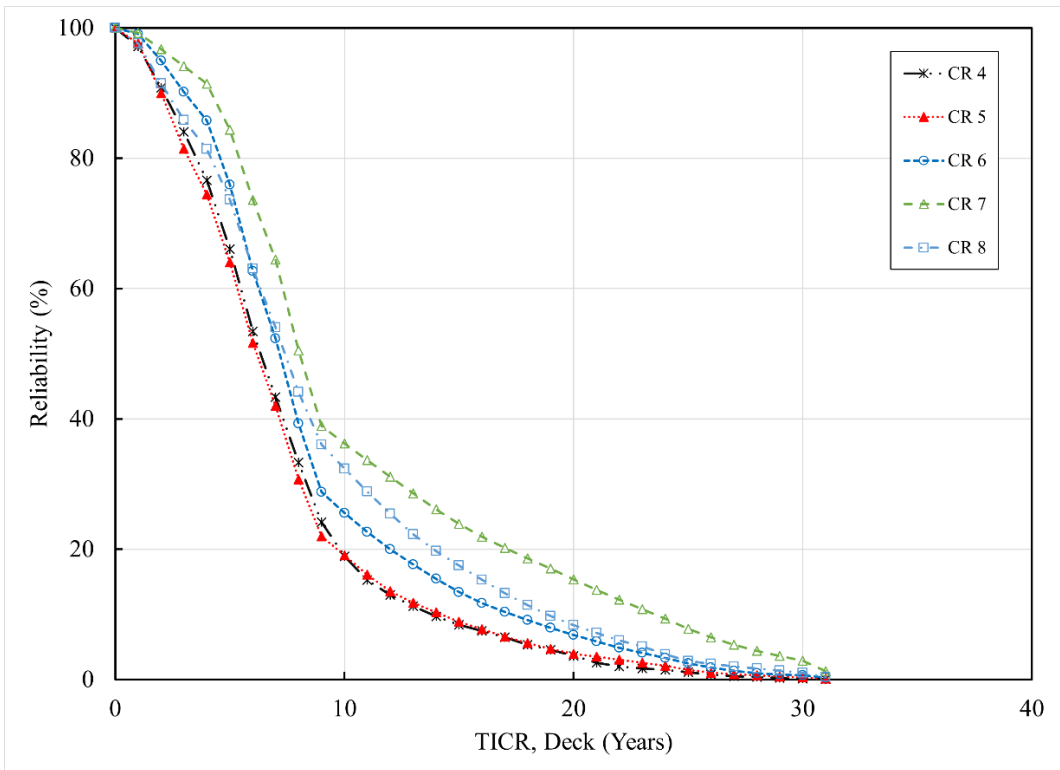


Figure A.62. Reliability graph for bridge decks in Illinois.

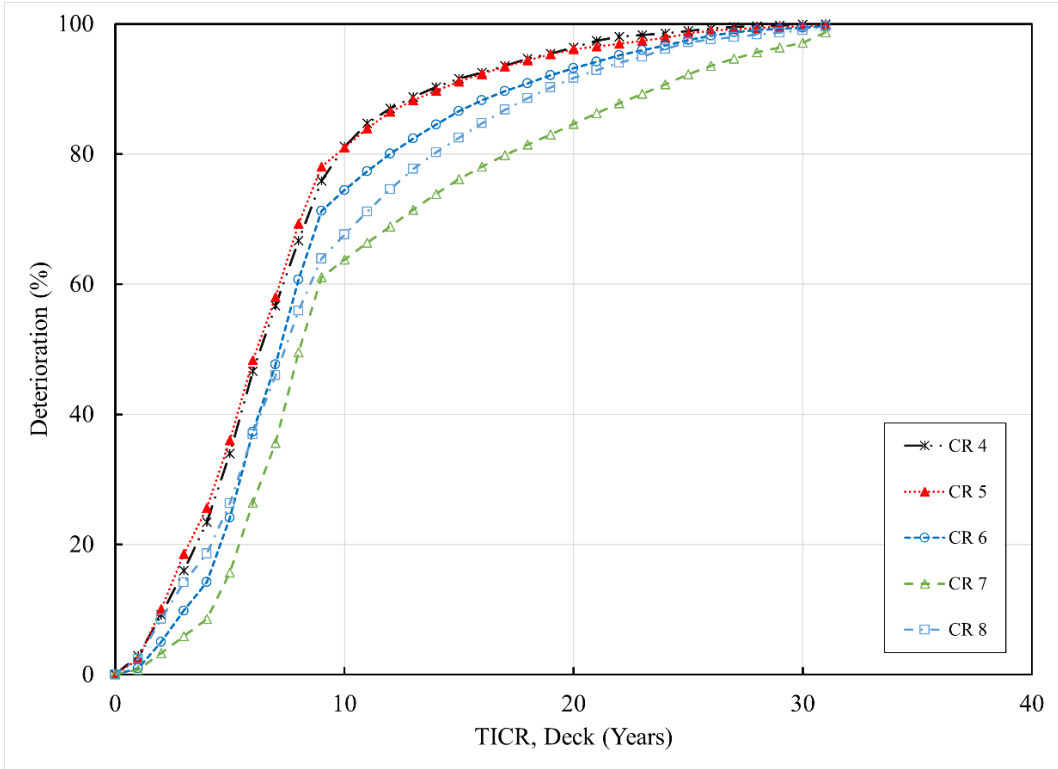


Figure A.63. Deterioration graph for bridge decks in Illinois.

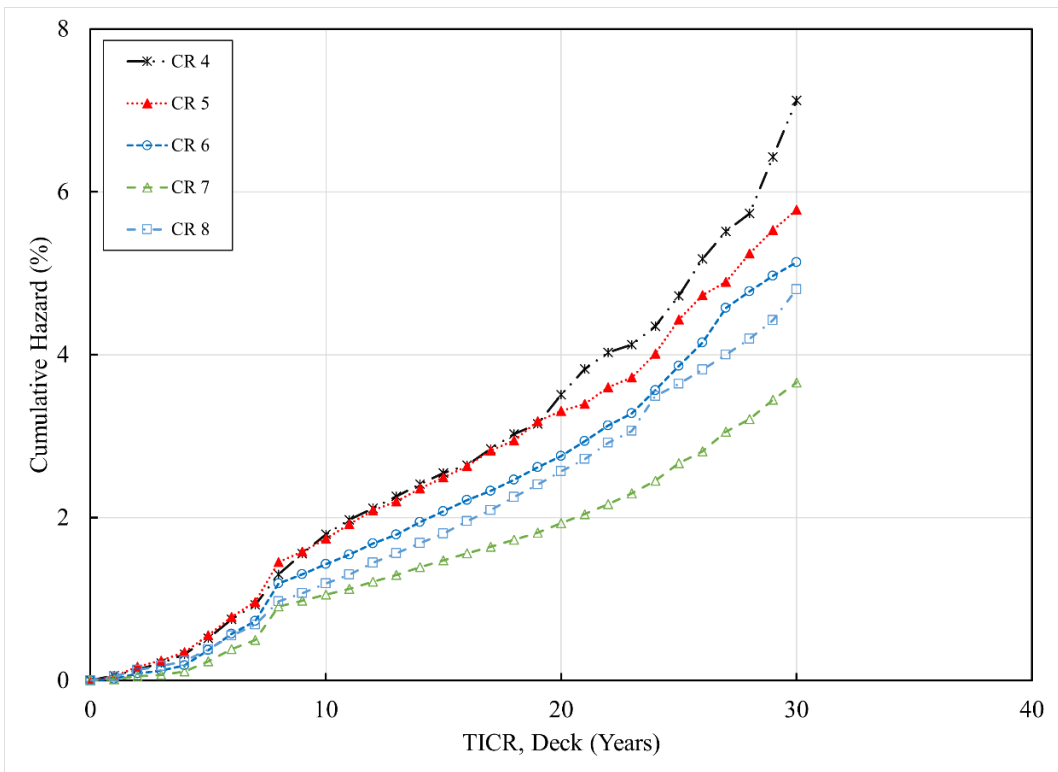


Figure A.64. Cumulative hazard graph for bridge decks in Illinois.

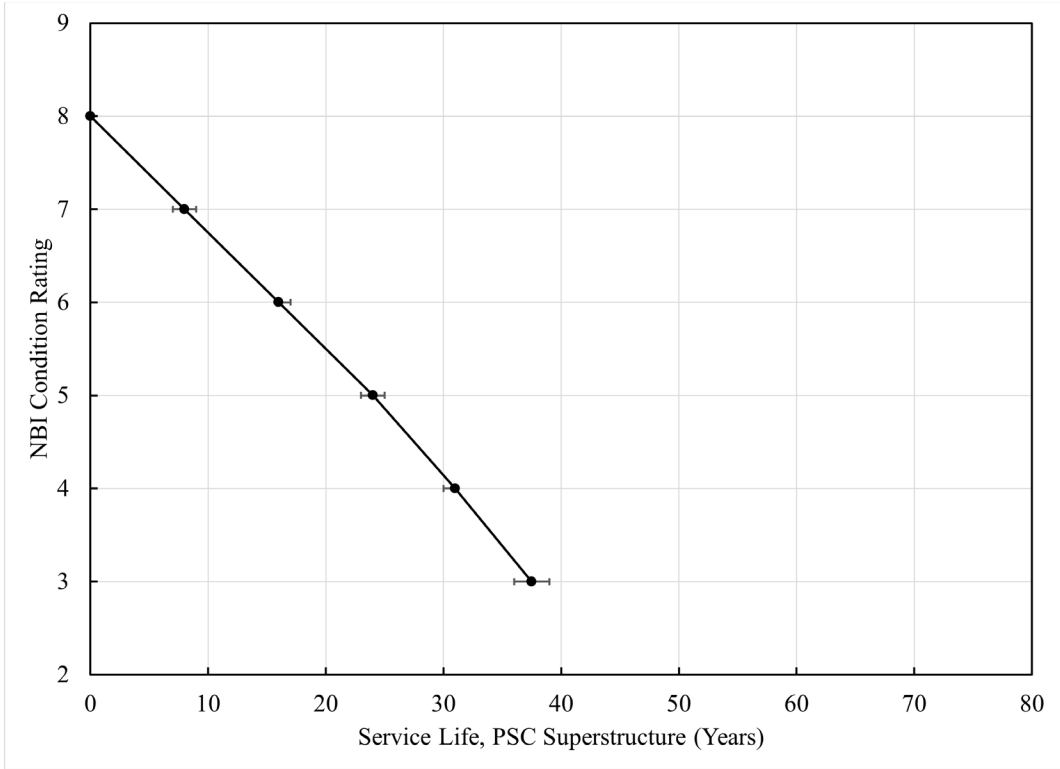


Figure A.65. Service life graph for PSC superstructures in Illinois.

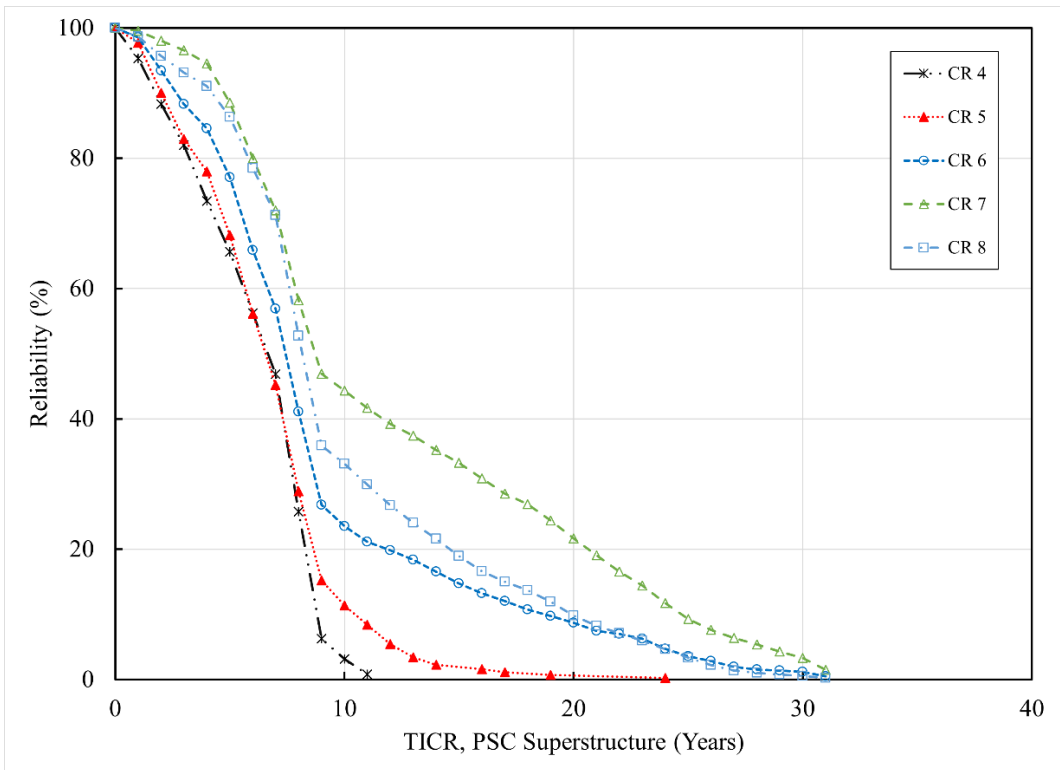


Figure A.66. Reliability graph for PSC superstructures in Illinois.

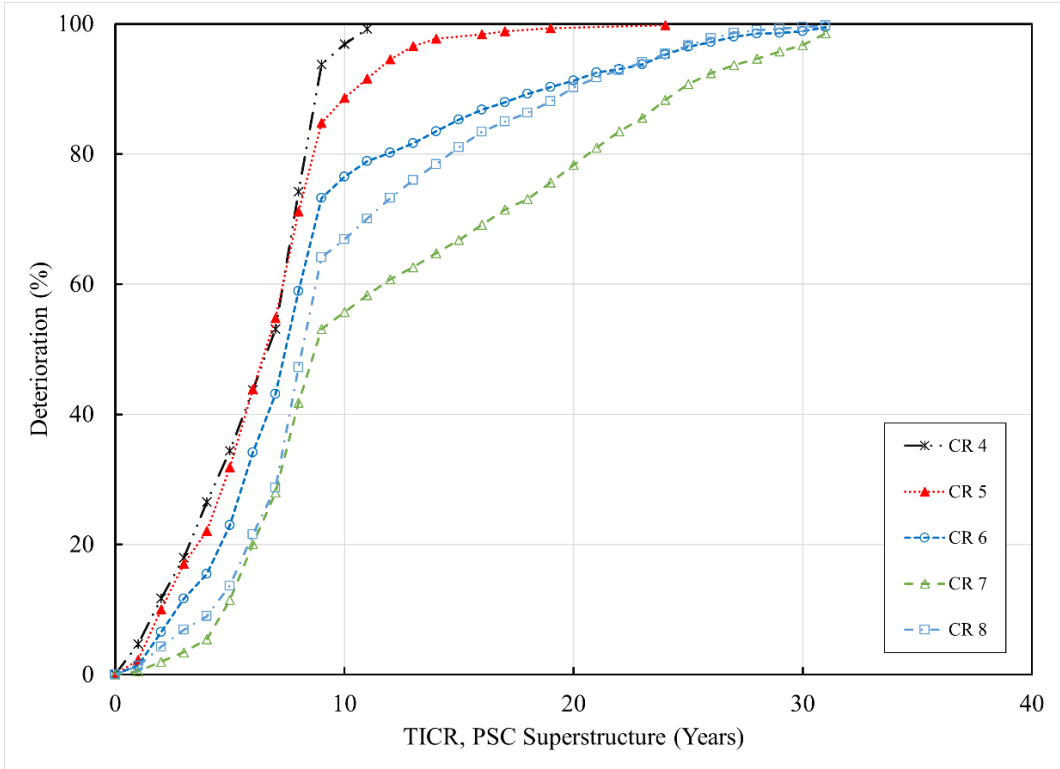


Figure A.67. Deterioration graph for PSC superstructures in Illinois.

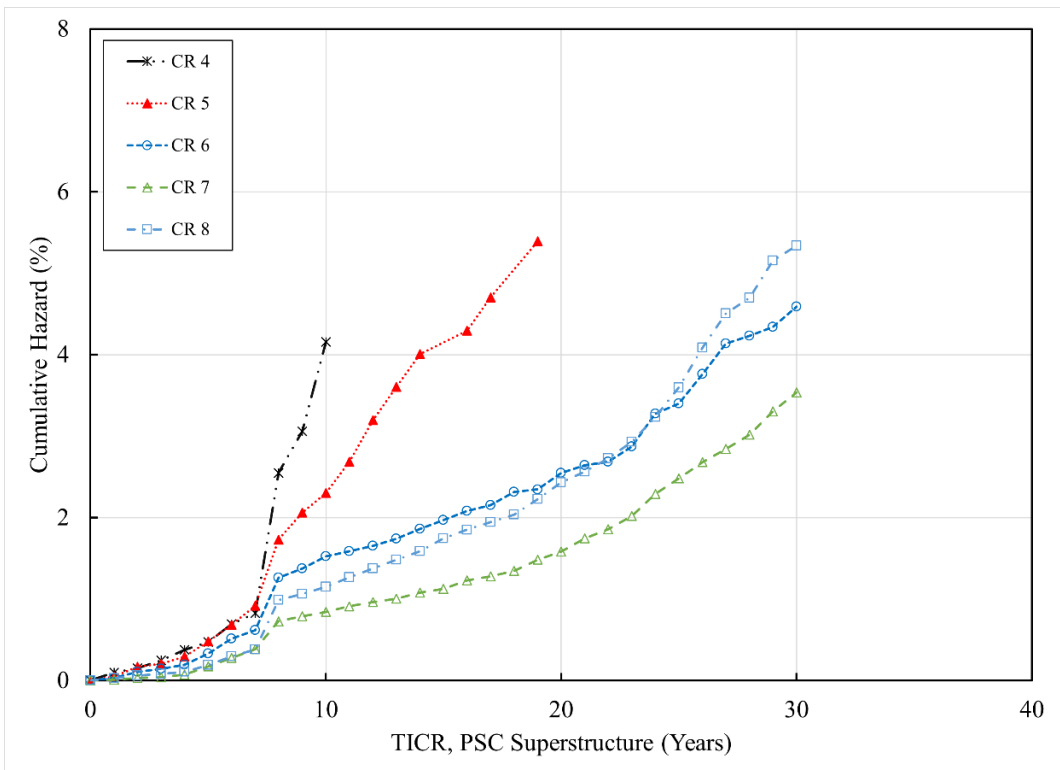


Figure A.68. Cumulative hazard graph for PSC superstructures in Illinois.

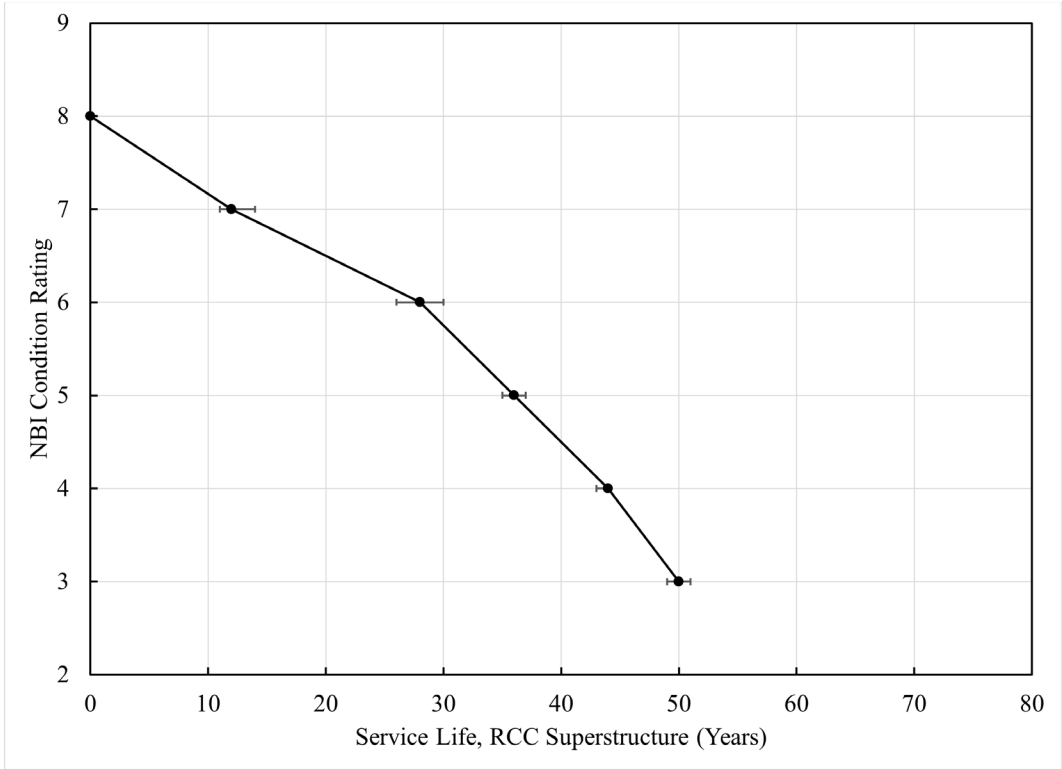


Figure A.69. Service life graph for R/C superstructures in Illinois.

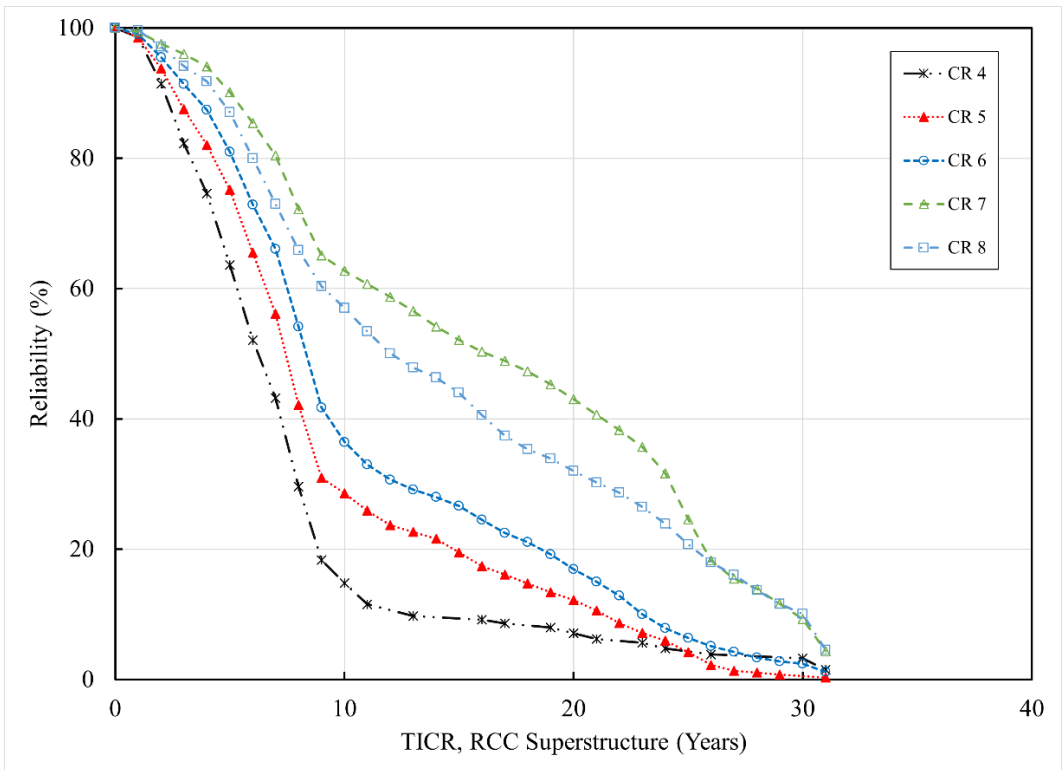


Figure A.70. Reliability graph for R/C superstructures in Illinois.

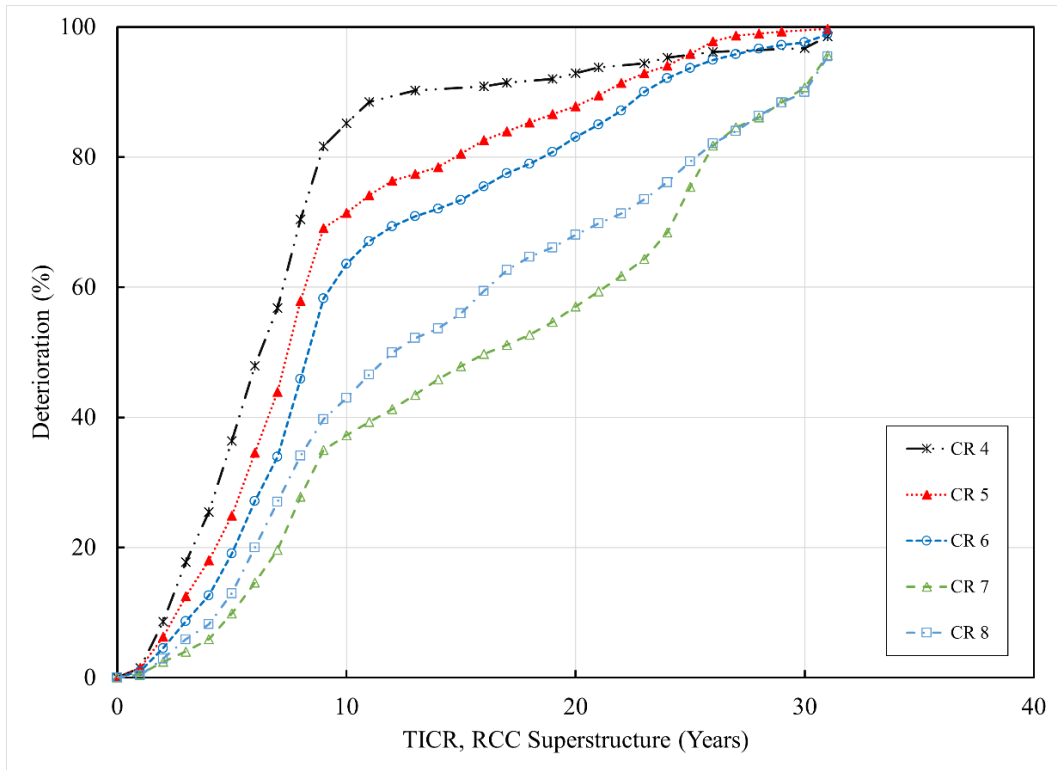


Figure A.71. Deterioration graph for R/C superstructures in Illinois.

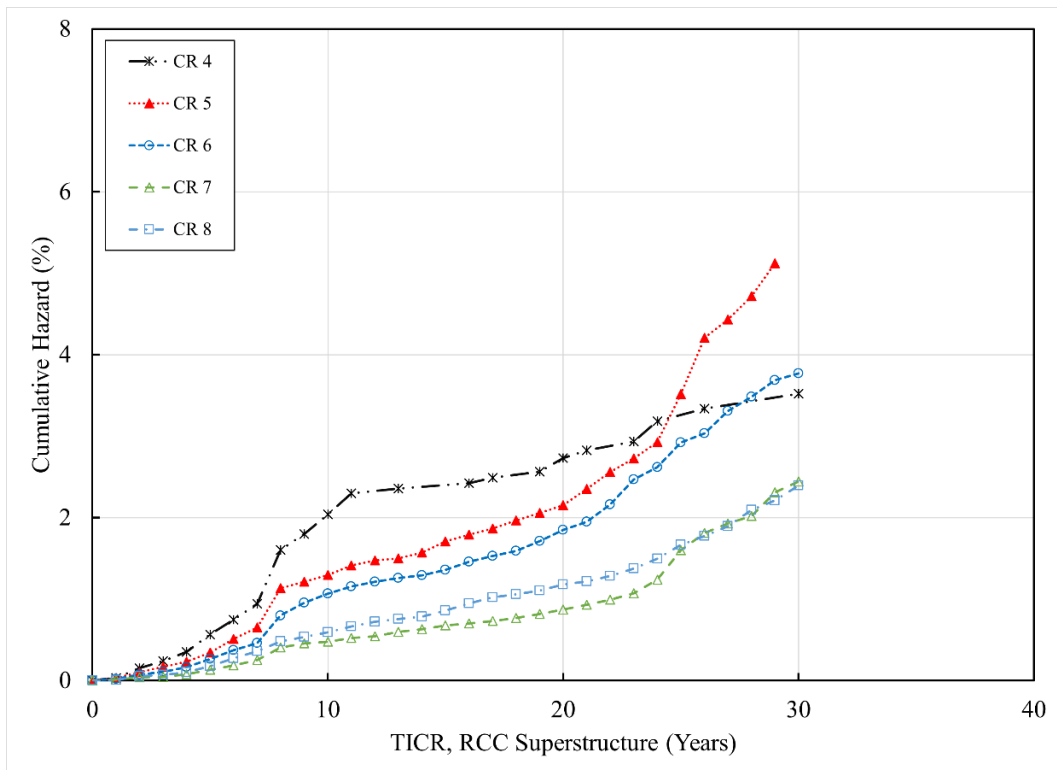


Figure A.72. Cumulative hazard graph for R/C superstructures in Illinois.

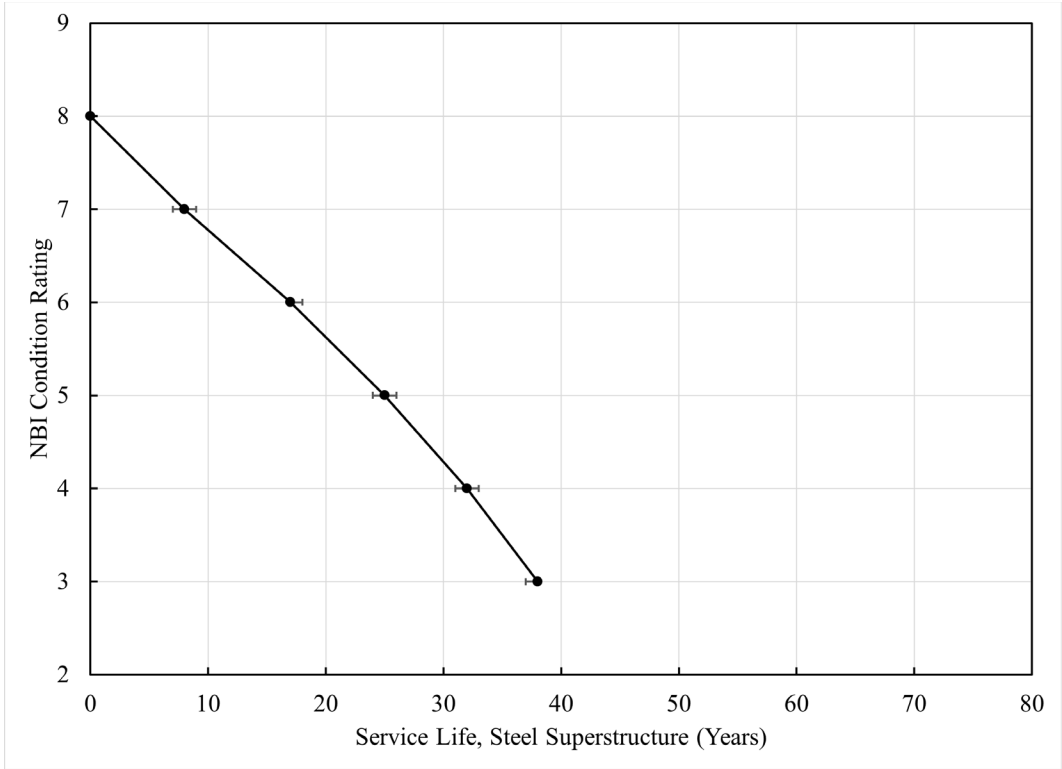


Figure A.73. Service life graph for steel superstructures in Illinois.

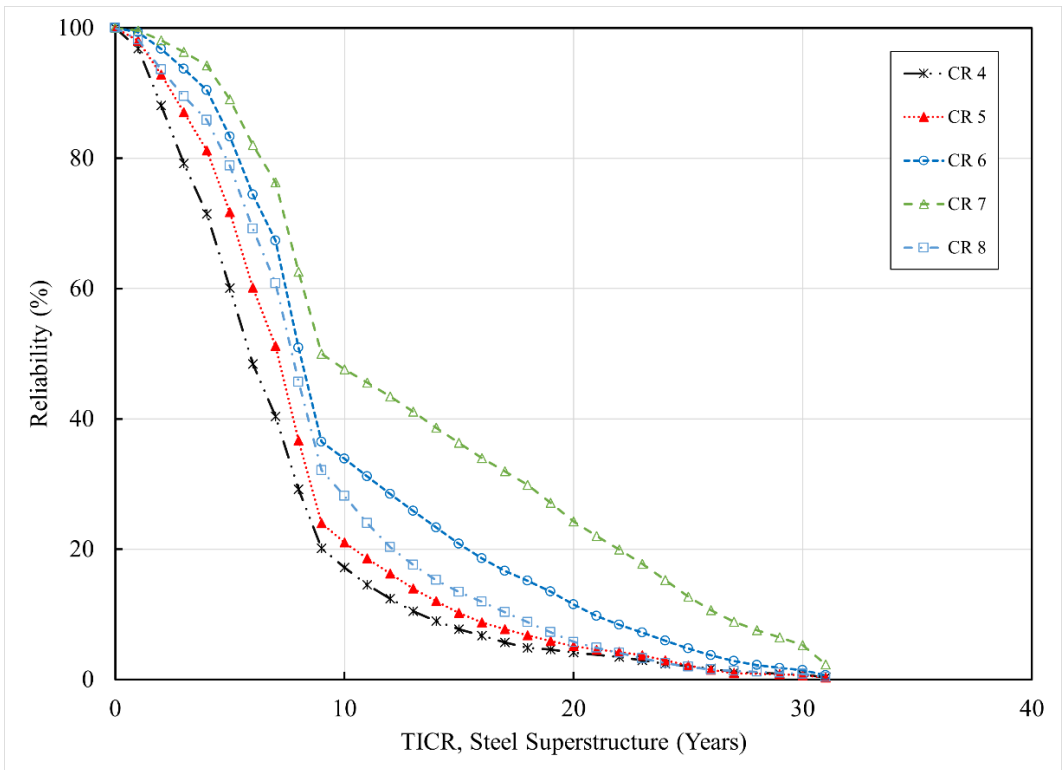


Figure A.74. Reliability graph for steel superstructures in Illinois.

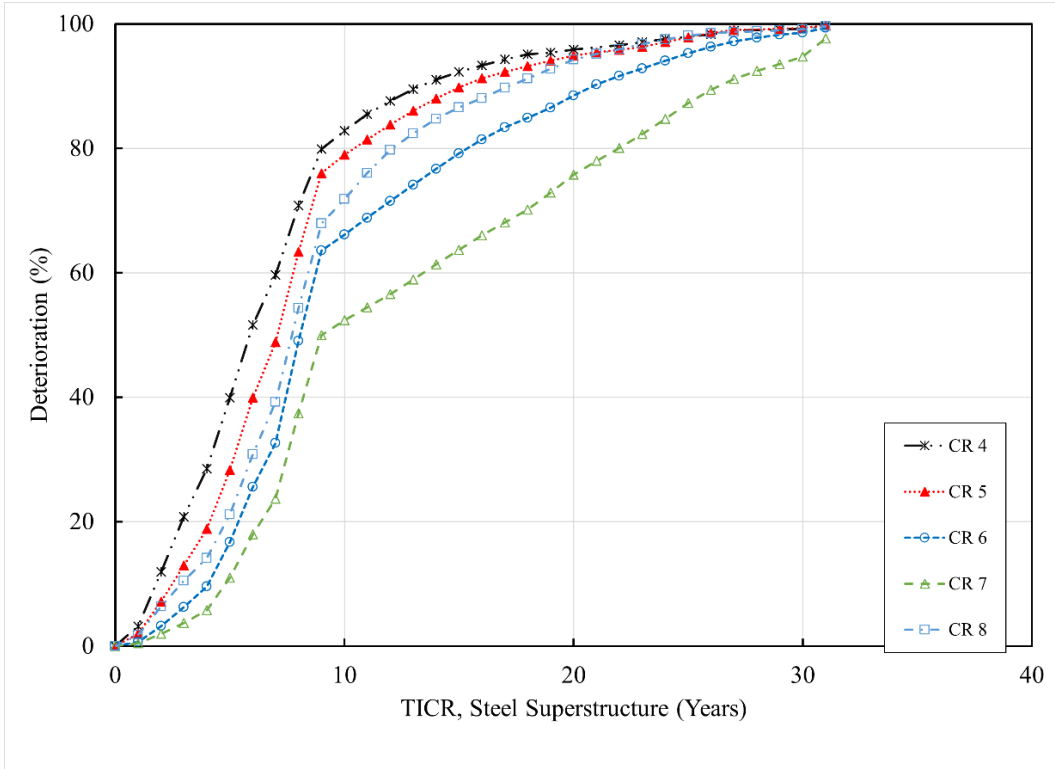


Figure A.75. Deterioration graph for steel superstructures in Illinois.

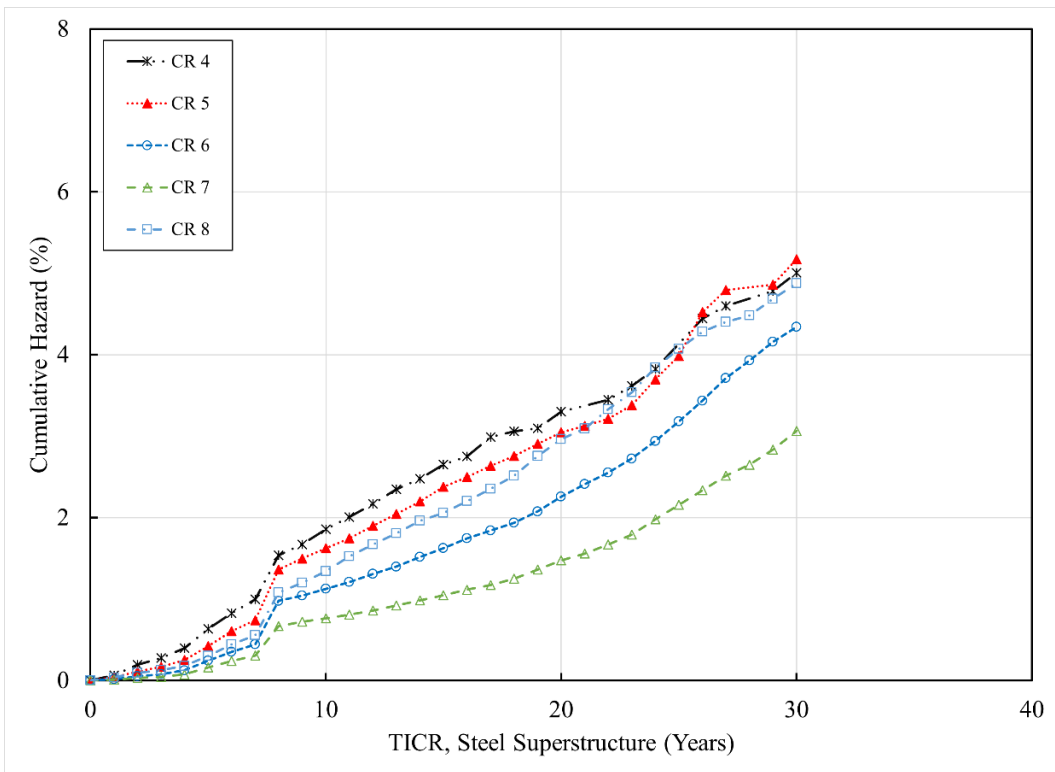


Figure A.76. Cumulative hazard graph for steel superstructures in Illinois.

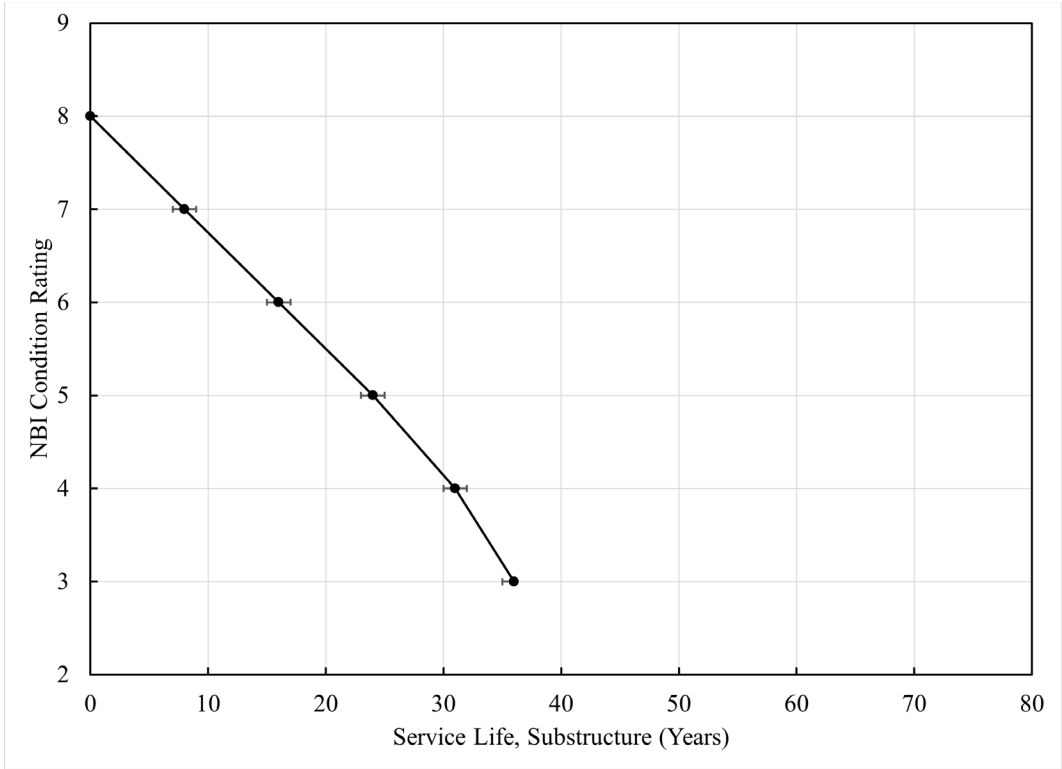


Figure A.77. Service life graph for substructures in Illinois.

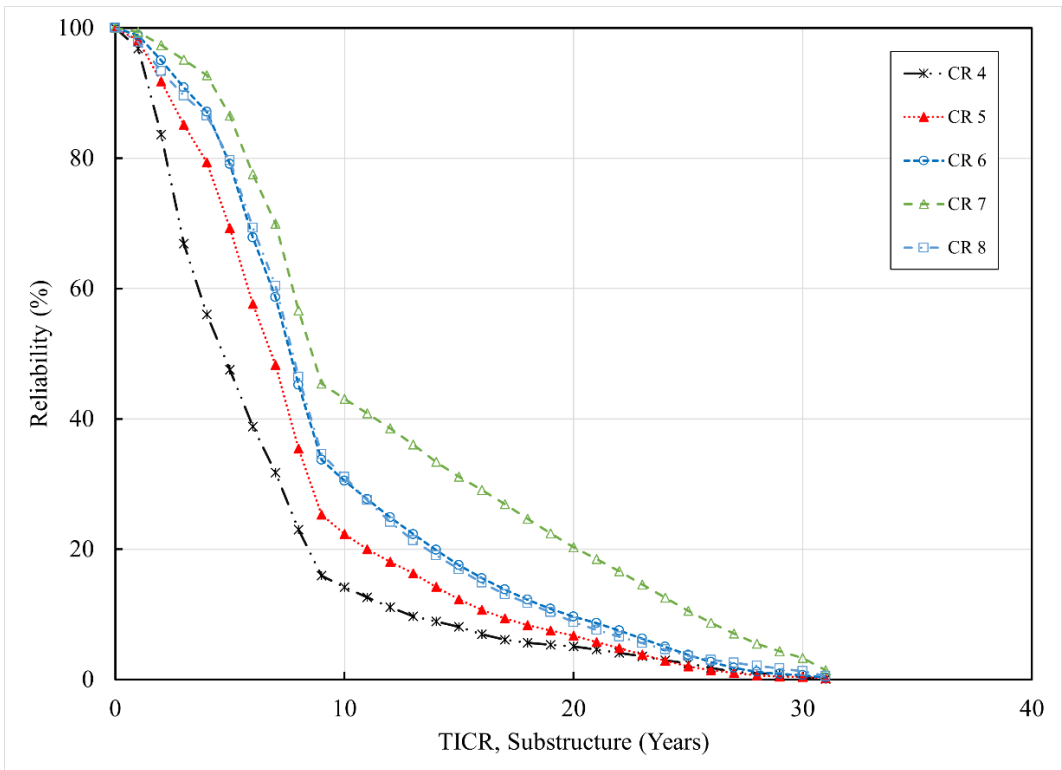


Figure A.78. Reliability graph for substructures in Illinois.

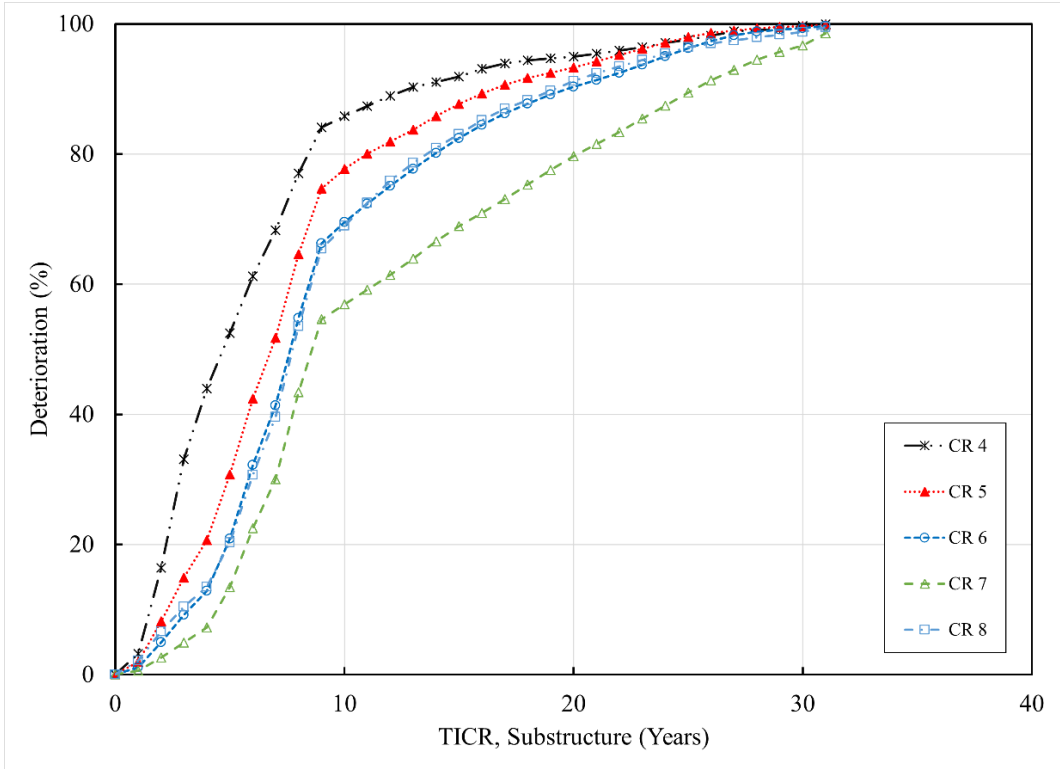


Figure A.79. Deterioration graph for substructures in Illinois.

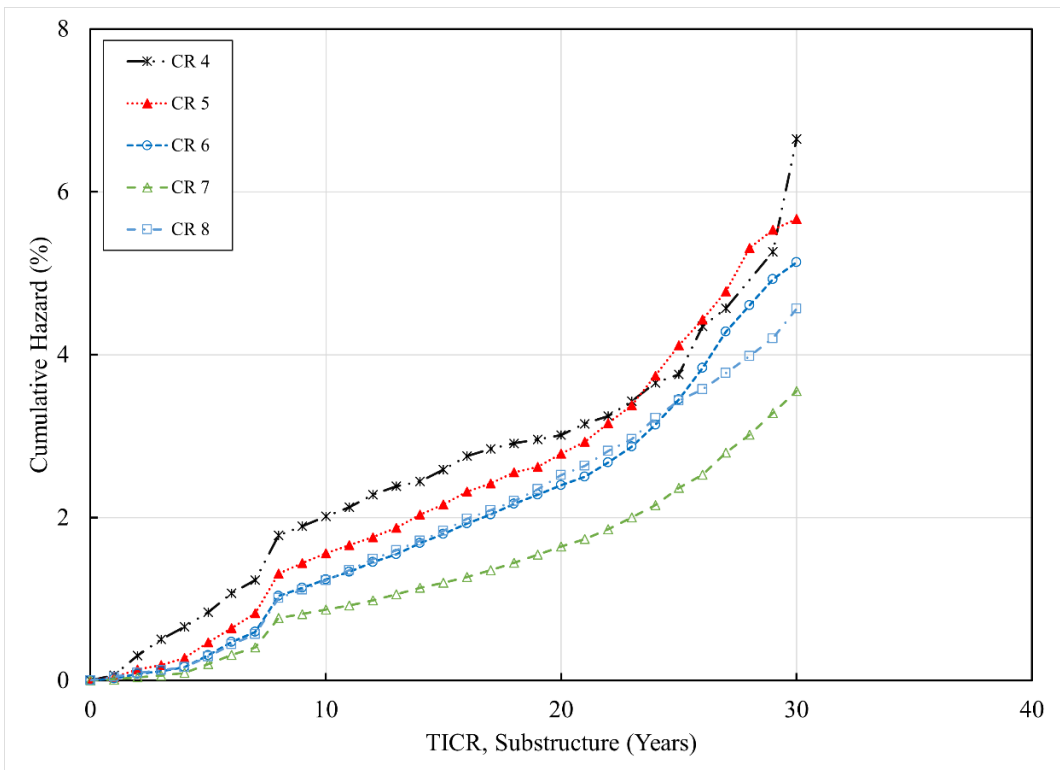


Figure A.80. Cumulative hazard graph for substructures in Illinois.

Kaplan Meier Analysis for Missouri

Table A.5. Kaplan-Meier analysis result for bridge components in Missouri.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	6	5	6	6.73	0.180
5	8	7	9	10.41	0.168
6	12	11	13	13.94	0.133
7	11	11	12	13.46	0.090
8	9	8	9	9.94	0.068
Prestressed Concrete Superstructure					
4	3	1	4	3.30	0.449
5	6	5	9	8.06	0.764
6	11	10	12	13.11	0.445
7	13	13	14	14.98	0.243
8	9	8	9	10.35	0.176
Reinforced Concrete Superstructure					
4	6	5	7	8.81	0.736
5	14.5	13.	18	16.55	0.534
6	16	14	17	16.78	0.429
7	15	13	17	15.91	0.437
8	9	8	10	11.57	0.470
Steel Superstructure					
4	5	4	5	5.72	0.279
5	8	7	8	10	0.208
6	11	10	11	13.15	0.137
7	12	12	13	14.09	0.102
8	10	9	11	11.94	0.094
Substructure					
4	5	5	6	6.26	0.186
5	9	8	10	11.48	0.180
6	11	10	11	12.96	0.117
7	12	11	12	13.32	0.100
8	9	9	10	10.89	0.078

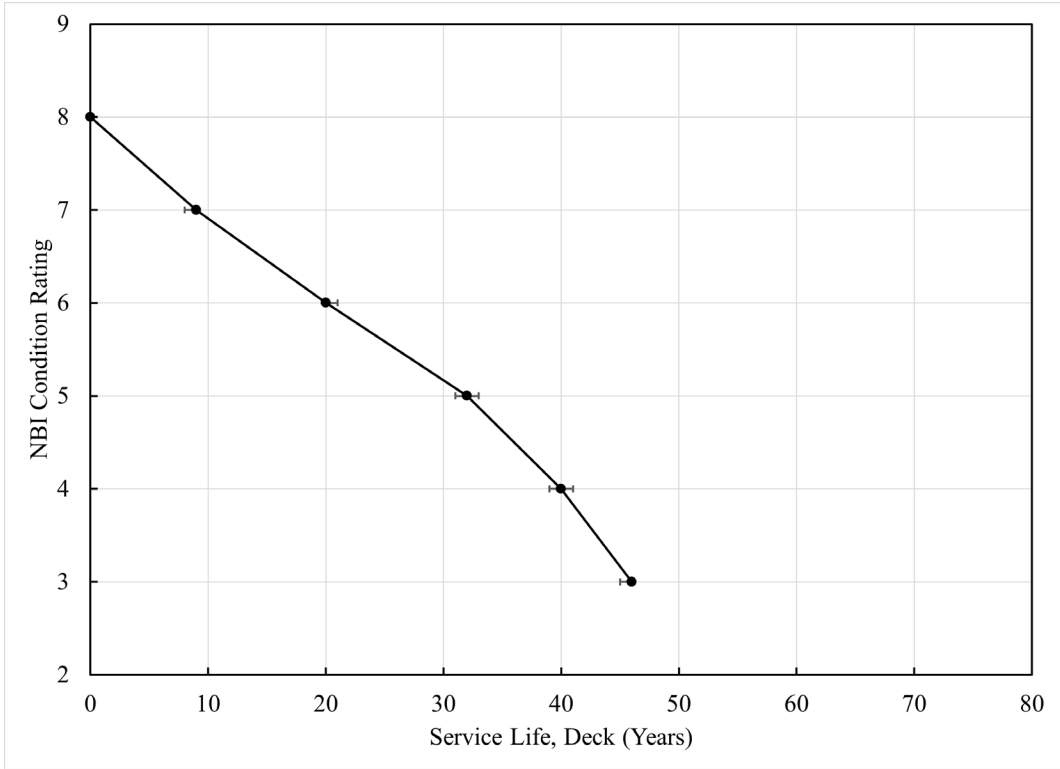


Figure A.81. Service life graph for bridge decks in Missouri.

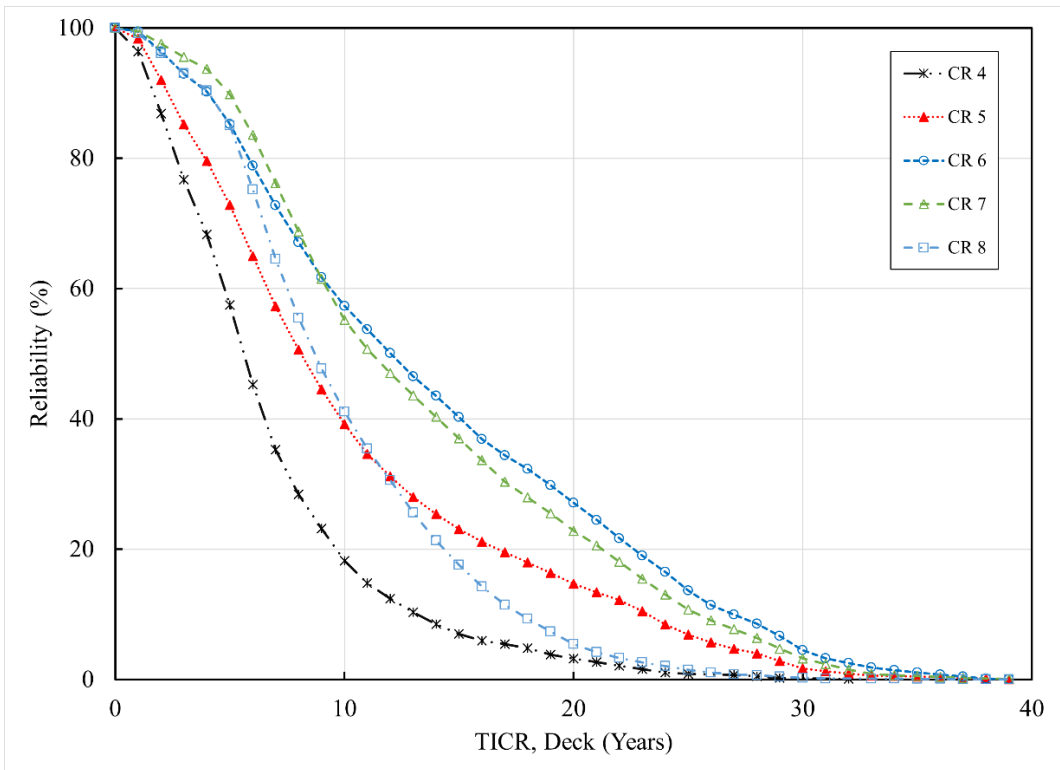


Figure A.82. Reliability graph for bridge decks in Missouri.

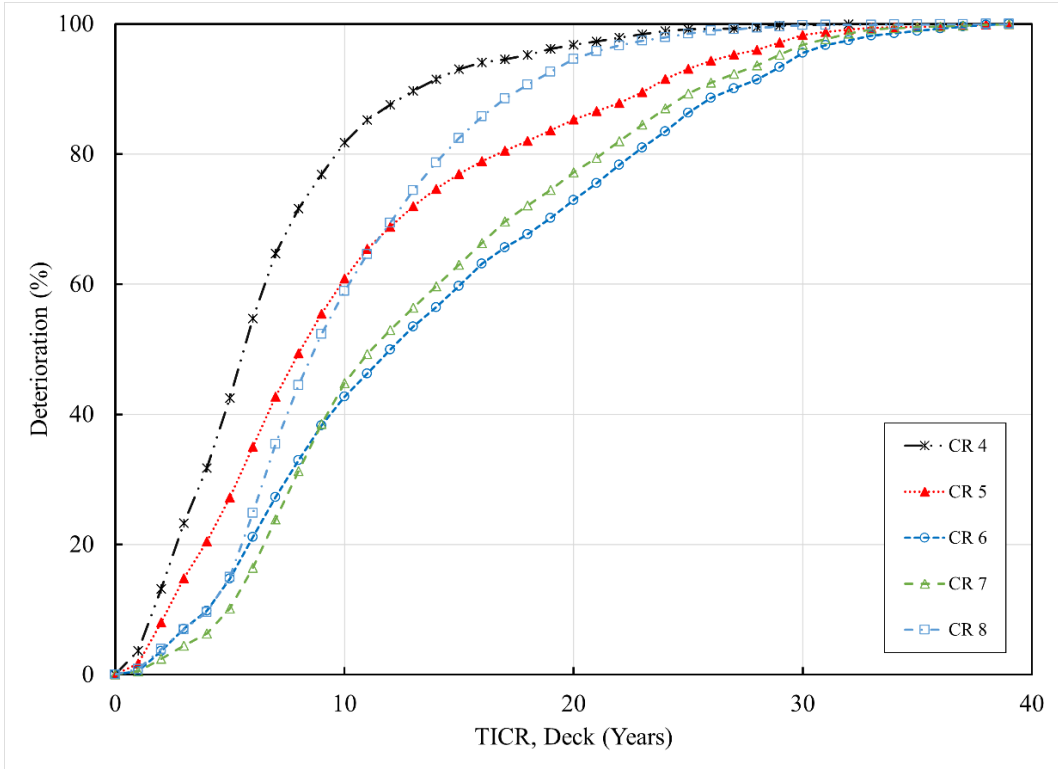


Figure A.83. Deterioration graph for bridge decks in Missouri.

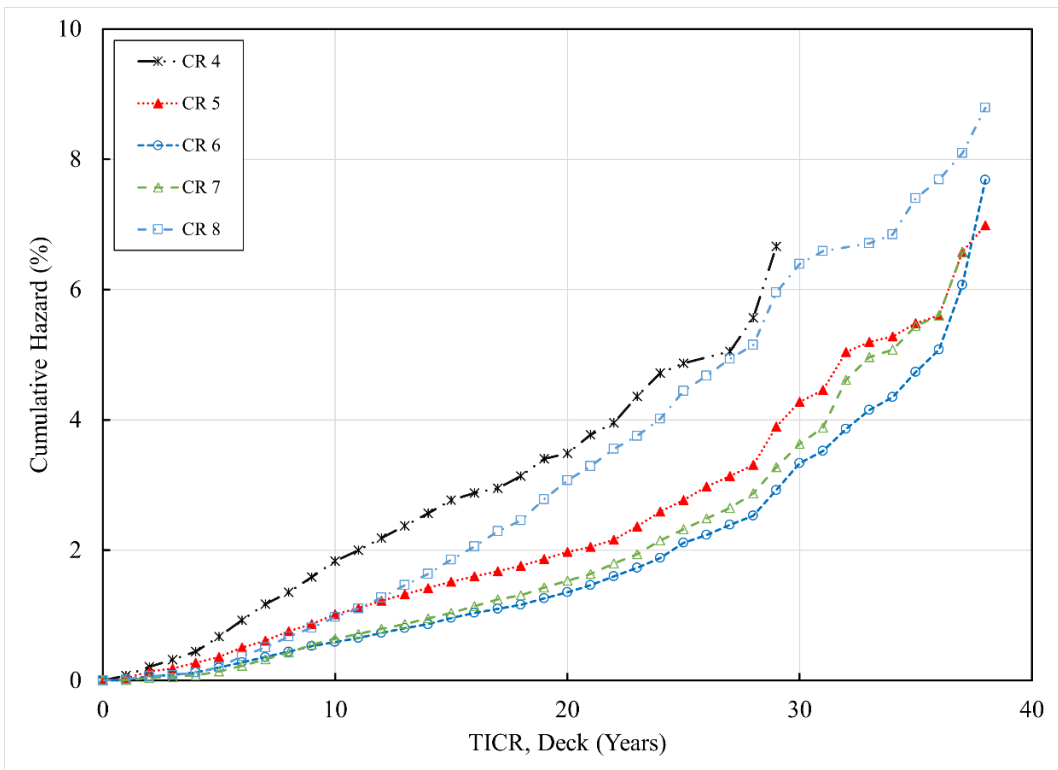


Figure A.84. Cumulative hazard graph for bridge decks in Missouri.

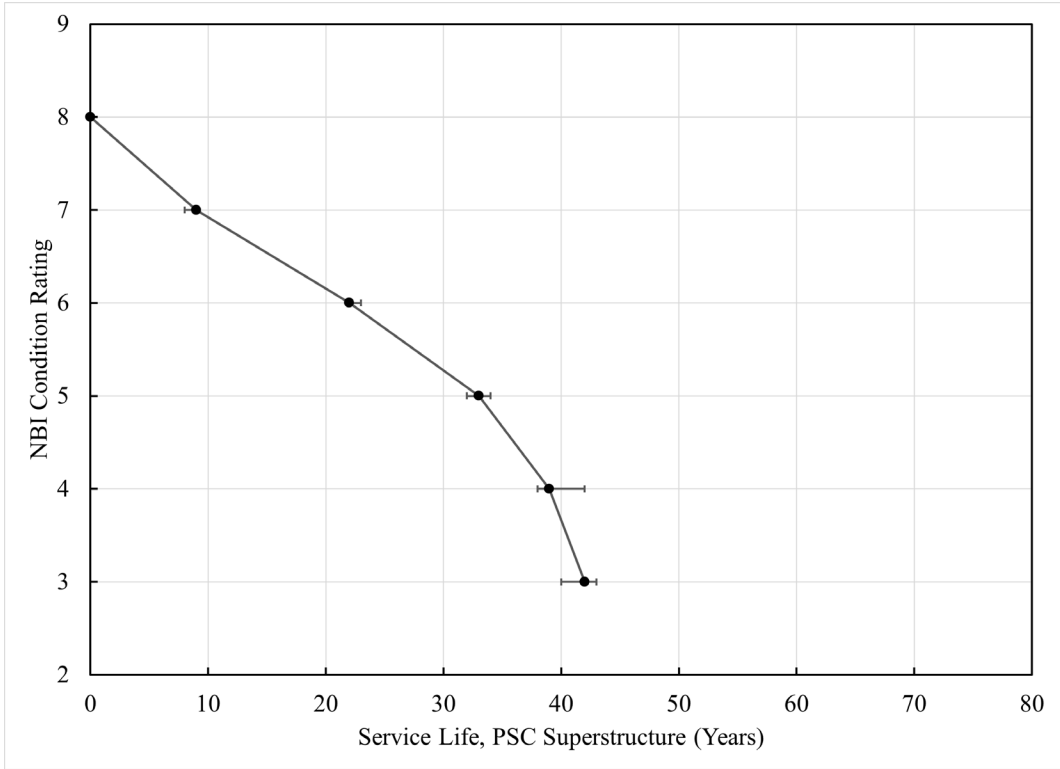


Figure A.85. Service life graph for PSC superstructures in Missouri.

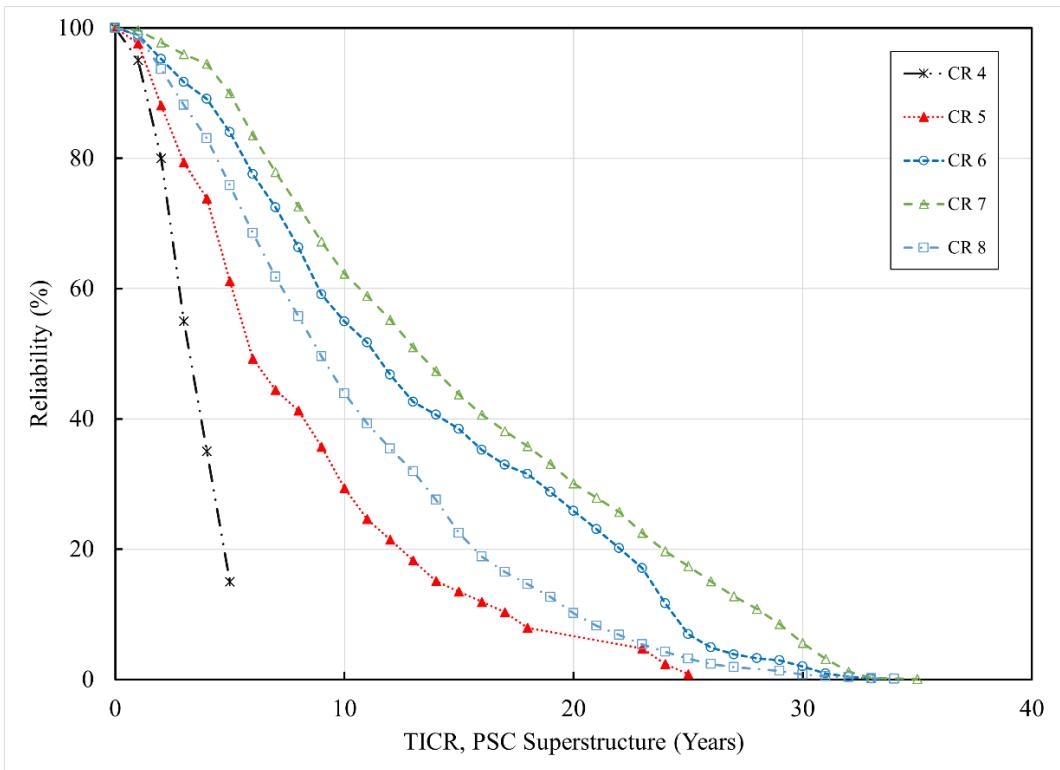


Figure A.86. Reliability graph for PSC superstructures in Missouri.

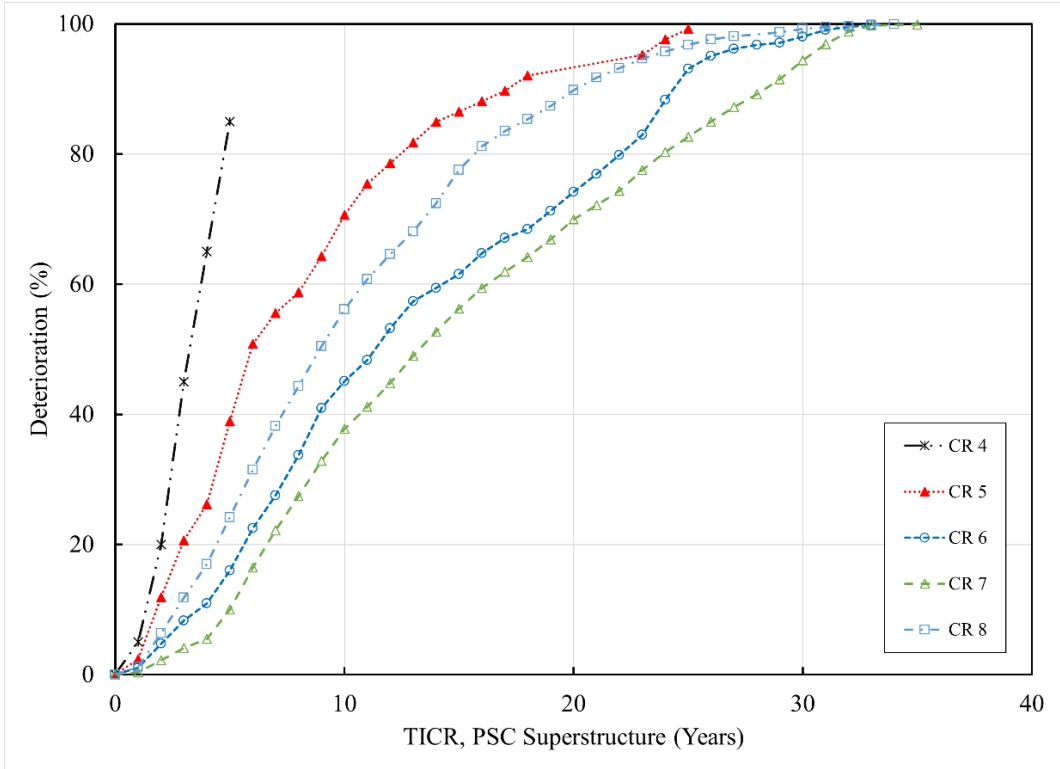


Figure A.87. Deterioration graph for PSC superstructures in Missouri.

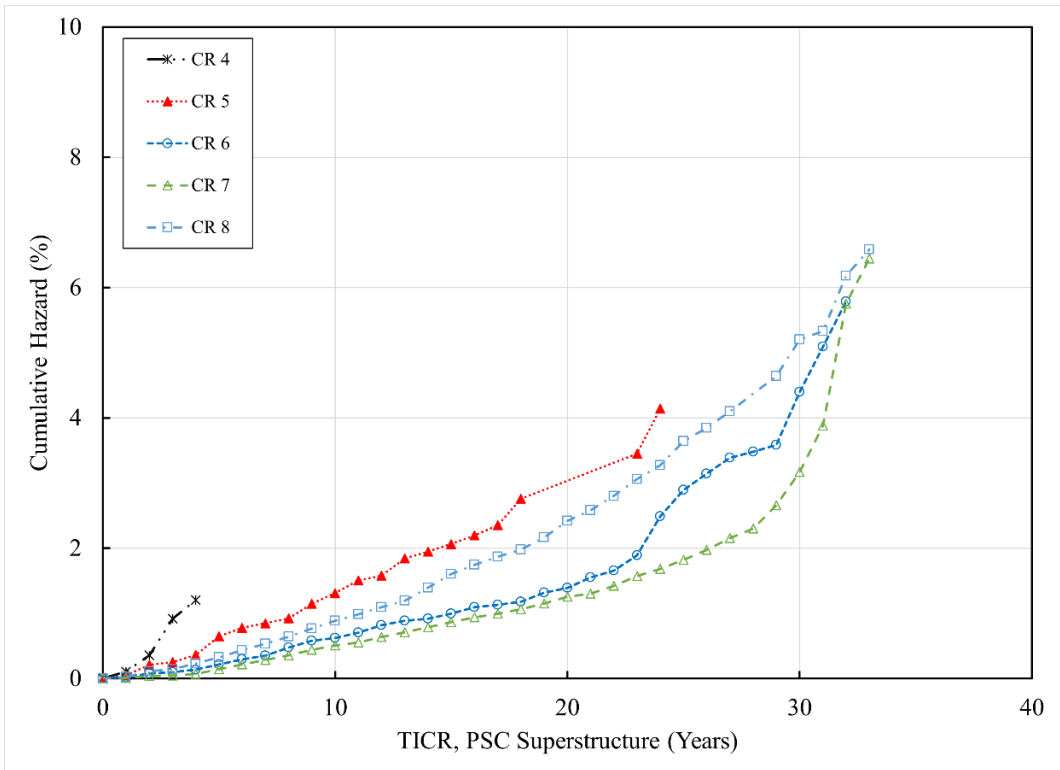


Figure A.88. Cumulative hazard graph for PSC superstructures in Missouri.

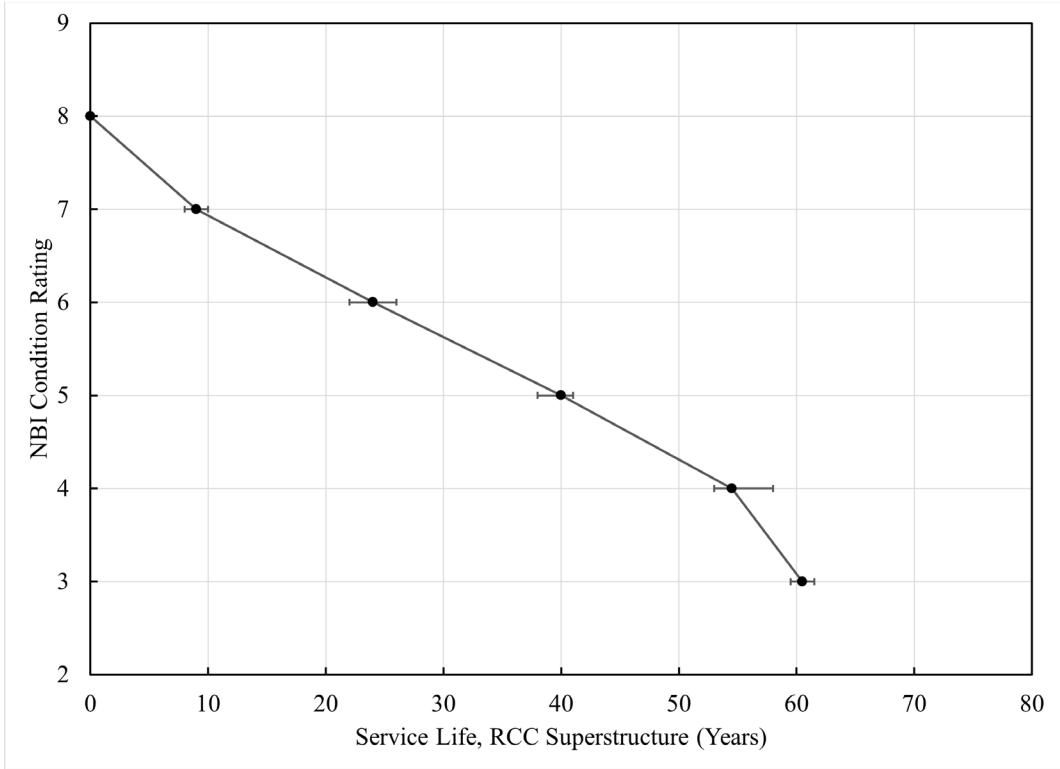


Figure A.89. Service life graph for R/C superstructures in Missouri.

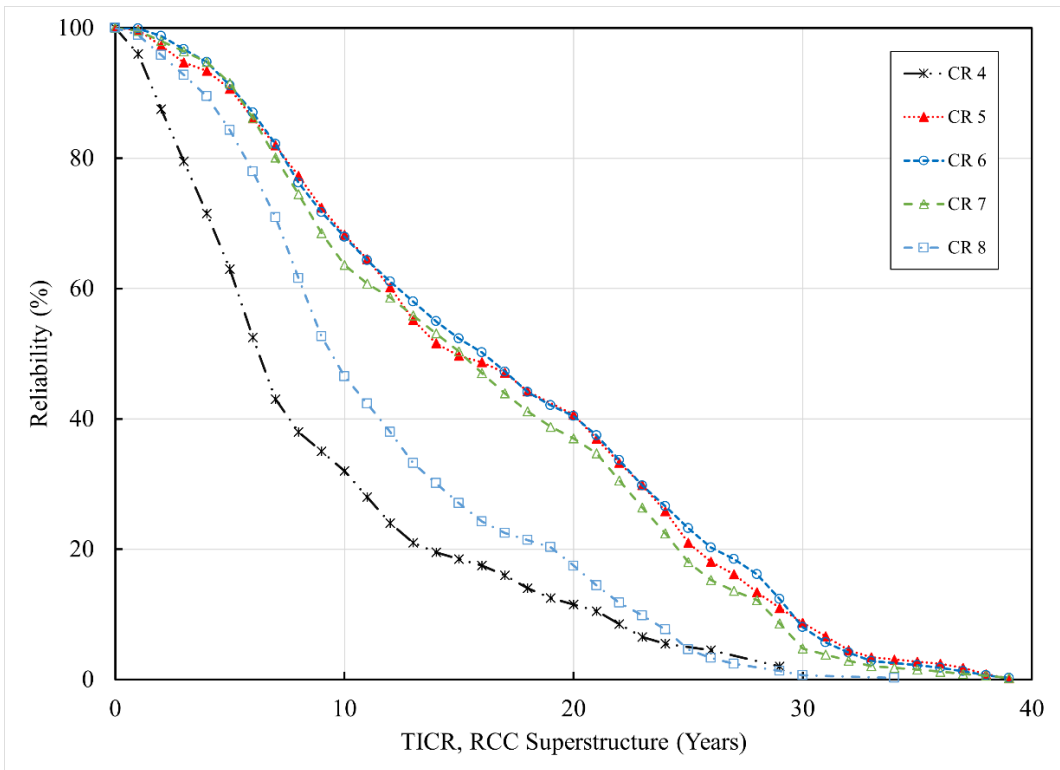


Figure A.90. Reliability graph for R/C superstructures in Missouri.

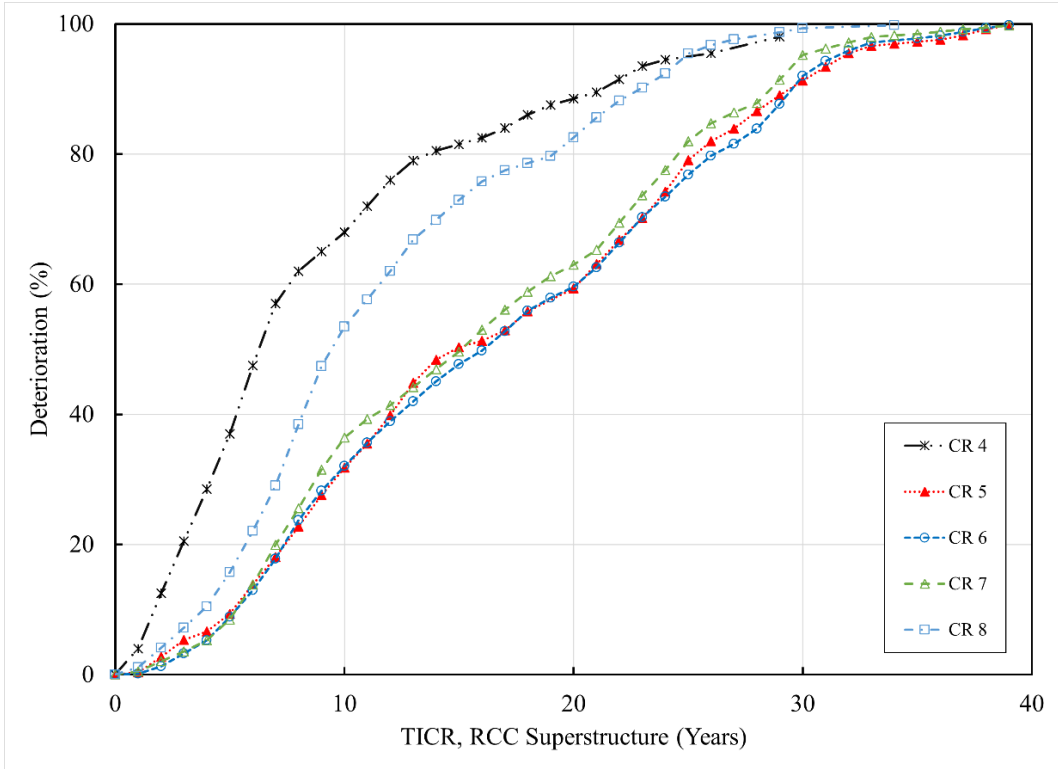


Figure A.91. Deterioration graph for R/C superstructures in Missouri.

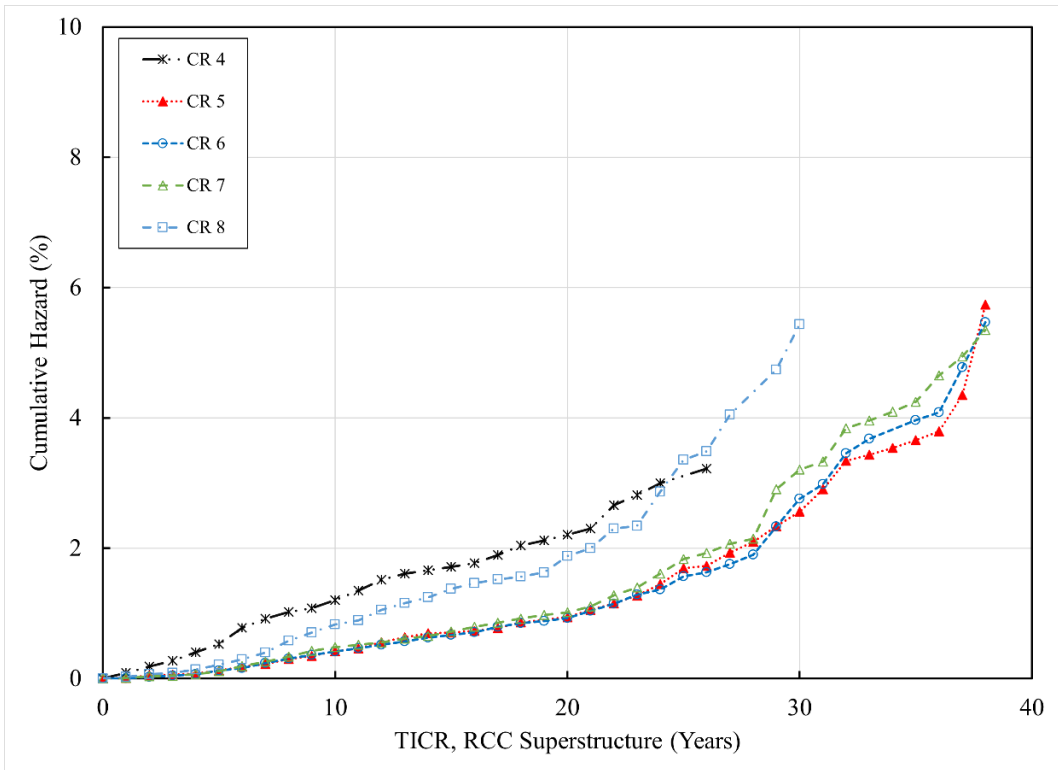


Figure A.92. Cumulative hazard graph for R/C superstructures in Missouri.

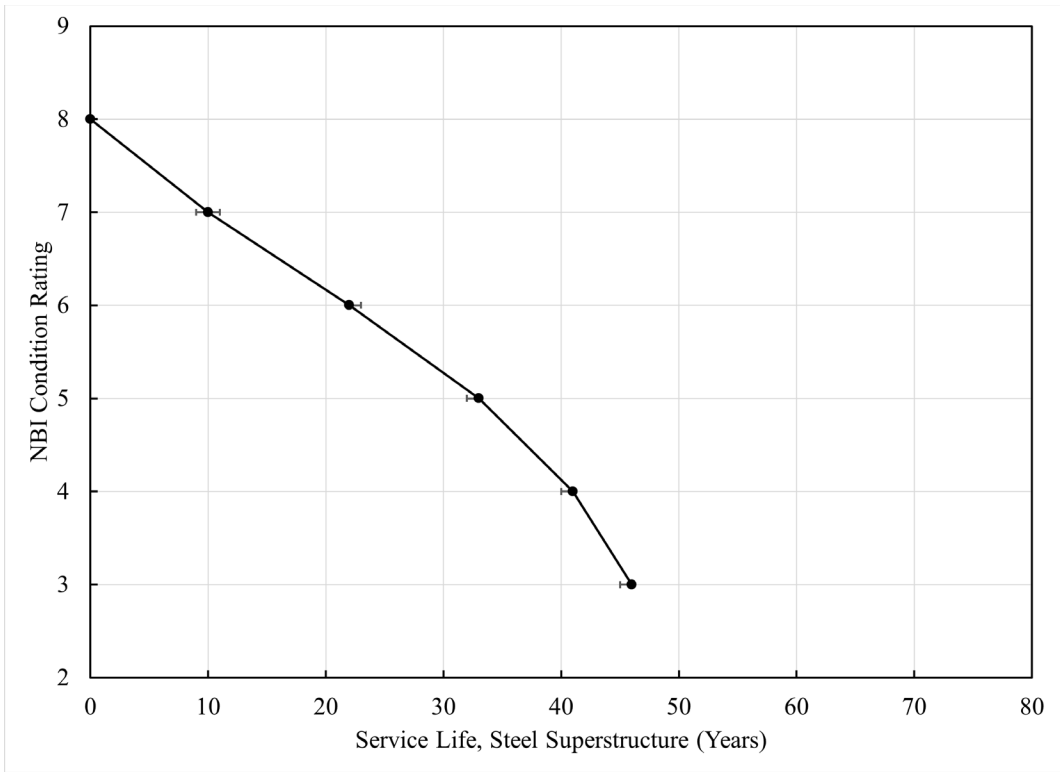


Figure A.93. Service life graph for steel superstructures in Missouri.

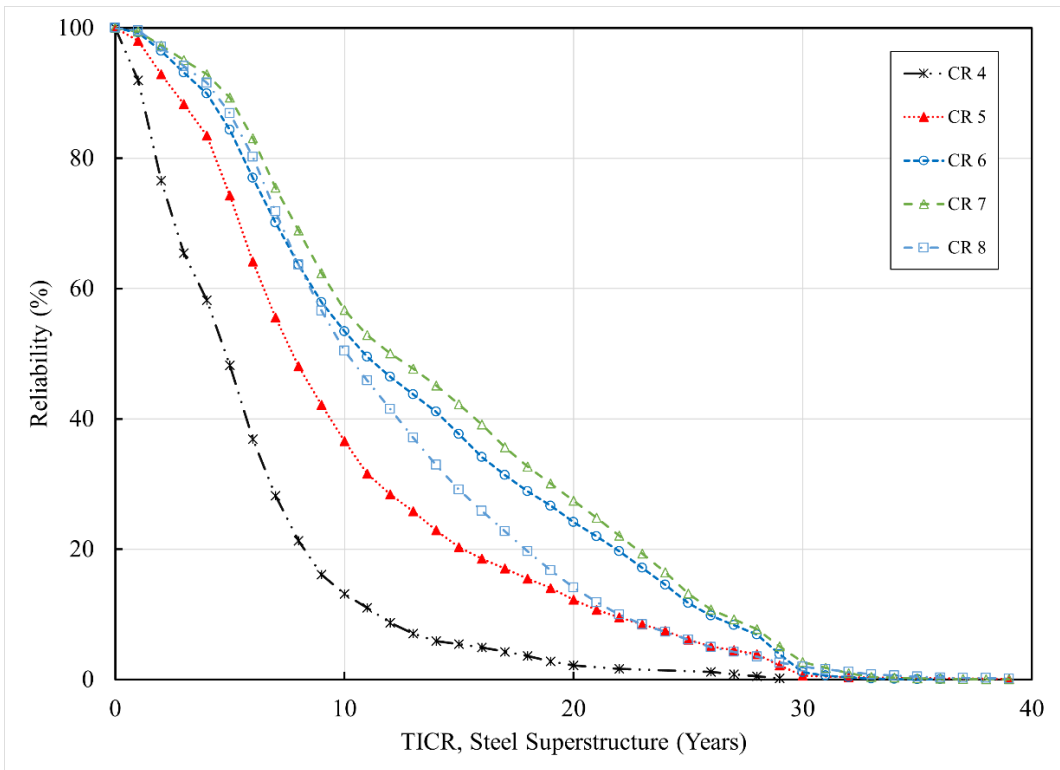


Figure A.94. Reliability graph for steel superstructures in Missouri.

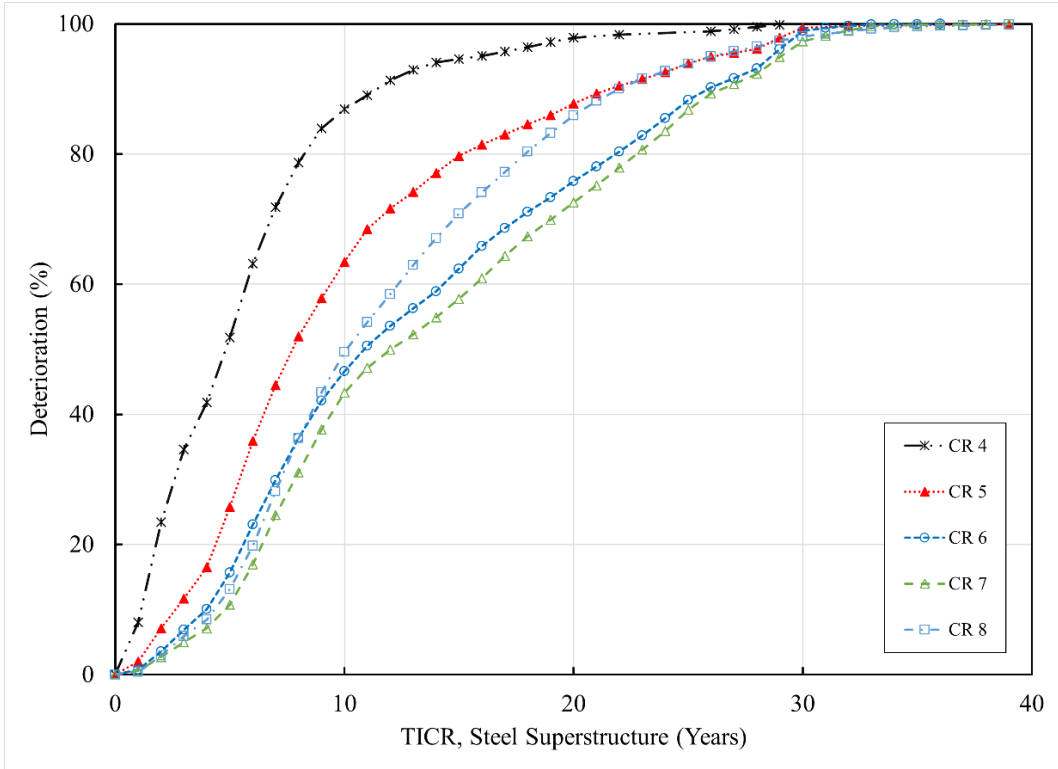


Figure A.95. Deterioration graph for steel superstructures in Missouri.

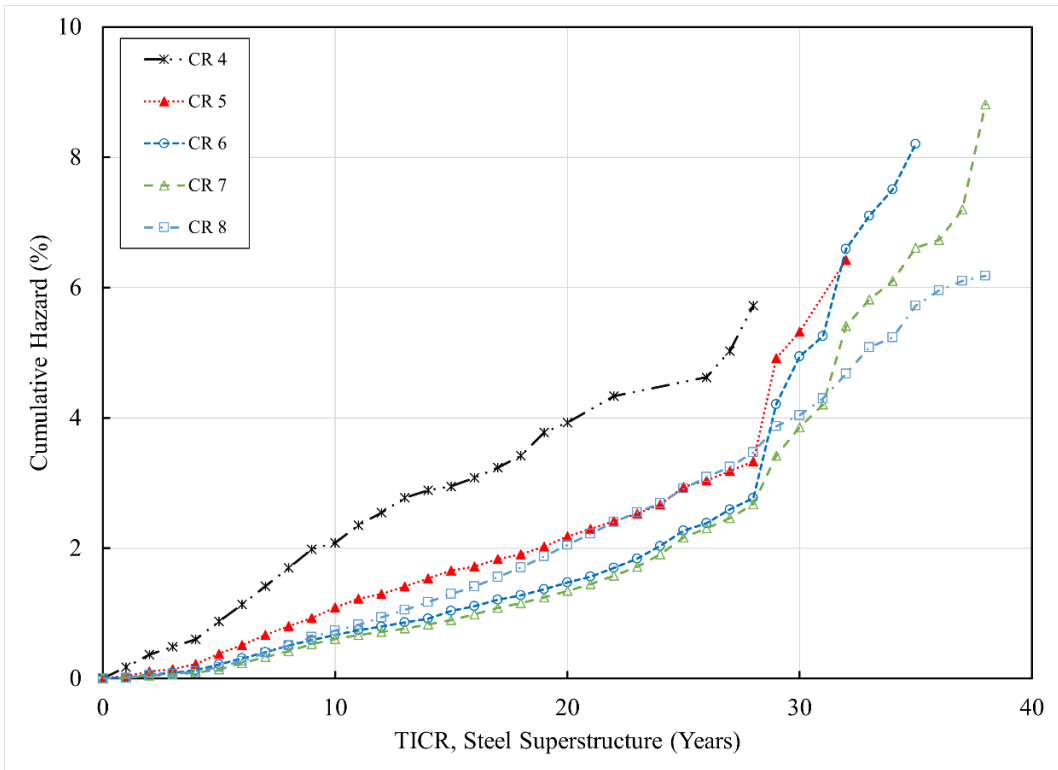


Figure A.96. Cumulative hazard graph for steel superstructures in Missouri.

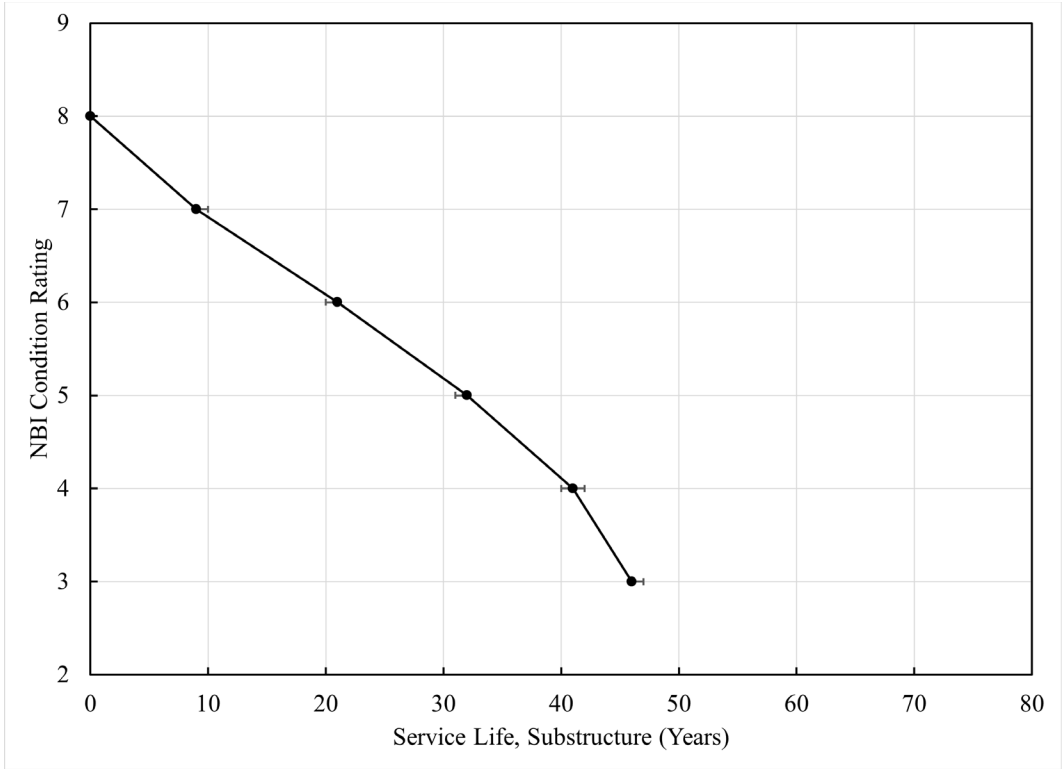


Figure A.97. Service life graph for substructures in Missouri.

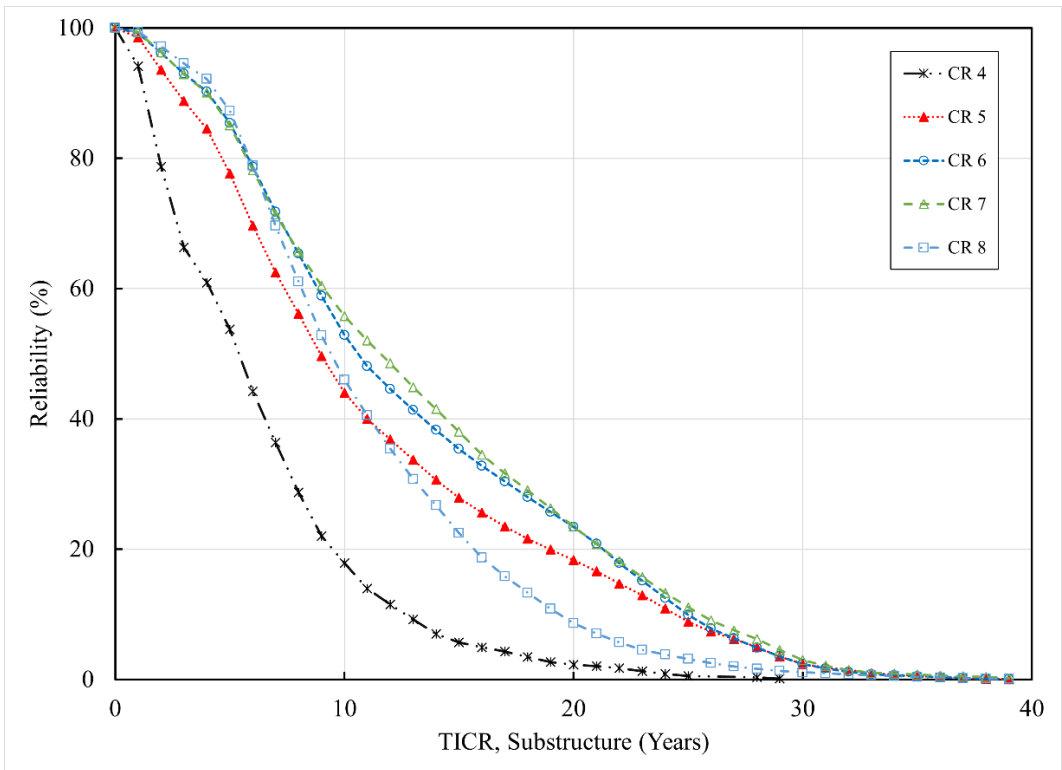


Figure A.98. Reliability graph for substructures in Missouri.

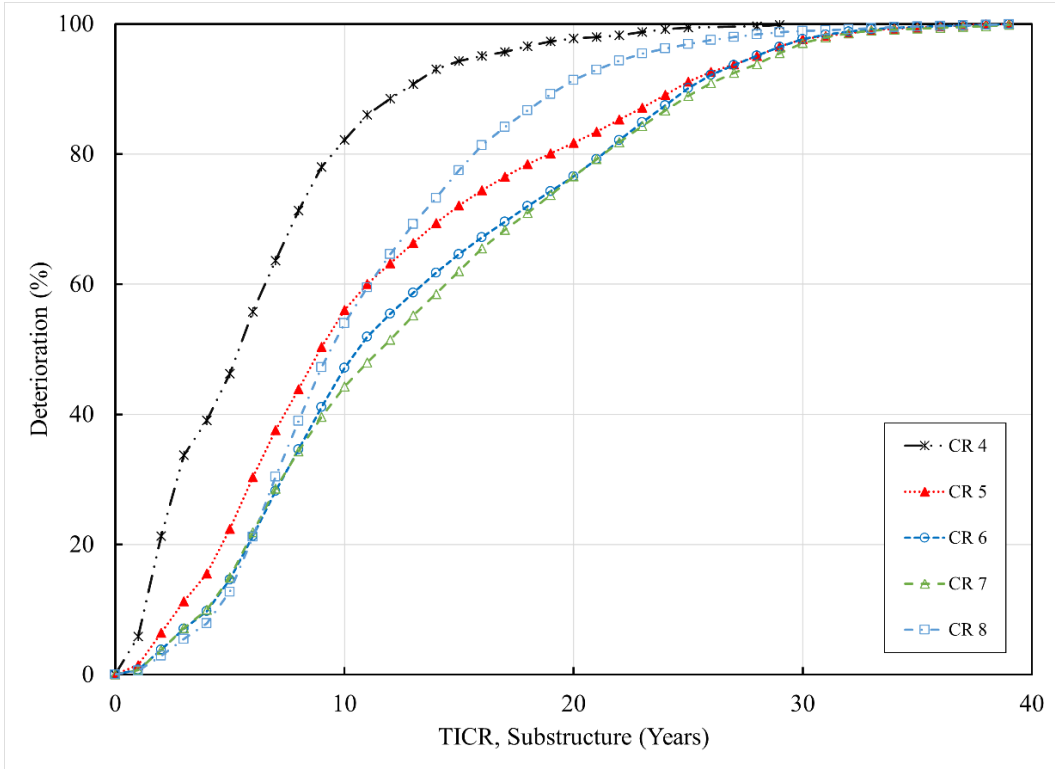


Figure A.99. Deterioration graph for substructures in Missouri.

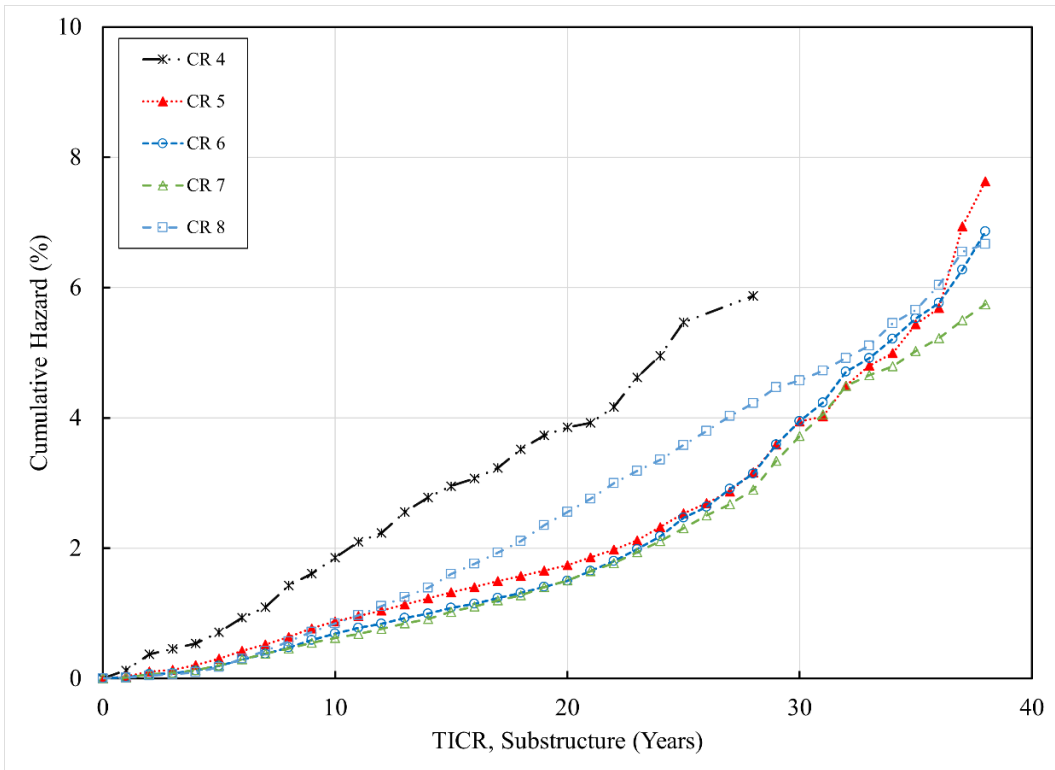


Figure A.100. Cumulative hazard graph for substructures in Missouri.

Kaplan Meier Analysis for New York

Table A.6. Kaplan-Meier analysis result for bridge components in New York.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	9	8	9	10.18	0.090
5	10	9	11	11.48	0.087
6	9	8	9	10.54	0.091
7	8	7	9	9.42	0.084
8	8	7	9	10.23	0.103
Prestressed Concrete Superstructure					
4	6	4	10	8.98	0.911
5	11	9	13	11.86	0.640
6	10	9	12	11.87	0.476
7	10	9	10	10.52	0.337
8	12	12	14	13.75	0.372
Reinforced Concrete Superstructure					
4	9	8	10	10.70	0.428
5	12	12	14	10.84	0.549
6	11.5	10	14	12.81	0.748
7	10	8	12	10.39	1.052
8	13	8	15	13.27	1.267
Steel Superstructure					
4	7	6	7	7.76	0.072
5	8	8	9	9.91	0.077
6	9	9	10	10.71	0.081
7	9	8	9	9.97	0.084
8	10	9	11	11.47	0.108
Substructure					
4	9	8	9	9.49	0.069
5	10	9	11	10.71	0.077
6	9	9	10	10.45	0.080
7	8	8	9	9.57	0.081
8	8	7	9	8.89	0.100

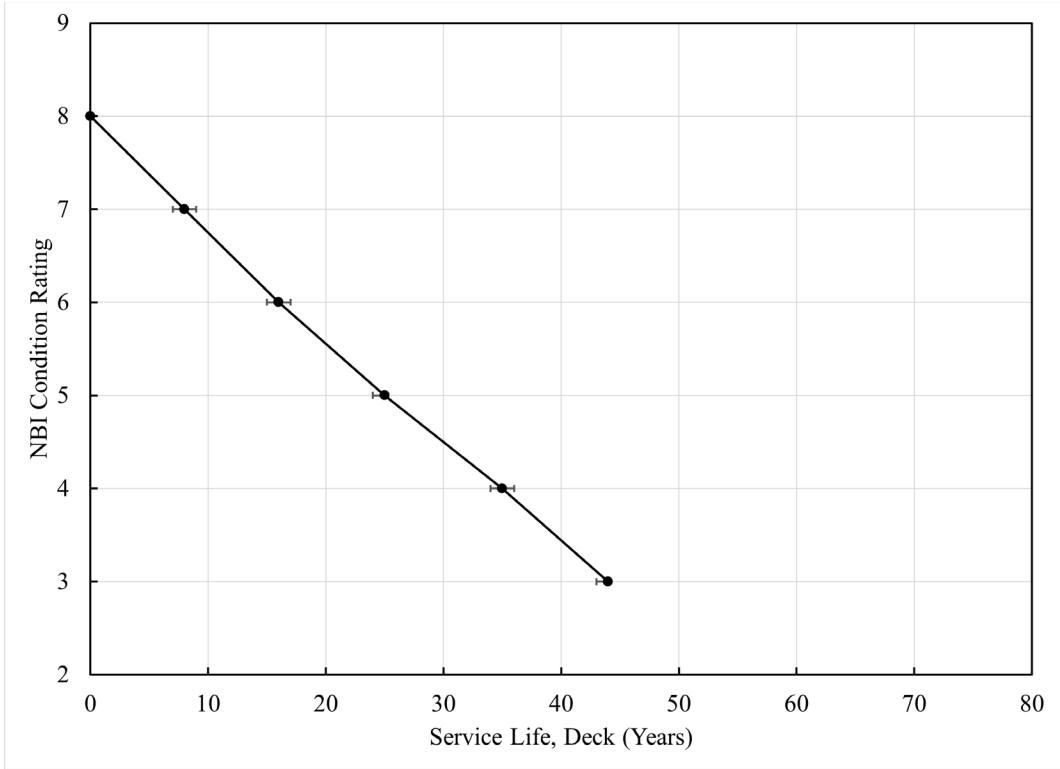


Figure A.101. Service life graph for bridge decks in New York.

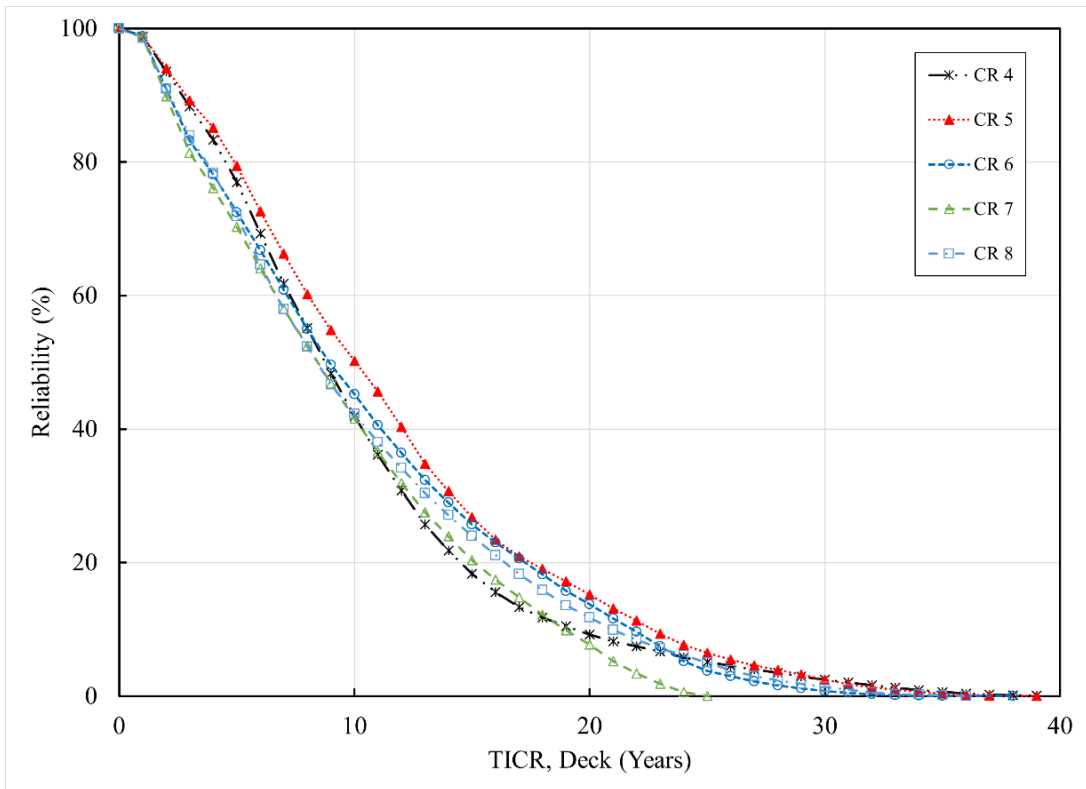


Figure A.102. Reliability graph for bridge decks in New York.

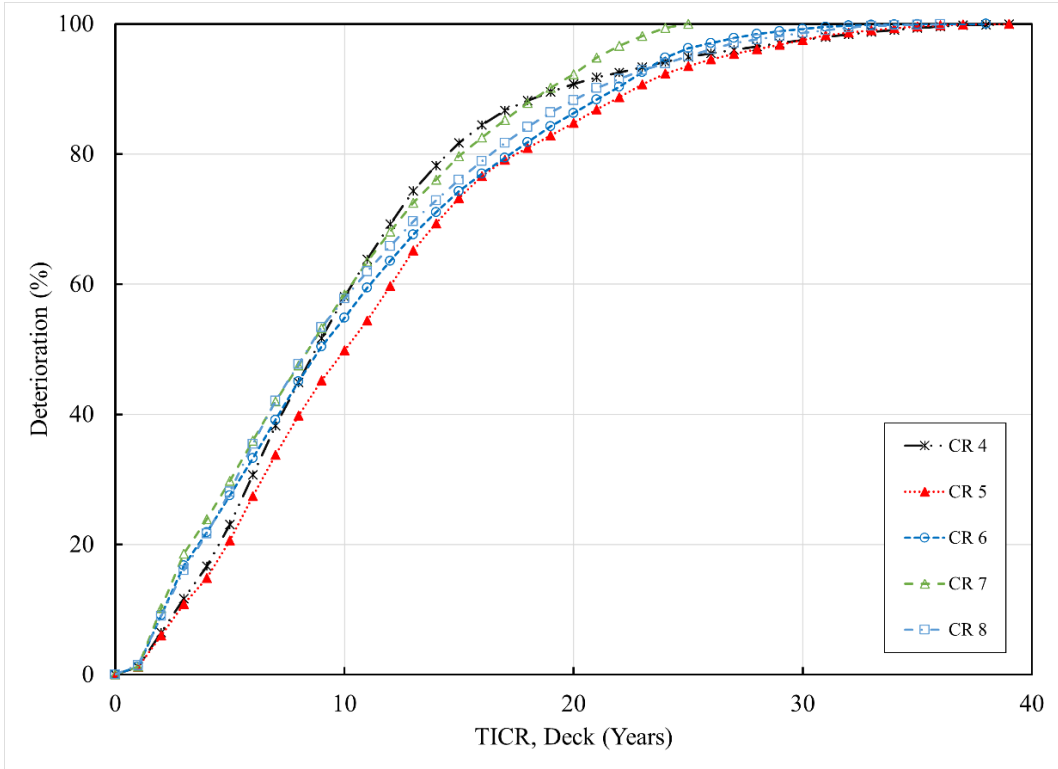


Figure A.103. Deterioration graph for bridge decks in New York.

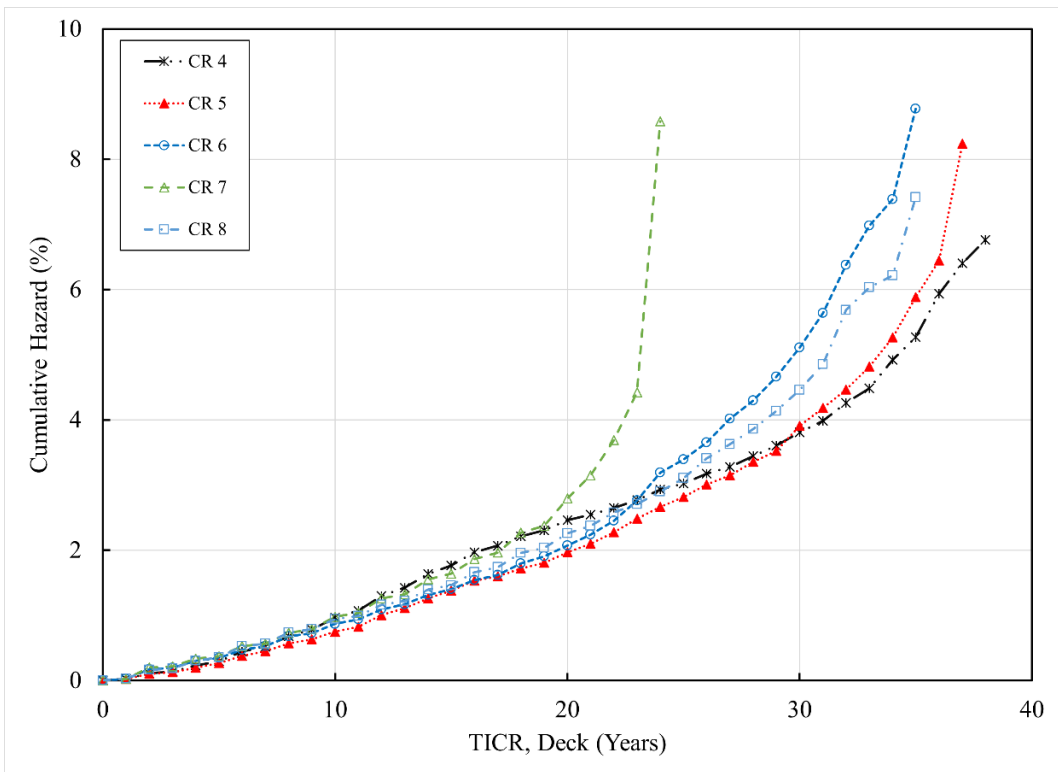


Figure A.104. Cumulative hazard graph for bridge decks in New York.

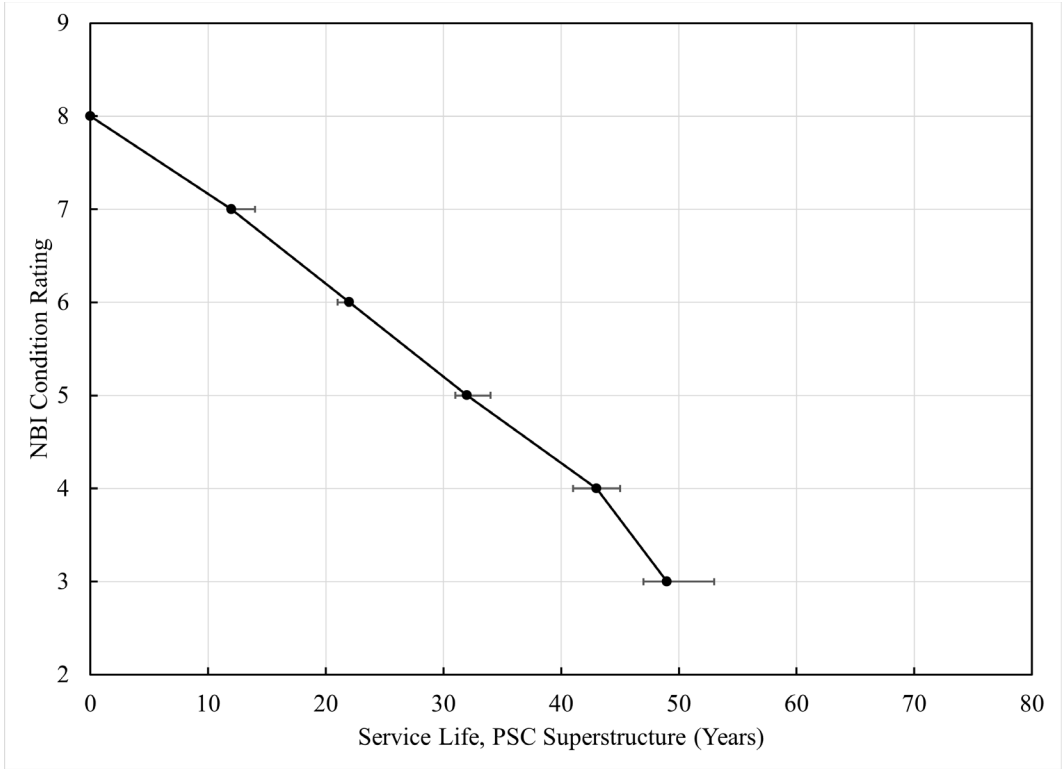


Figure A.105. Service life graph for PSC superstructures in New York.

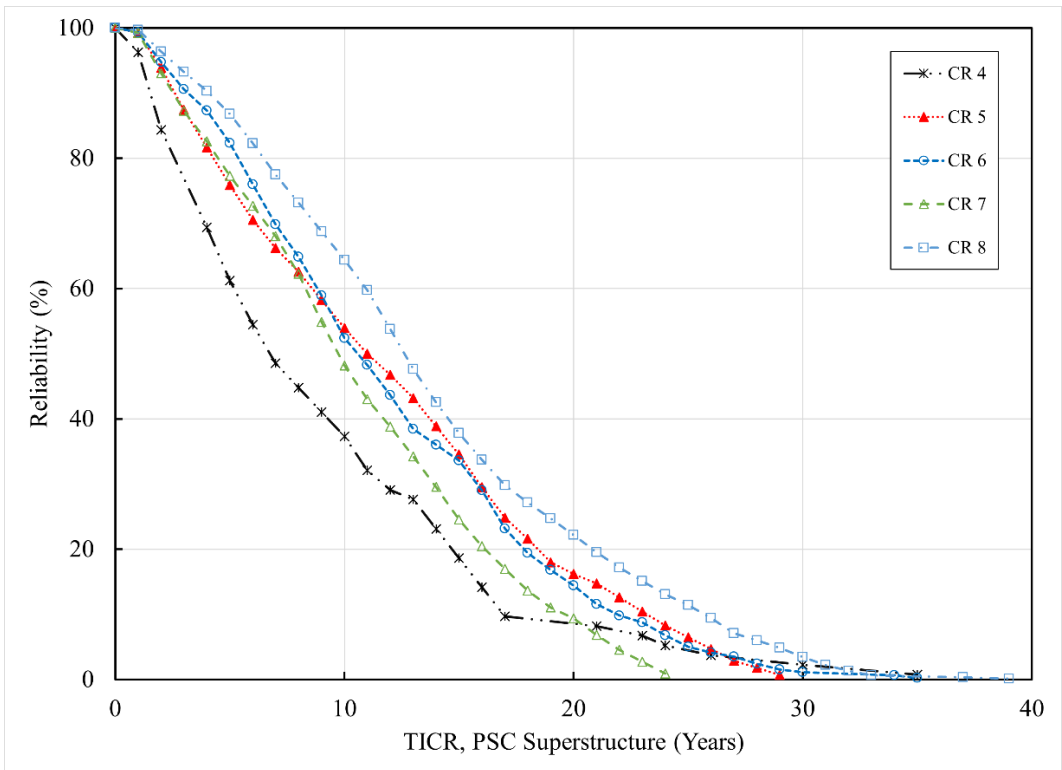


Figure A.106. Reliability graph for PSC superstructures in New York.

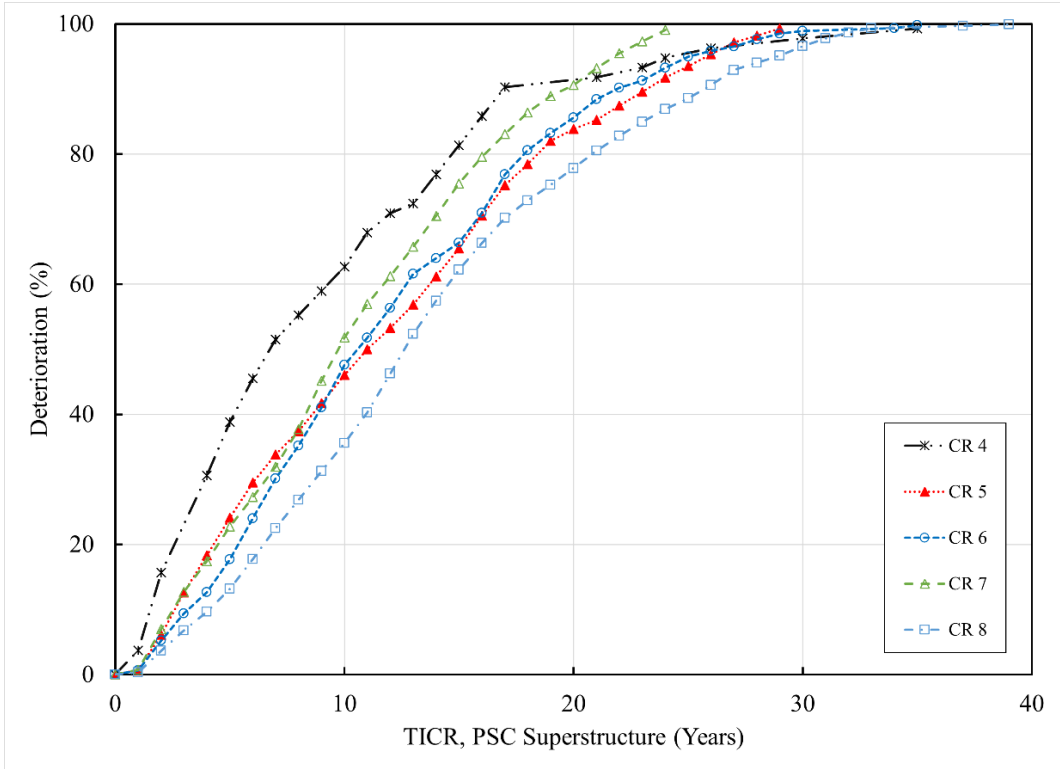


Figure A.107. Deterioration graph for PSC superstructures in New York.

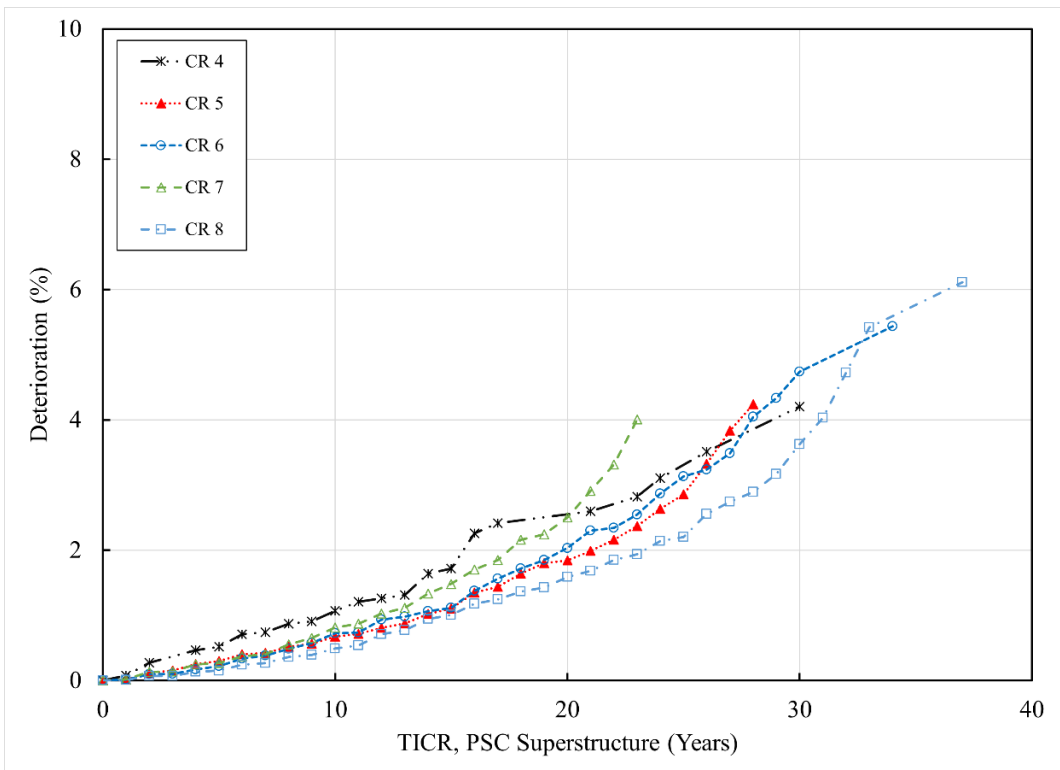


Figure A.108. Cumulative hazard graph for PSC superstructures in New York.

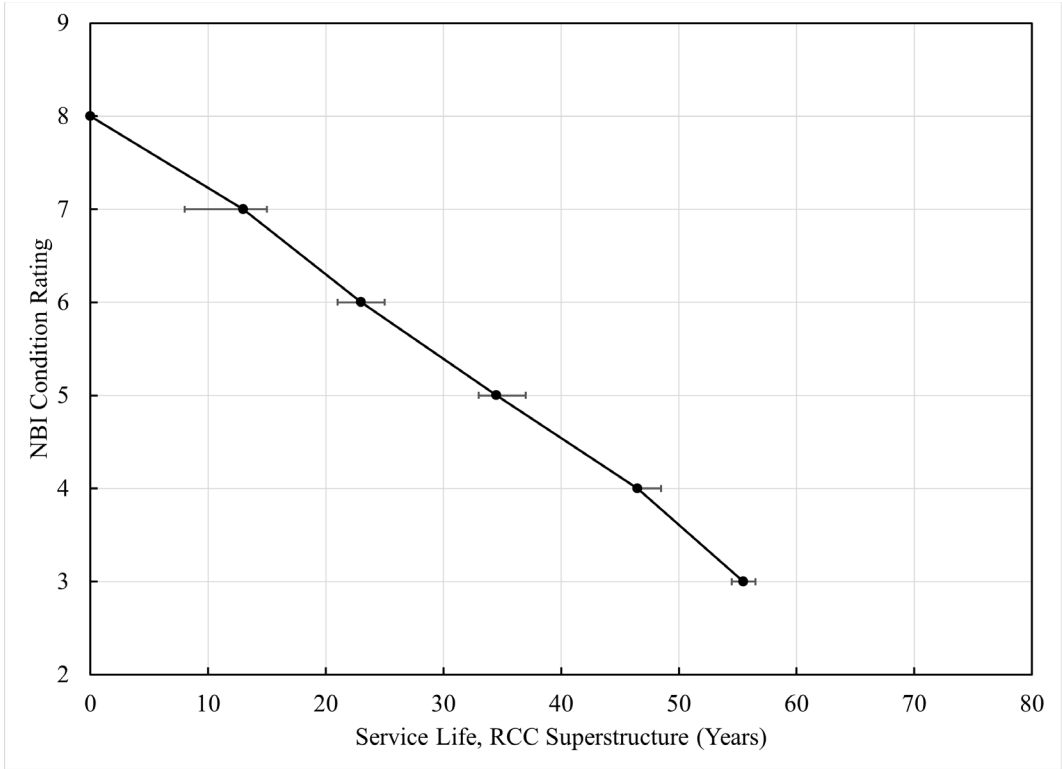


Figure A.109. Service life graph for R/C superstructures in New York.

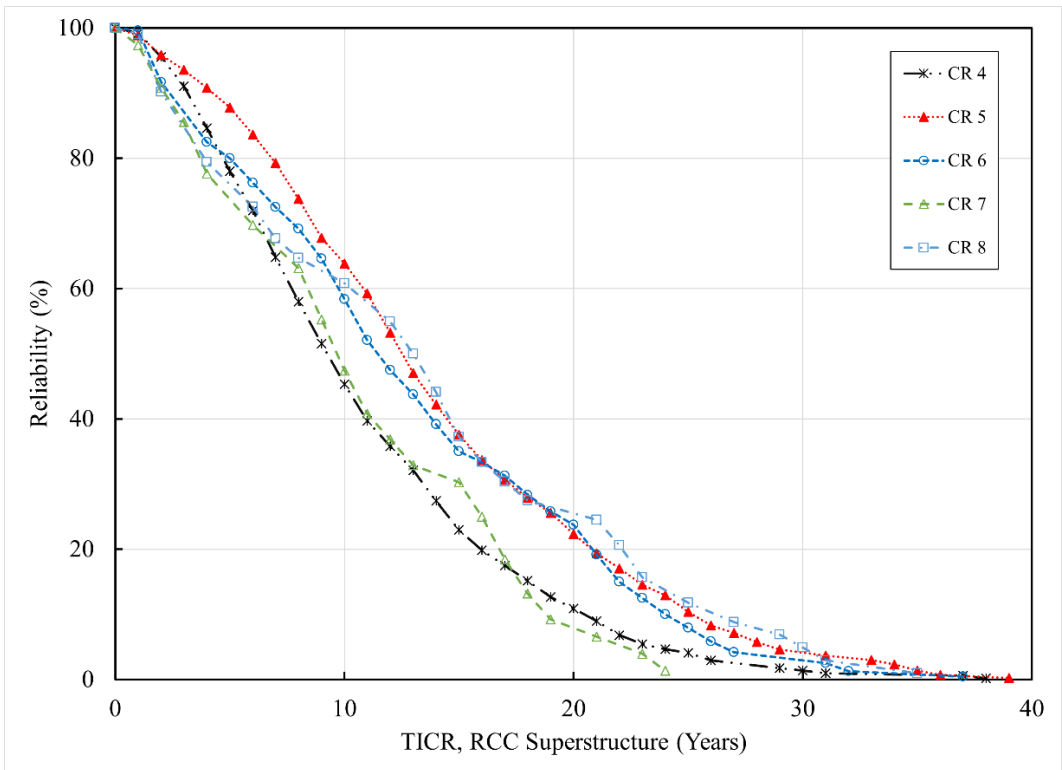


Figure A.110. Reliability graph for R/C superstructures in New York.

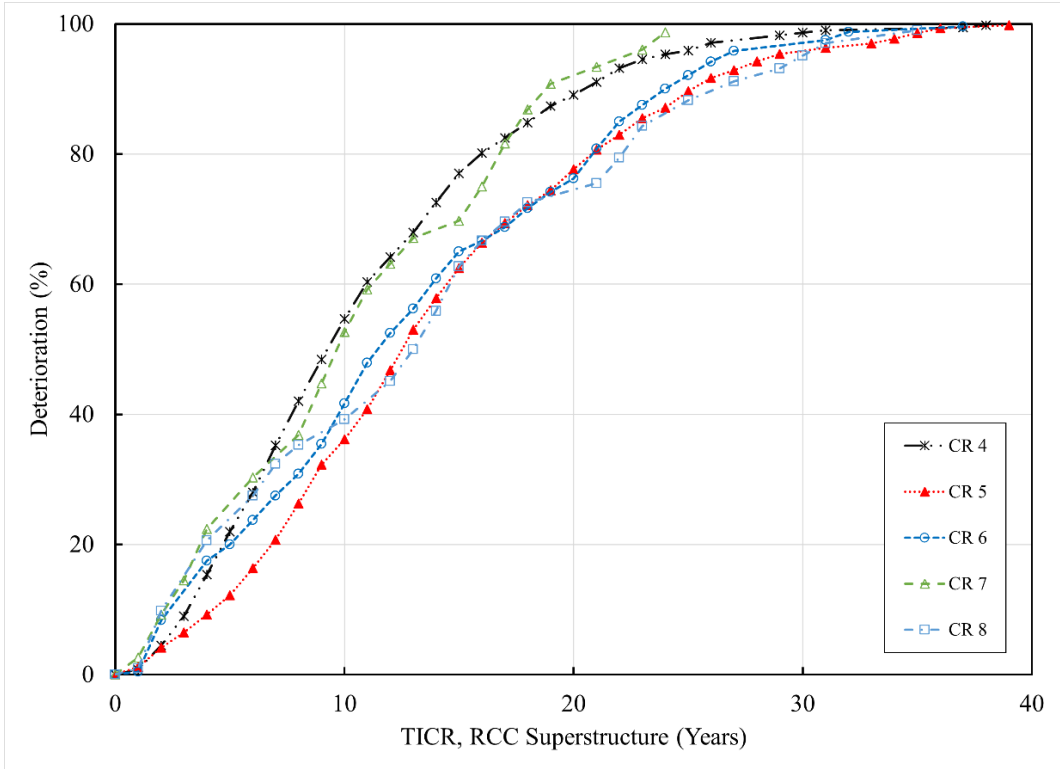


Figure A.111. Deterioration graph for R/C superstructures in New York.

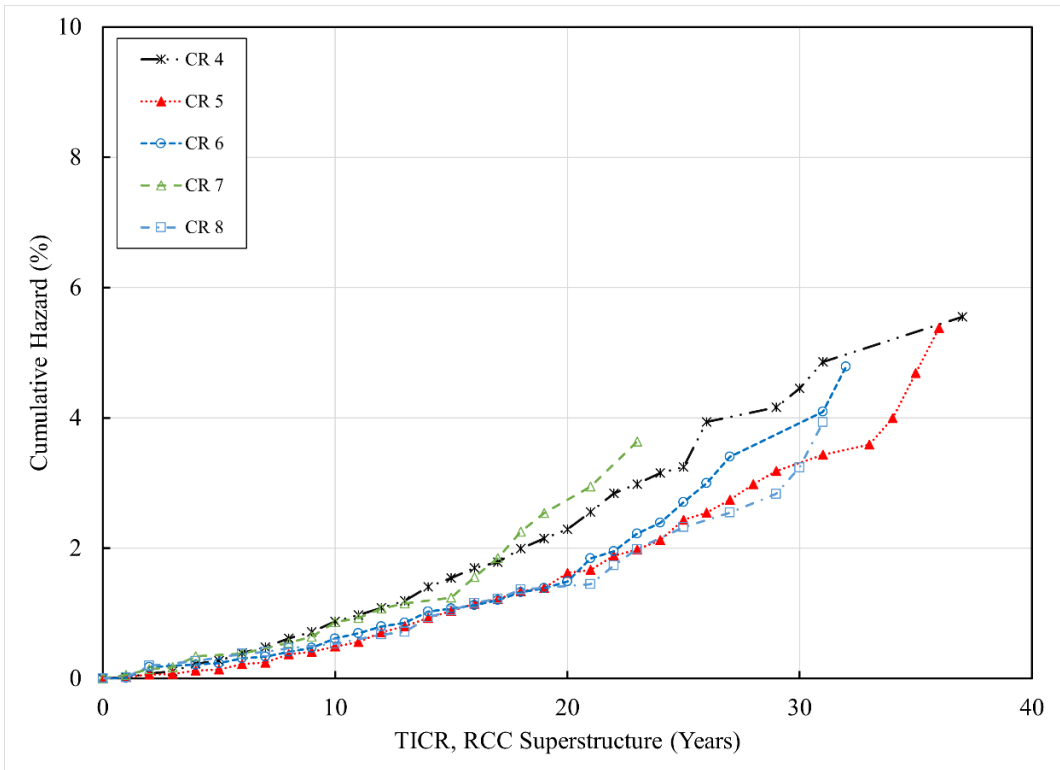


Figure A.112. Cumulative hazard graph for R/C superstructures in New York.

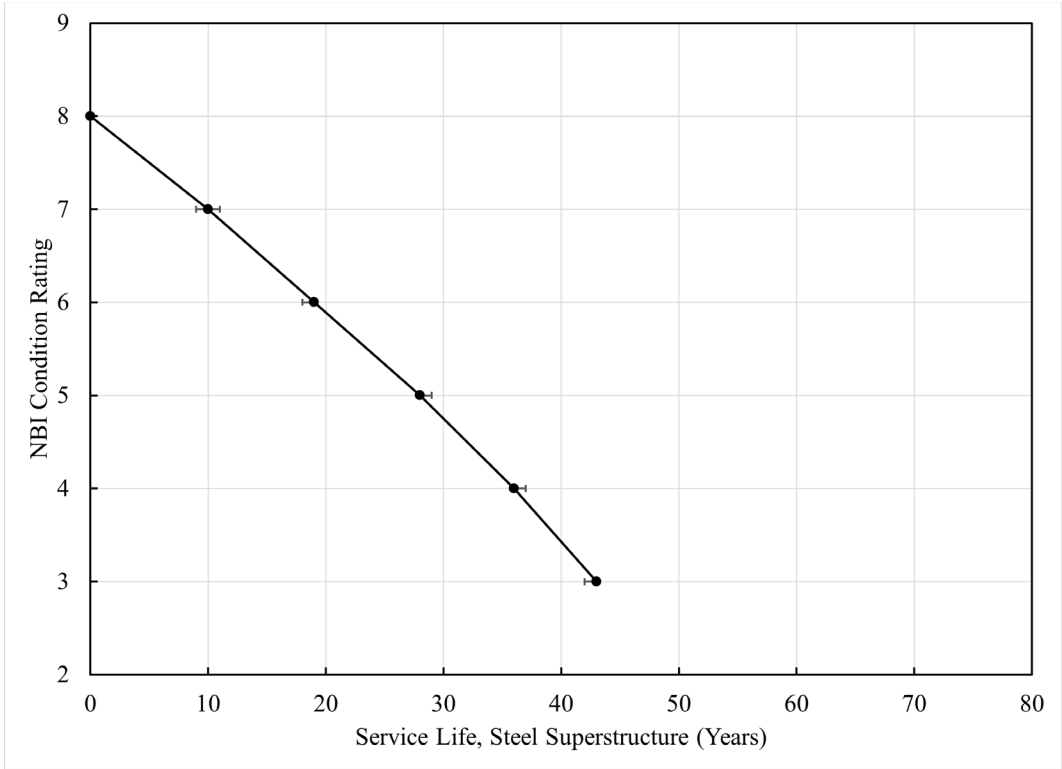


Figure A.113. Service life graph for steel superstructures in New York.

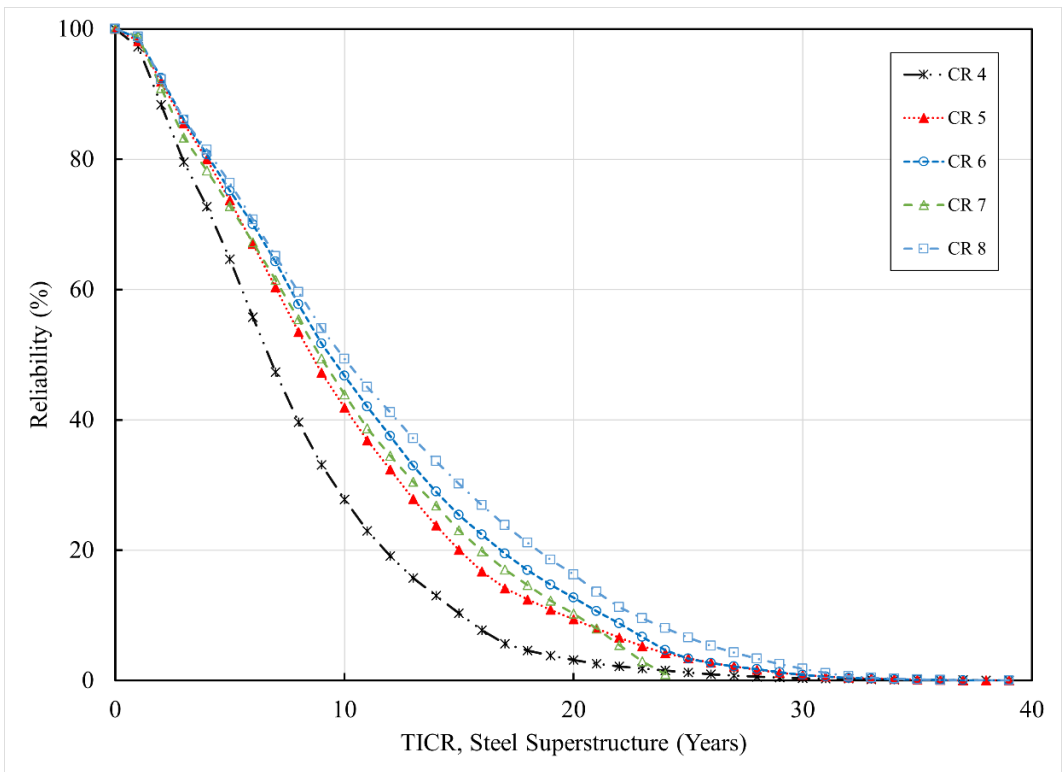


Figure A.114. Reliability graph for steel superstructures in New York.

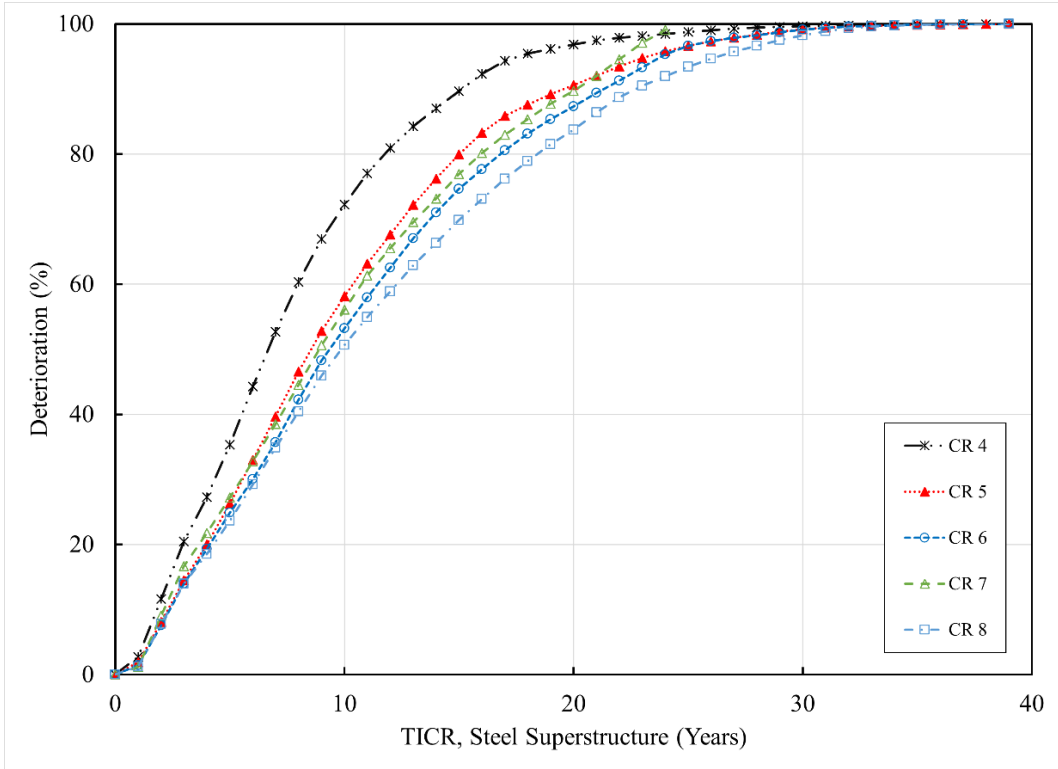


Figure A.115. Deterioration graph for steel superstructures in New York.

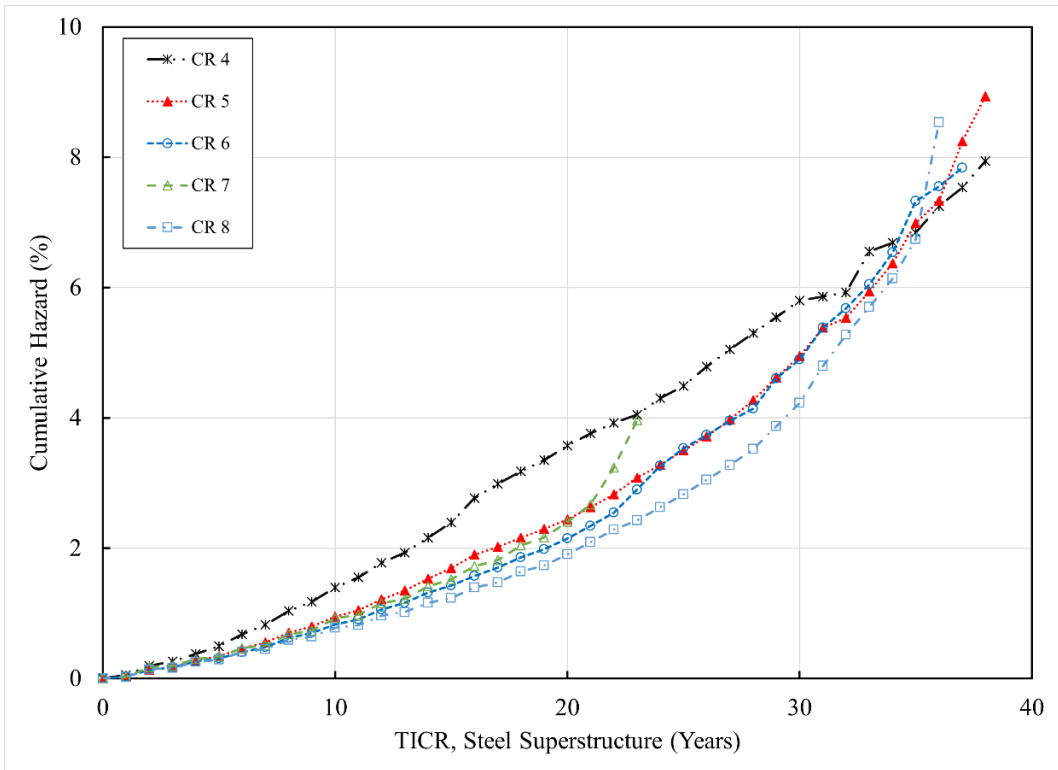


Figure A.116. Cumulative hazard graph for steel superstructures in New York.

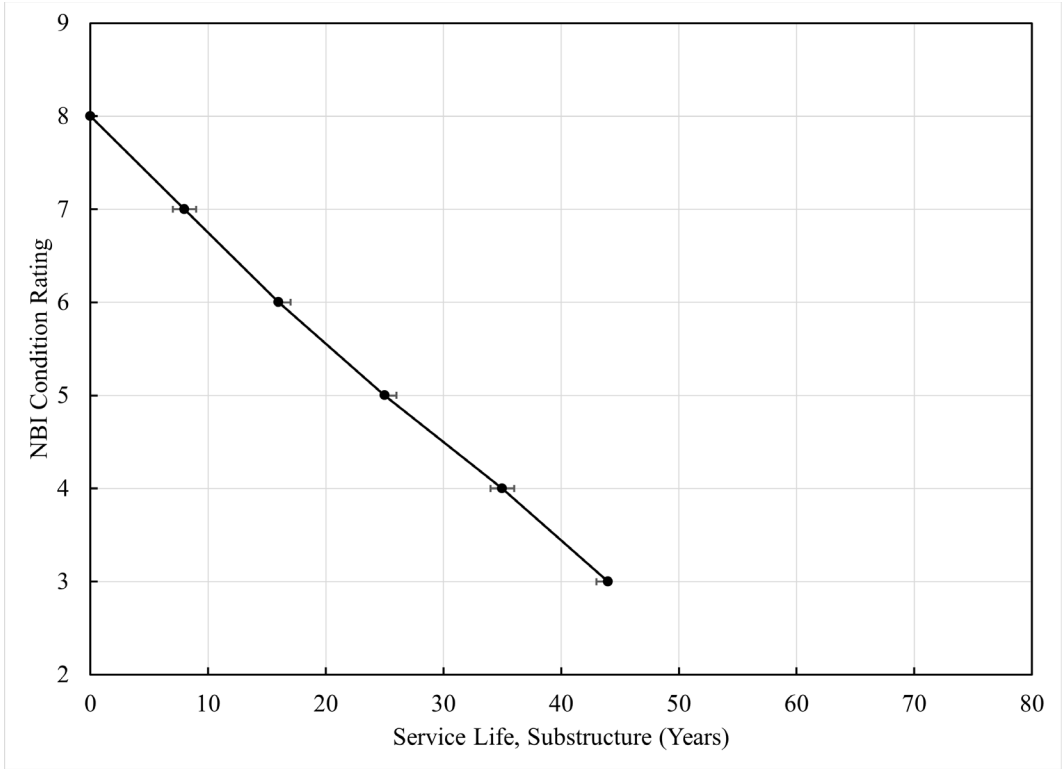


Figure A.117. Service life graph for substructures in New York.

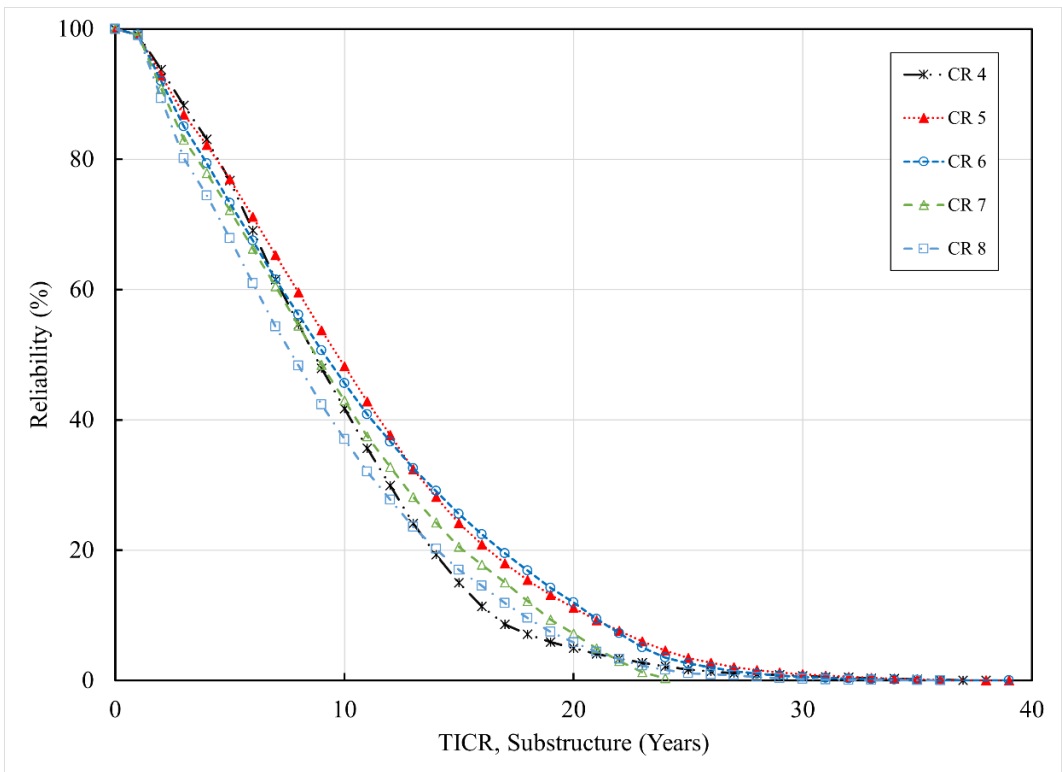


Figure A.118. Reliability graph for substructures in New York.

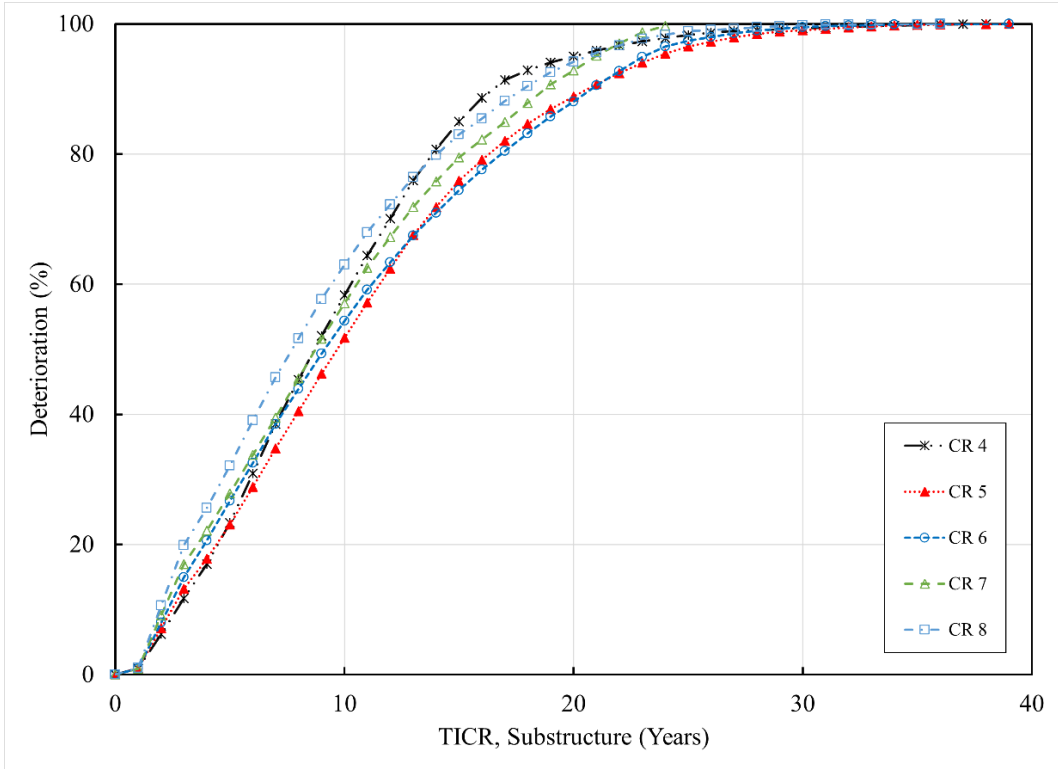


Figure A.119. Deterioration graph for substructures in New York.

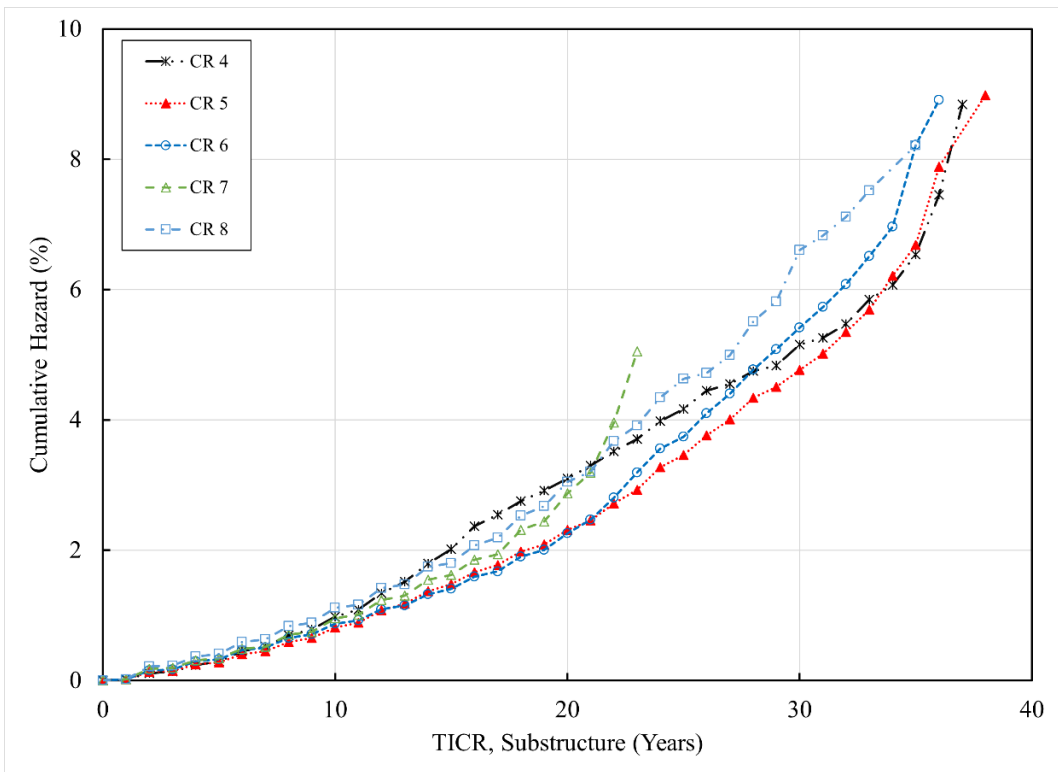


Figure A.120. Cumulative hazard graph for substructures in New York.

Kaplan Meier Analysis for Pennsylvania

Table A.7. Kaplan-Meier Analysis Result for Bridge Components in Pennsylvania.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	7	7	8	8.08	0.100
5	9	9	10	9.44	0.062
6	9	8	10	9.26	0.053
7	9	8	10	9.06	0.053
8	6	5	7	6.43	0.078
Prestressed Concrete Superstructure					
4	6	4	8	6.26	0.565
5	9	8	10	8.78	0.222
6	10	10	11	9.51	0.148
7	11	10	11	9.80	0.124
8	8	7	8	8.07	0.146
Reinforced Concrete Superstructure					
4	10	9	10	9.92	0.169
5	11	10	12	11.51	0.099
6	11	10	11	10.29	0.119
7	11	10	11	10.78	0.193
8	6	5	7	7.23	0.477
Steel Superstructure					
4	7	6	8	7.45	0.103
5	10	9	11	9.67	0.068
6	9	8	10	9.22	0.070
7	9	9	10	9.33	0.076
8	8	7	8	7.86	0.091
Substructure					
4	8	7	8	8.01	0.090
5	9	8	10	9.36	0.055
6	9	8	10	9.15	0.052
7	9	8	10	9.28	0.059
8	6	5	7	6.32	0.102

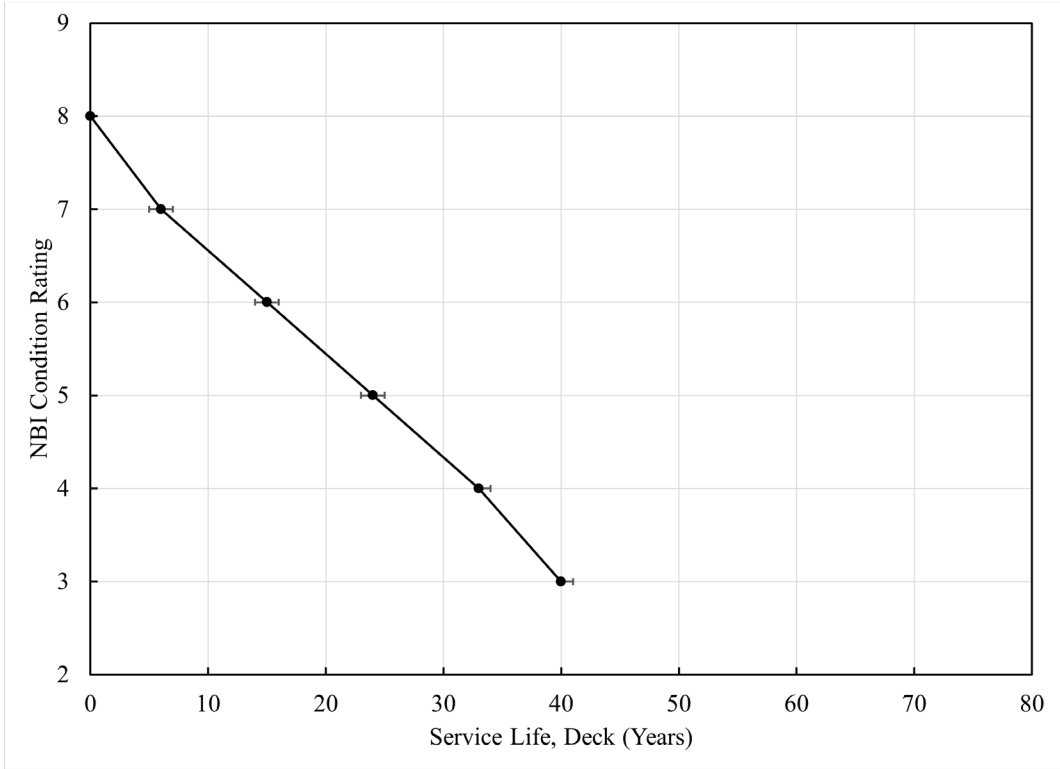


Figure A.121. Service life graph for bridge decks in Pennsylvania.

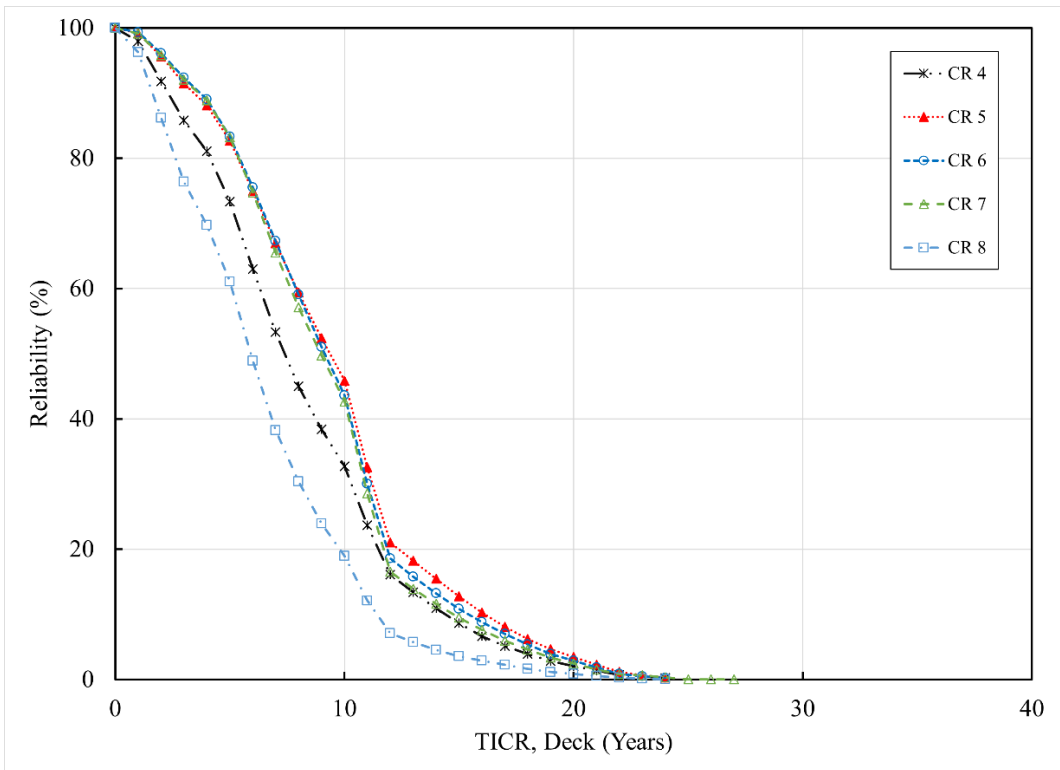


Figure A.122. Reliability graph for bridge decks in Pennsylvania.

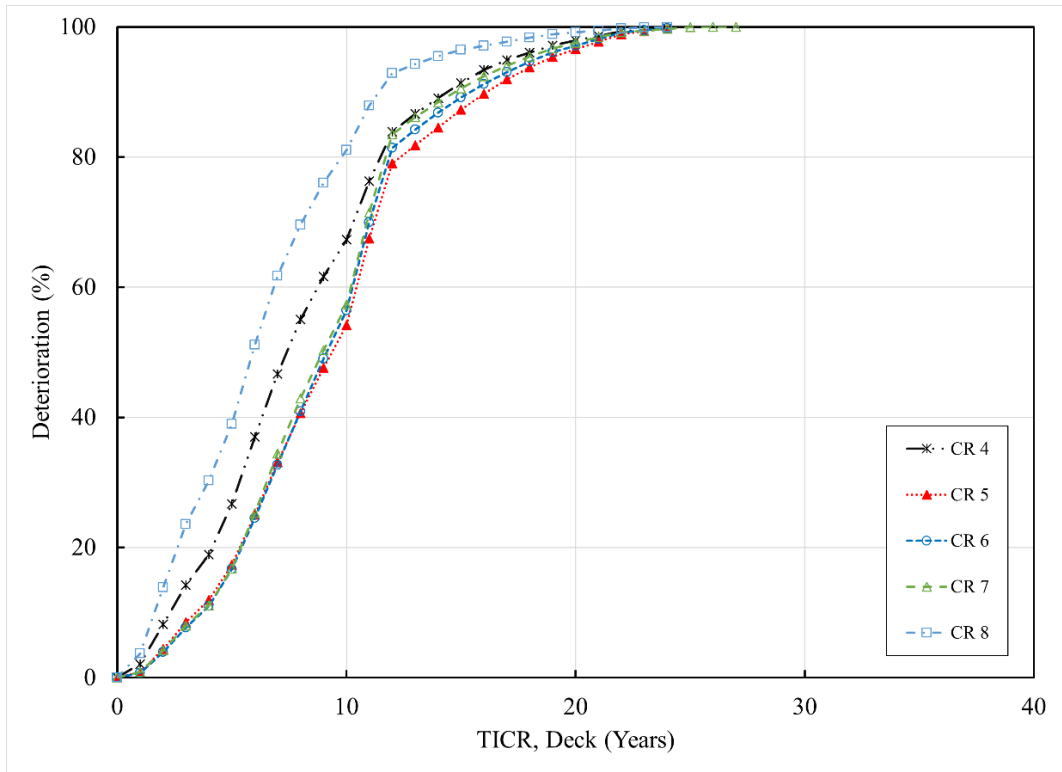


Figure A.123. Deterioration graph for bridge decks in Pennsylvania.

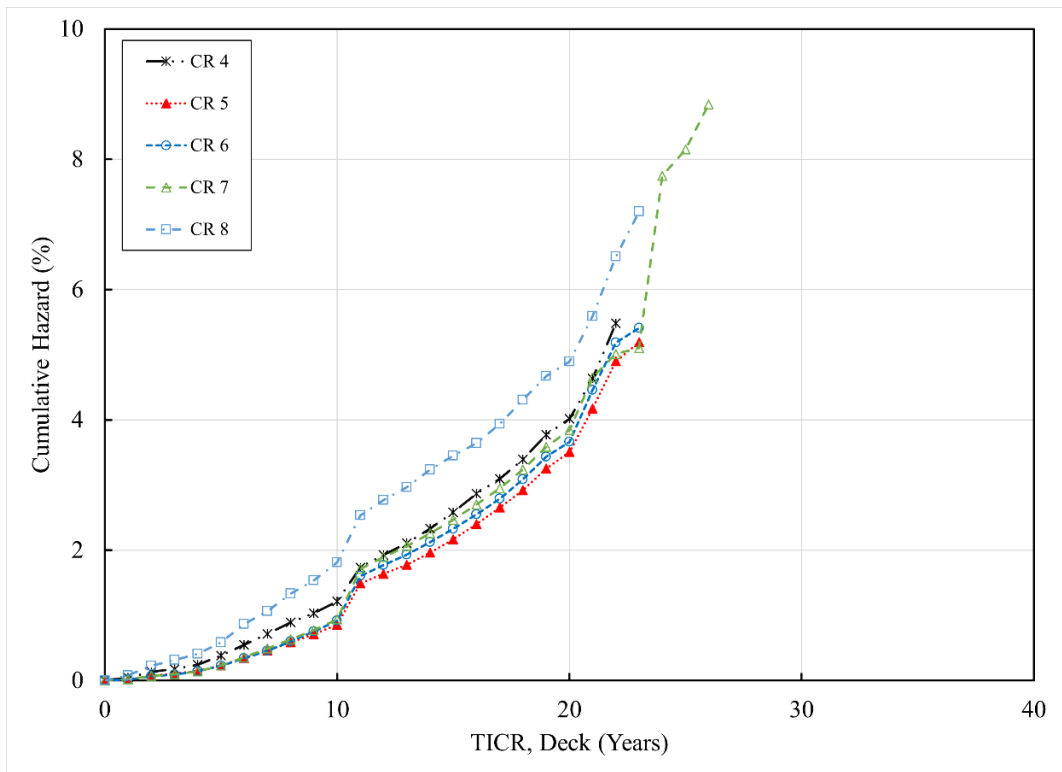


Figure A.124. Cumulative hazard graph for bridge decks in Pennsylvania.

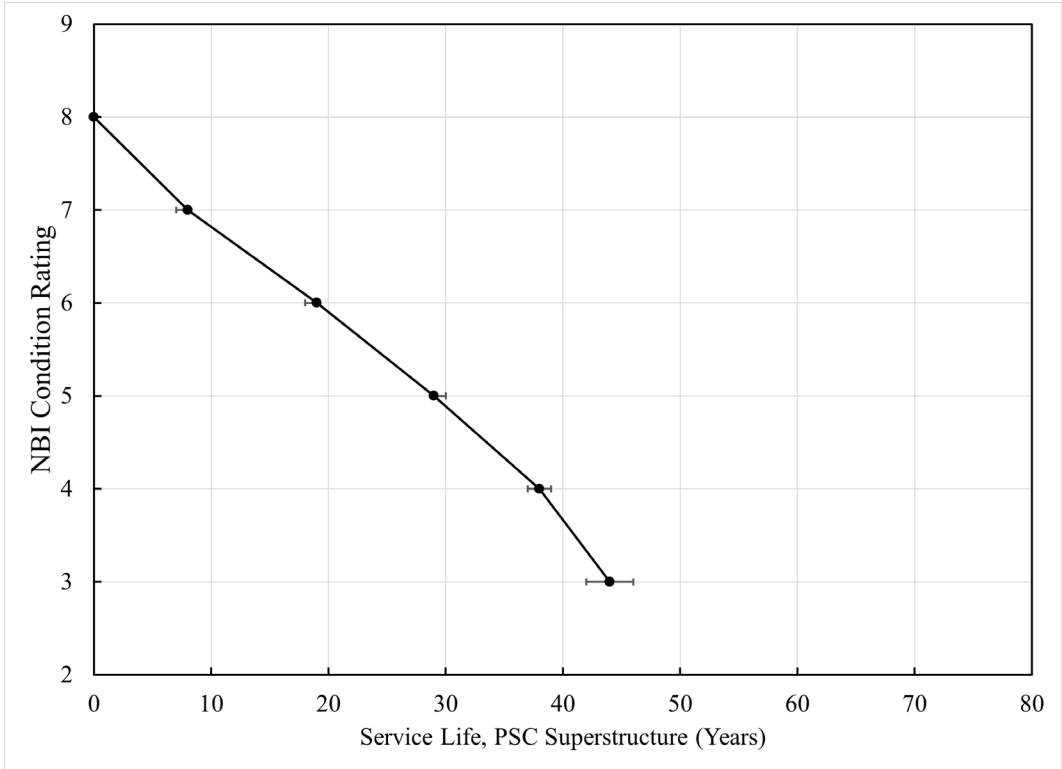


Figure A.125. Service life graph for PSC superstructures in Pennsylvania.

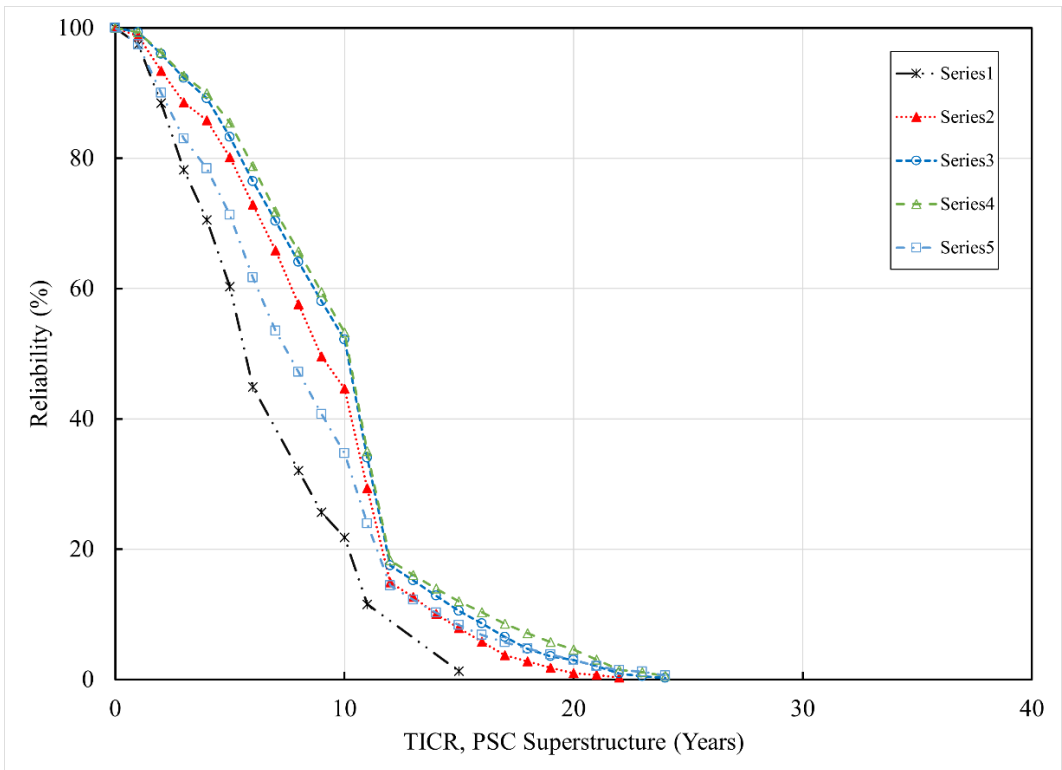


Figure A.126. Reliability graph for PSC superstructures in Pennsylvania.

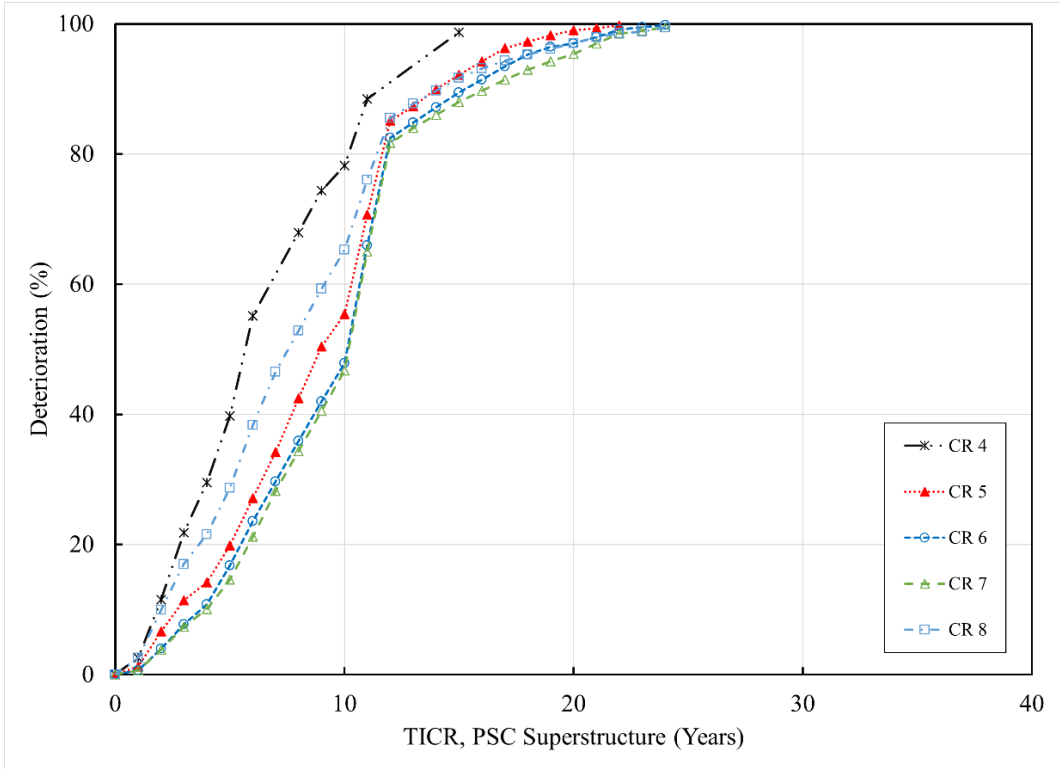


Figure A.127. Deterioration graph for PSC superstructures in Pennsylvania.

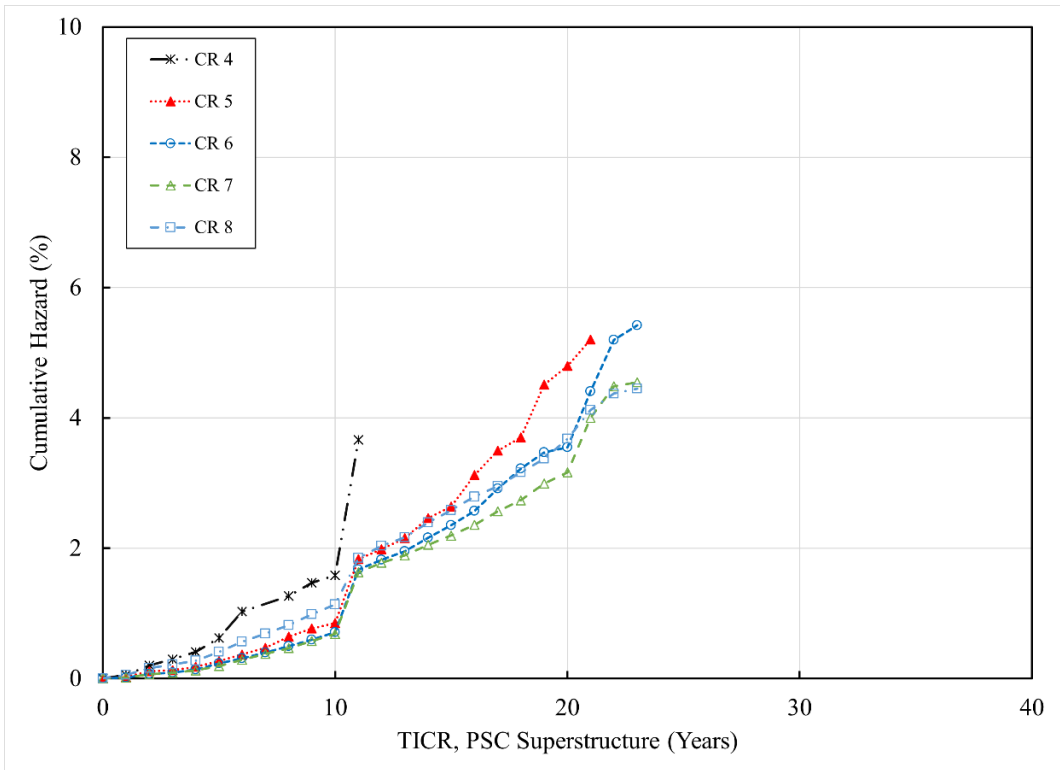


Figure A.128. Cumulative hazard graph for PSC superstructures in Pennsylvania

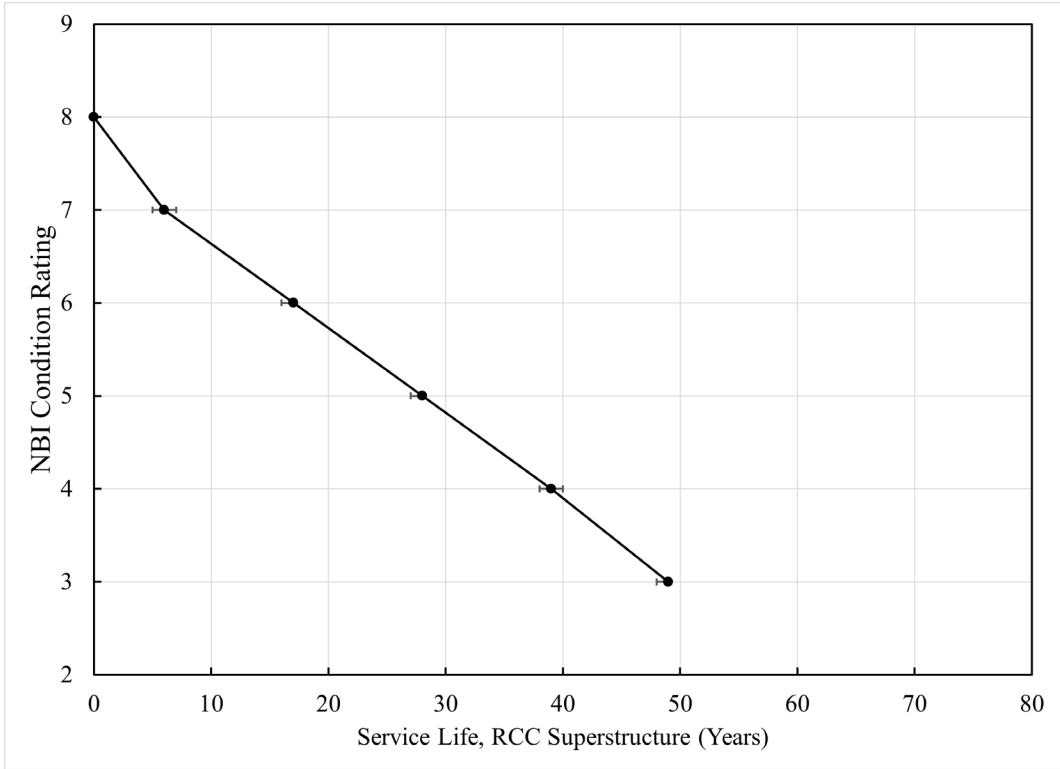


Figure A.129. Service life graph for R/C superstructures in Pennsylvania.

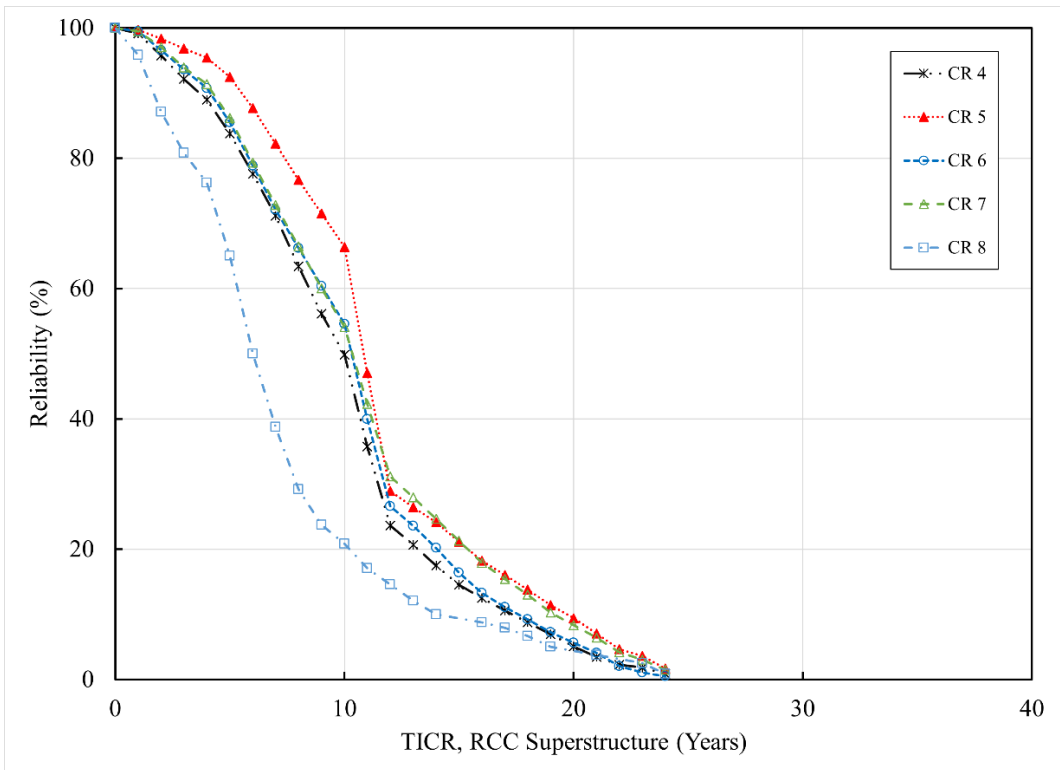


Figure A.130. Reliability graph for R/C superstructures in Pennsylvania.

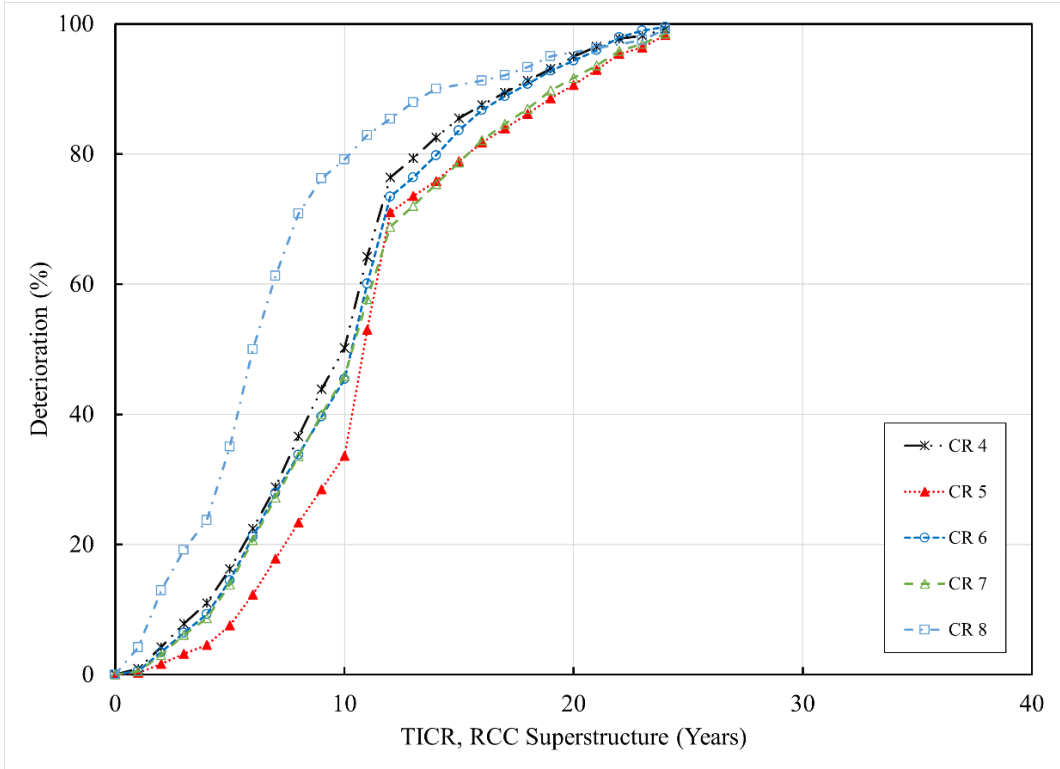


Figure A.131. Deterioration graph for R/C superstructures in Pennsylvania.

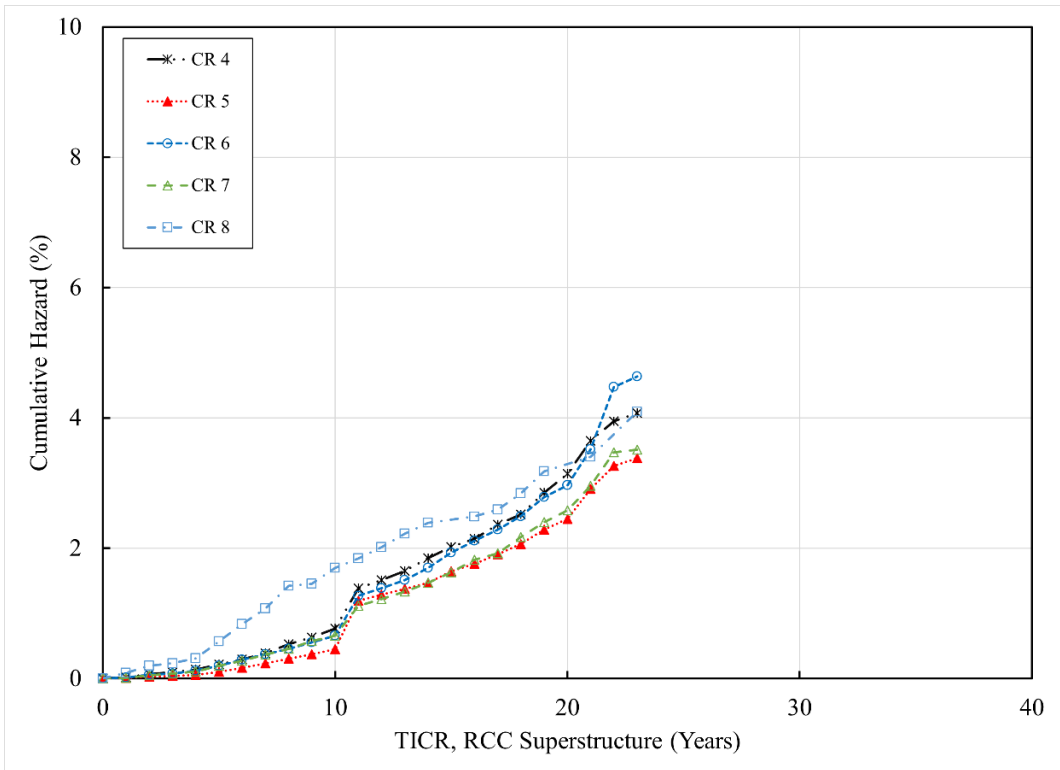


Figure A.132. Cumulative hazard graph for R/C superstructures in Pennsylvania.

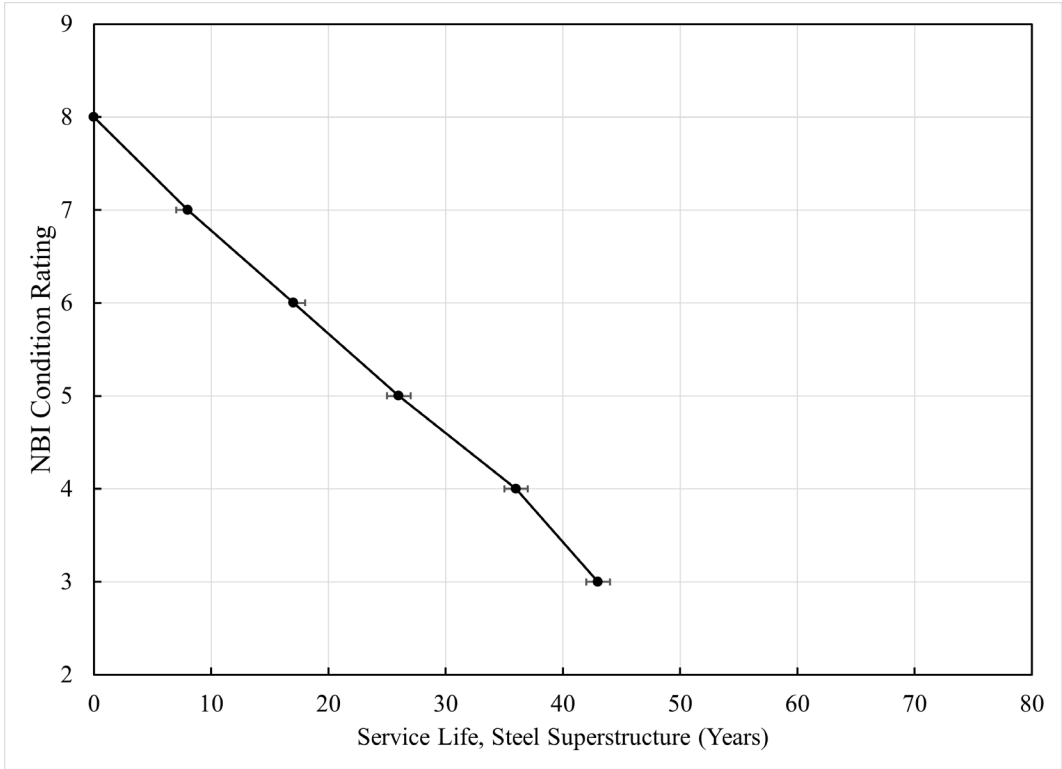


Figure A.133. Service life graph for steel superstructures in Pennsylvania.

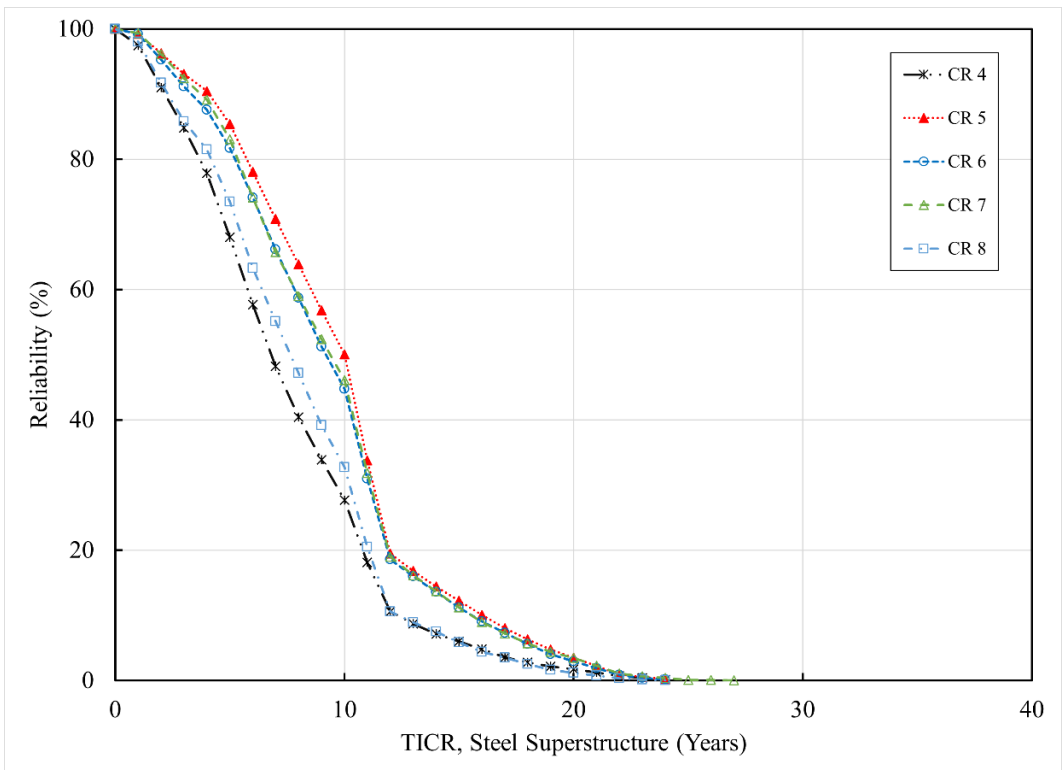


Figure A.134. Reliability graph for steel superstructures in Pennsylvania.

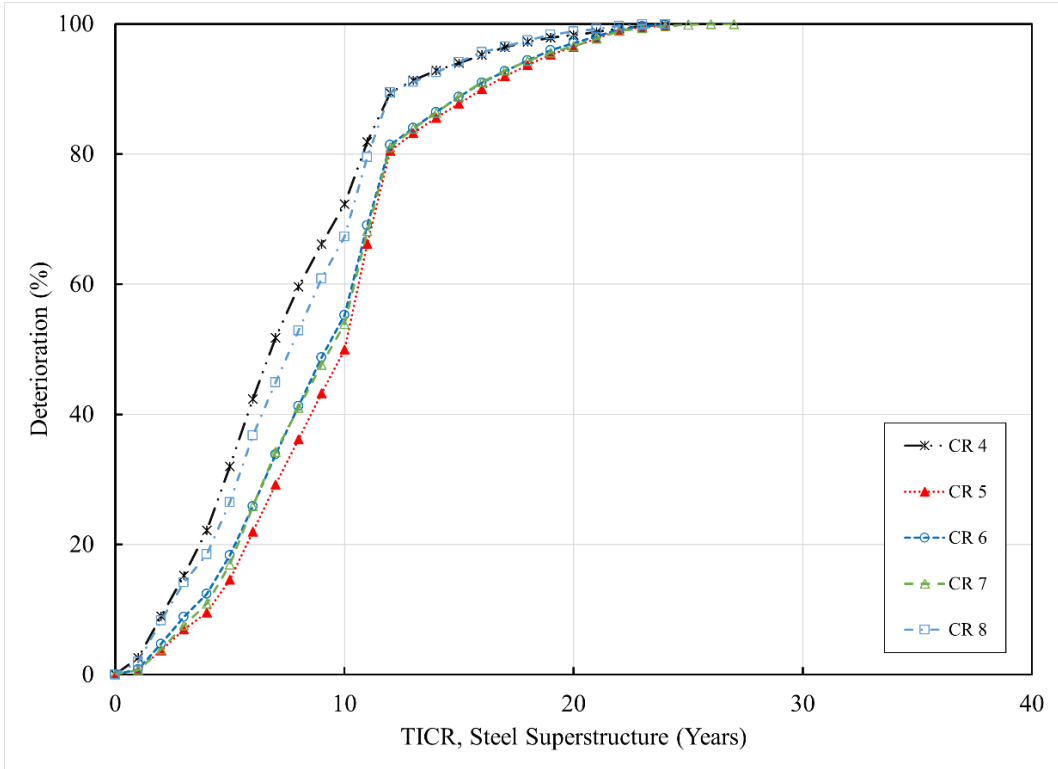


Figure A.135. Deterioration graph for steel superstructures in Pennsylvania.

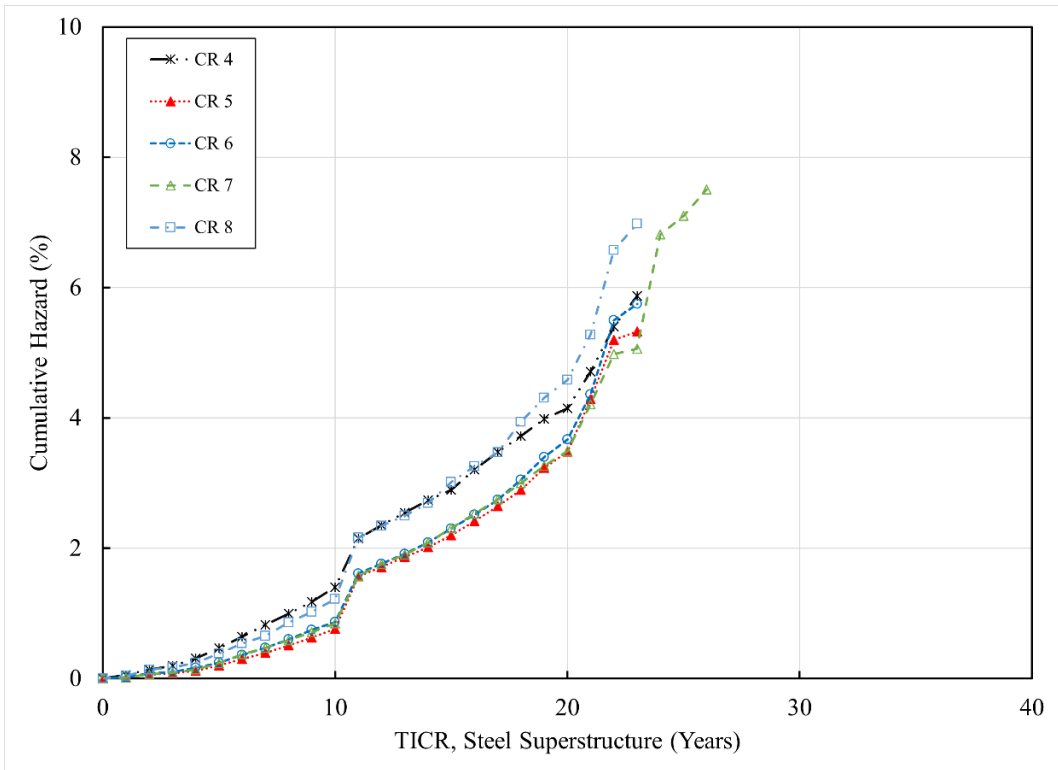


Figure A.136. Cumulative hazard graph for steel superstructures in Pennsylvania

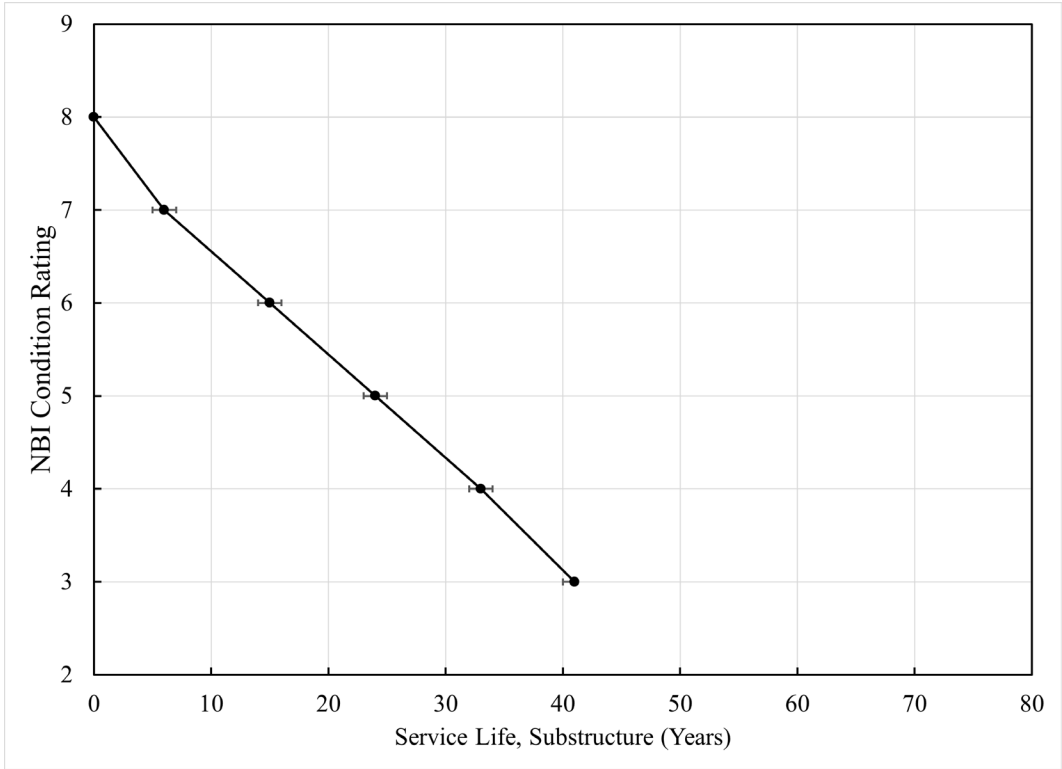


Figure A.137. Service life graph for substructures in Pennsylvania.

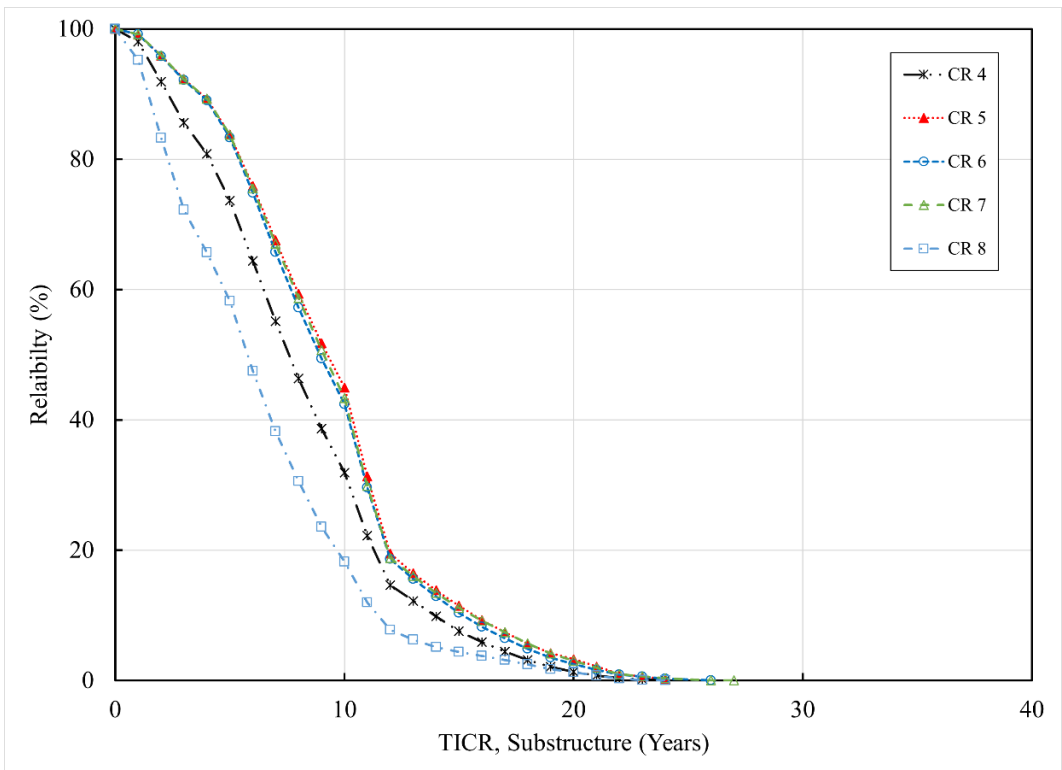


Figure A.138. Reliability graph for substructures in Pennsylvania.

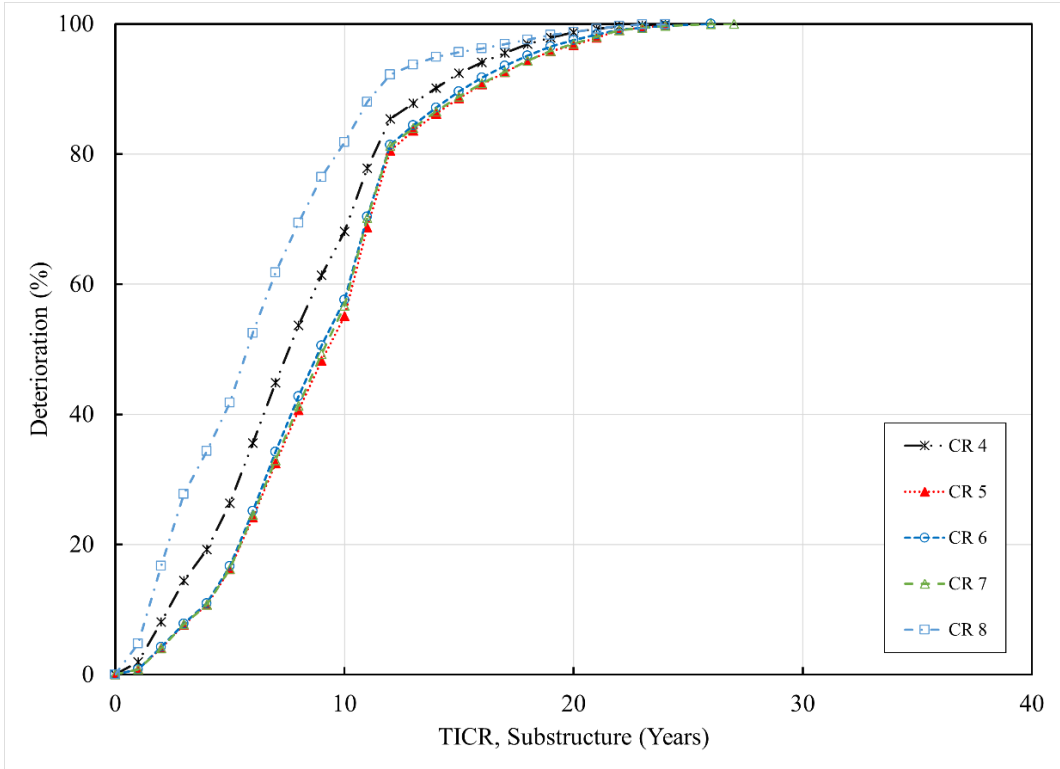


Figure A.139. Deterioration graph for substructures in Pennsylvania.

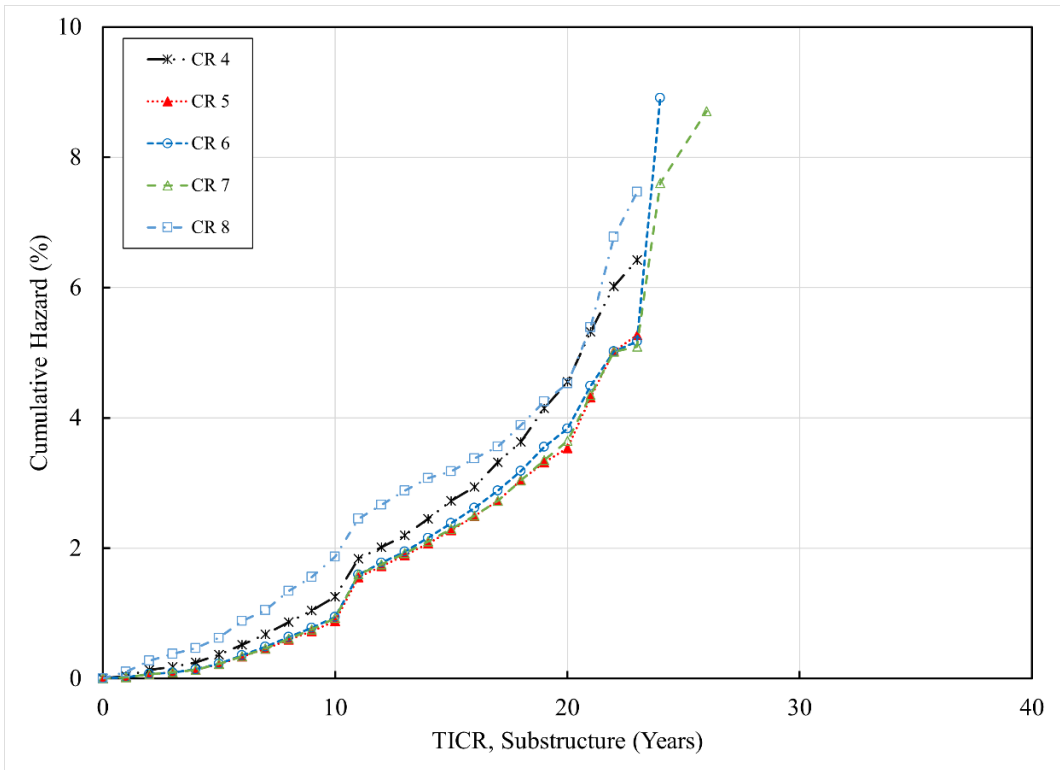


Figure A.140. Cumulative hazard graph for substructures in Pennsylvania.

Kaplan Meier Analysis for Washington

Table A.8. Kaplan-Meier Analysis Result for Bridge Components in Washington.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	5	5	6	5.64	0.189
5	6	5	6	7.21	0.280
6	10	9	11	12.05	0.192
7	13	12	14	14.45	0.157
8	8	7	9	9.67	0.163
Prestressed Concrete Superstructure					
4	2	2	4	3.62	0.765
5	7	6	10	8.84	0.617
6	12	10	13	12.50	0.316
7	18	17	18	17.85	0.215
8	8	7	9	11.17	0.202
Reinforced Concrete Superstructure					
4	5	5	6	6.19	0.540
5	8.5	7	10	10.44	0.550
6	12	11	13	14.06	0.394
7	12	11	13	15.23	0.302
8	8	7	9	10.72	0.271
Steel Superstructure					
4	5	4	8	7.16	0.961
5	6	6	8	9.16	0.625
6	14.5	12	15	13.97	0.445
7	10	9	11	12.77	0.356
8	8	7	8	8.35	0.285
Substructure					
4	5	4	6	5.80	0.406
5	8	7	8	9.64	0.308
6	11	10	12	12.74	0.242
7	14	13	15	15.88	0.171
8	8	7	9	9.37	0.149

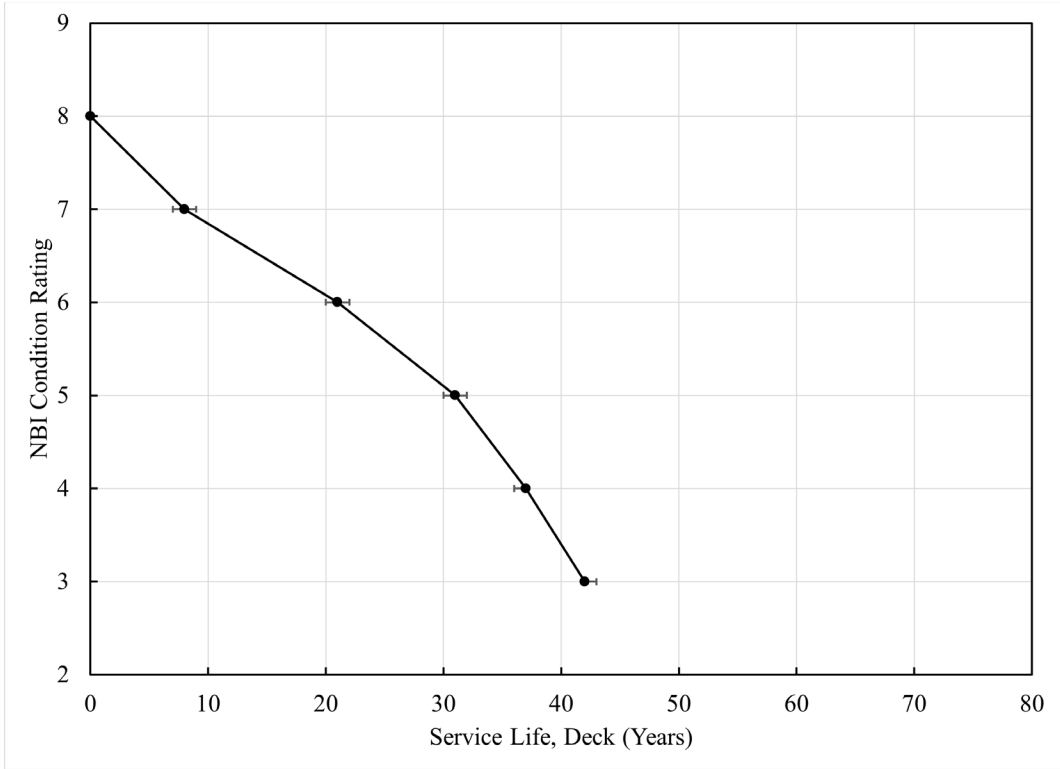


Figure A.141. Service life graph for bridge decks in Washington.

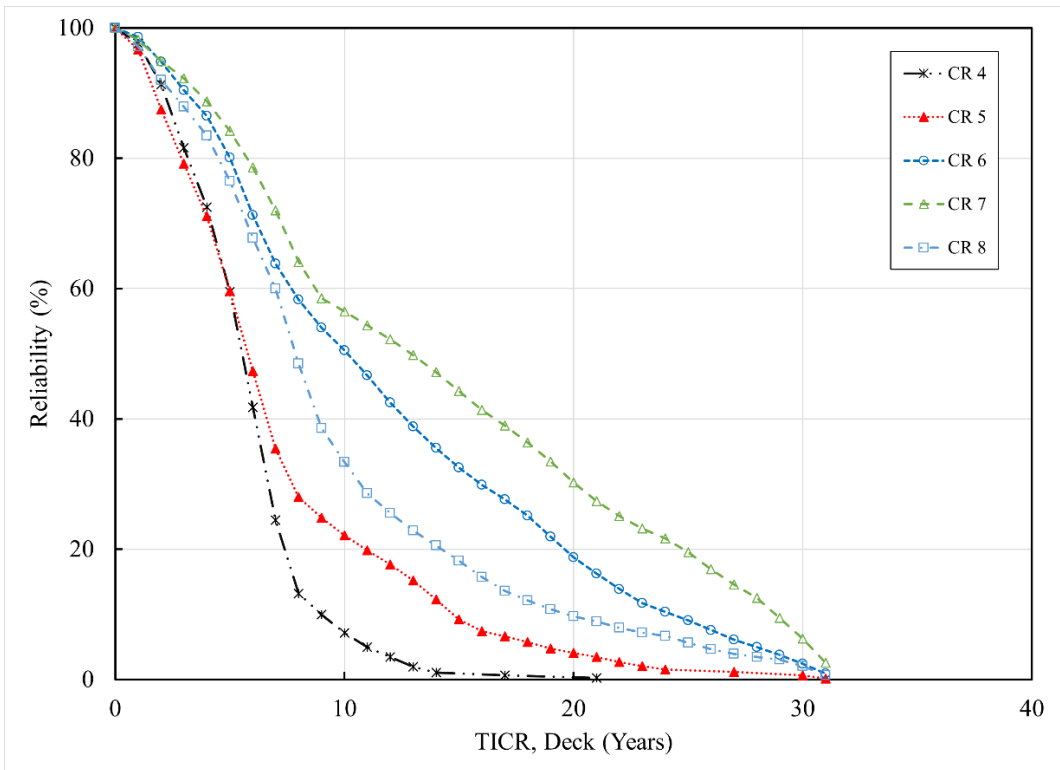


Figure A.142. Reliability graph for bridge decks in Washington.

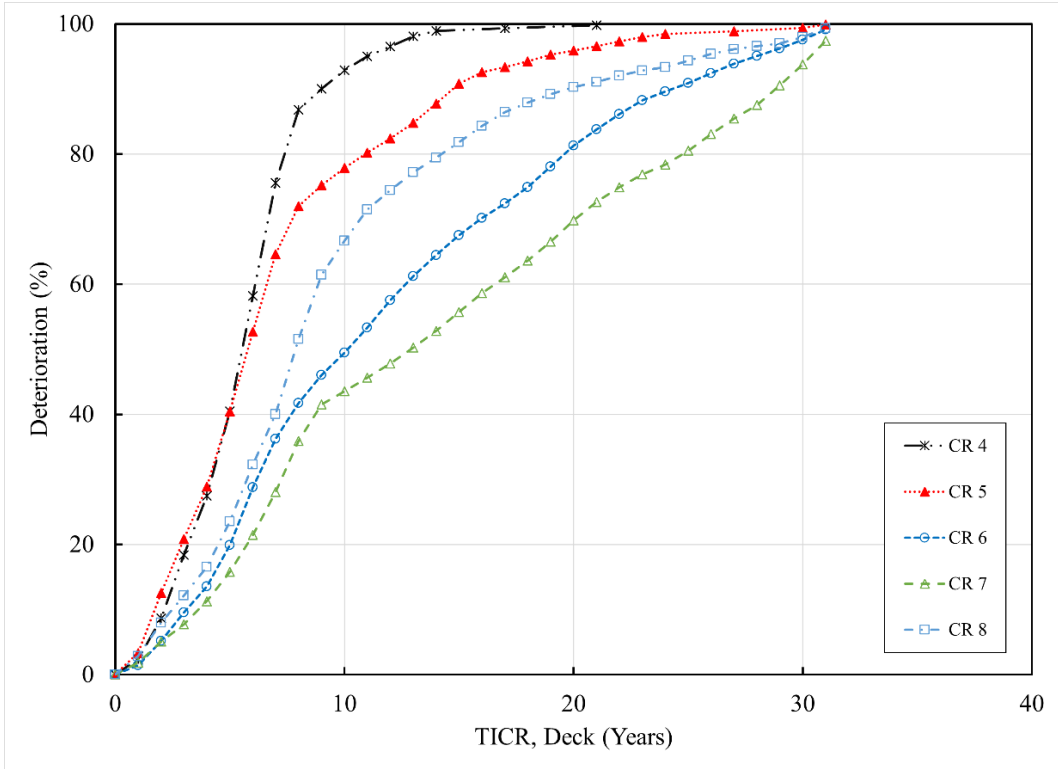


Figure A.143. Deterioration graph for bridge decks in Washington.

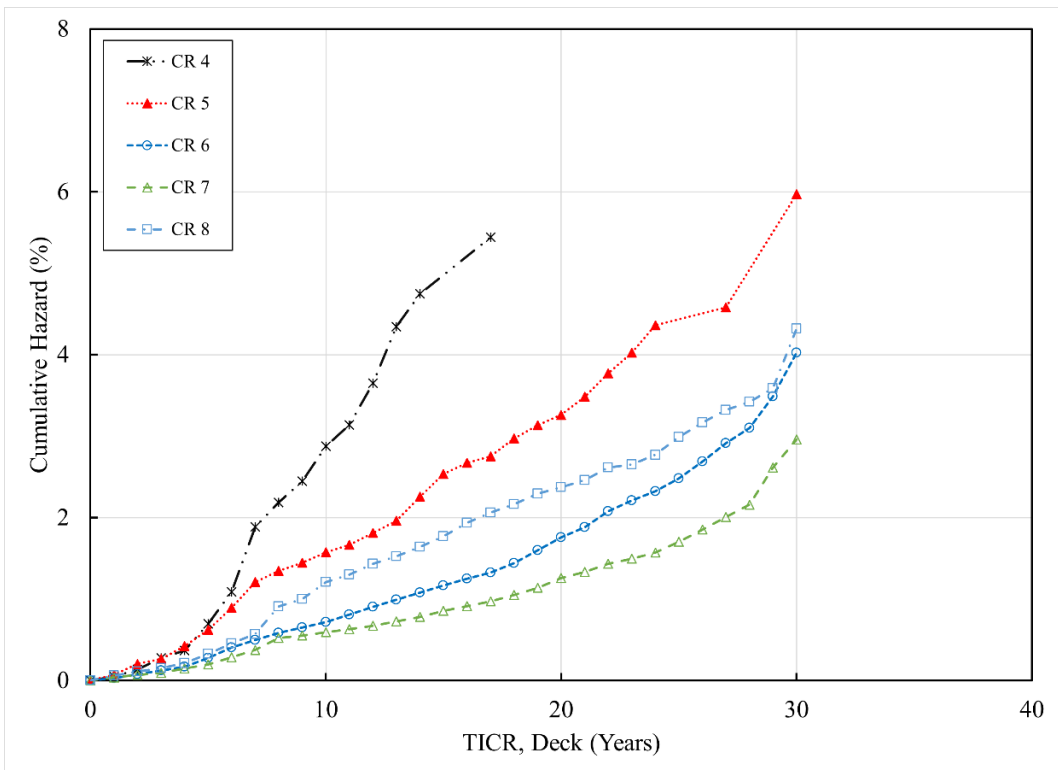


Figure A.144. Cumulative hazard graph for bridge decks in Washington.

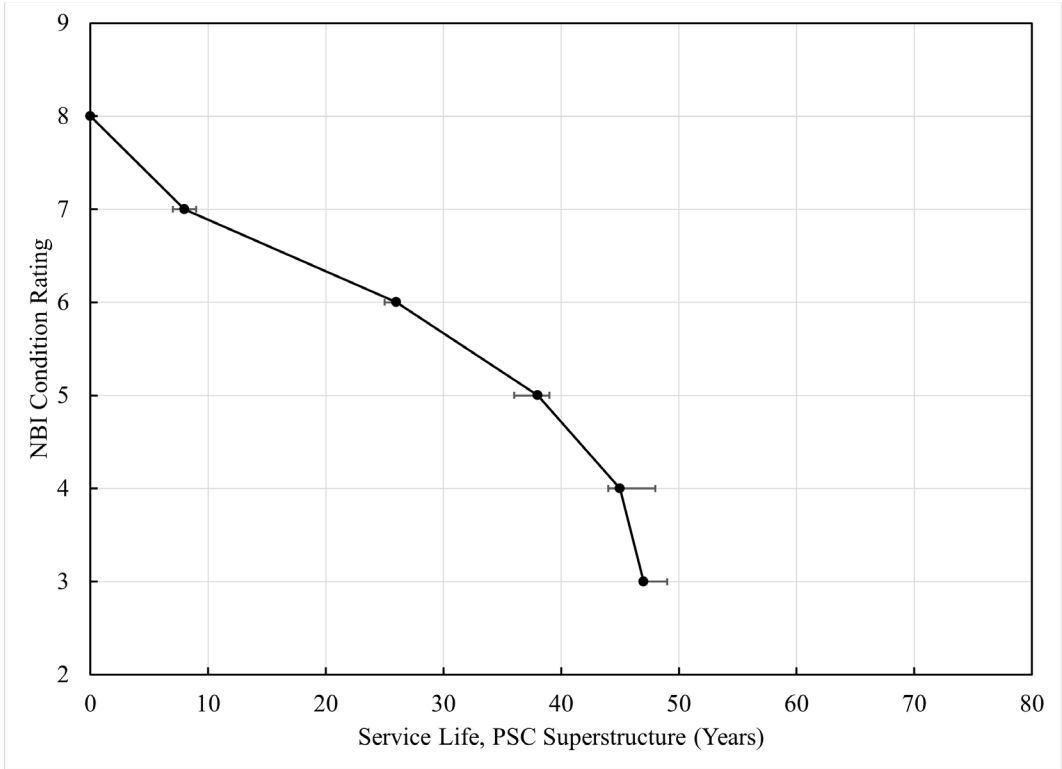


Figure A.145. Service life graph for PSC superstructures in Washington.

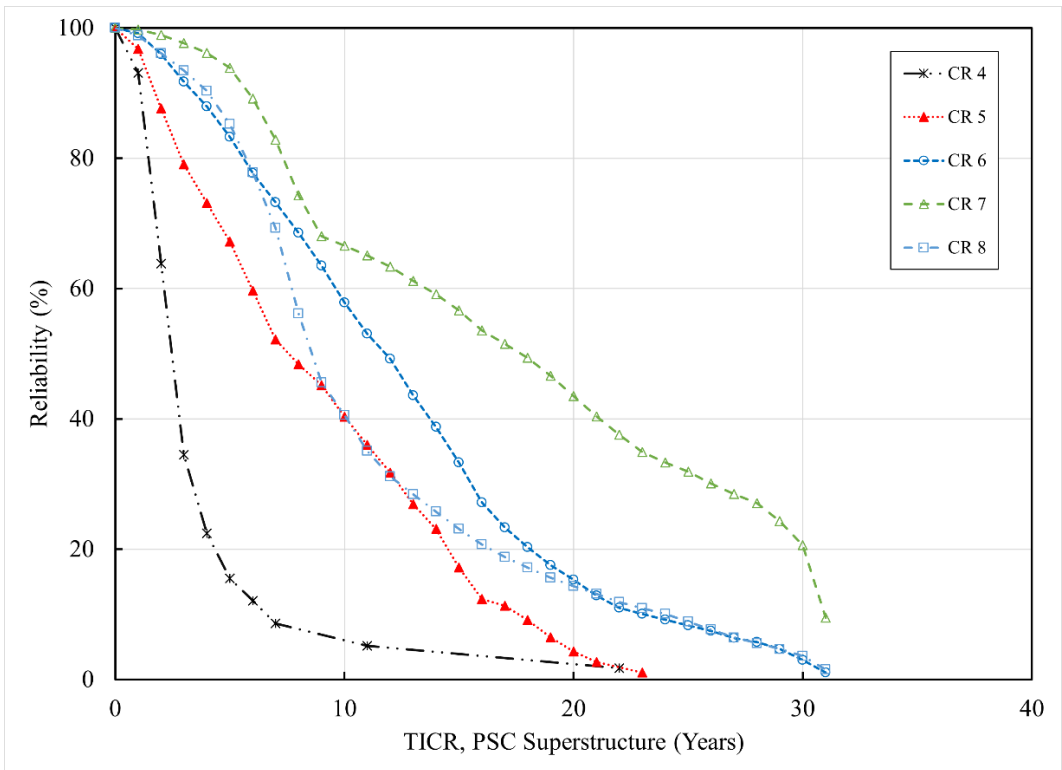


Figure A.146. Reliability graph for PSC superstructures in Washington.

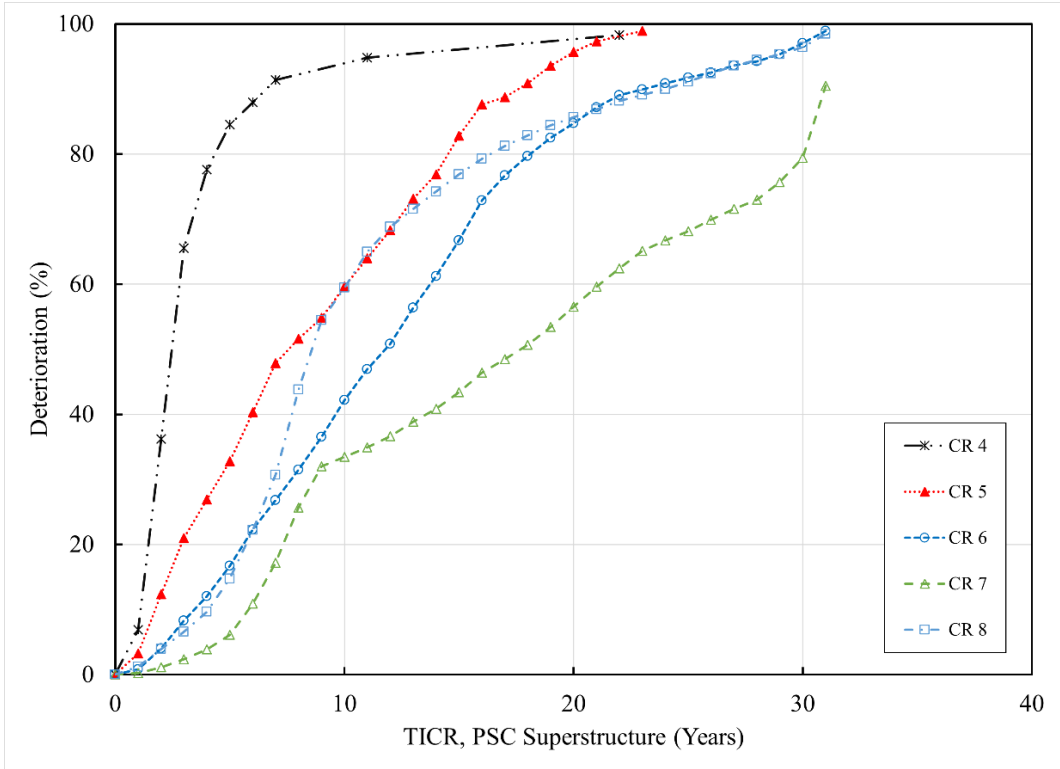


Figure A.147. Deterioration graph for PSC superstructures in Washington.

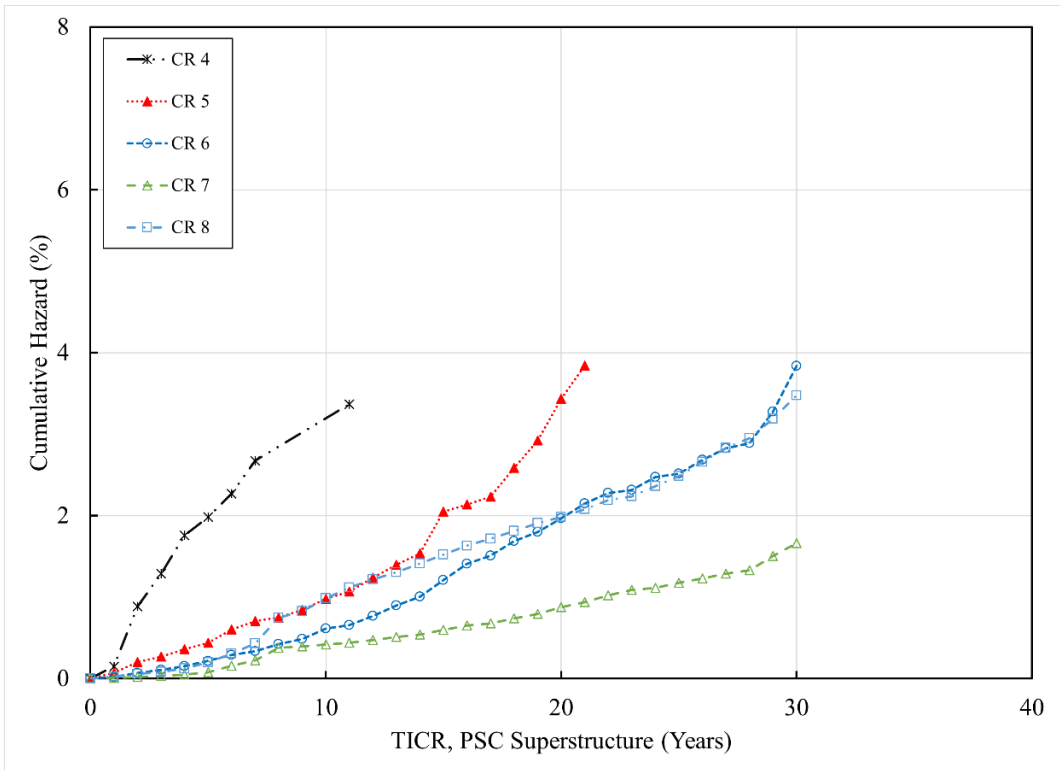


Figure A.148. Cumulative hazard graph for PSC superstructures in Washington.

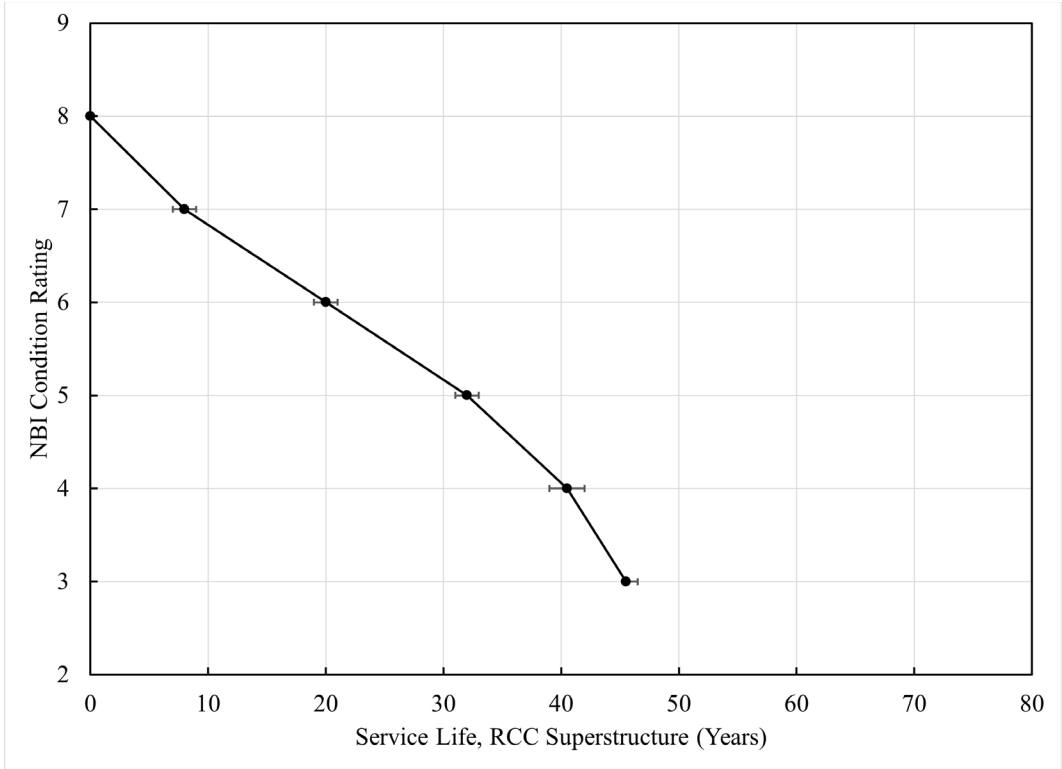


Figure A.149. Service life graph for R/C superstructures in Washington.

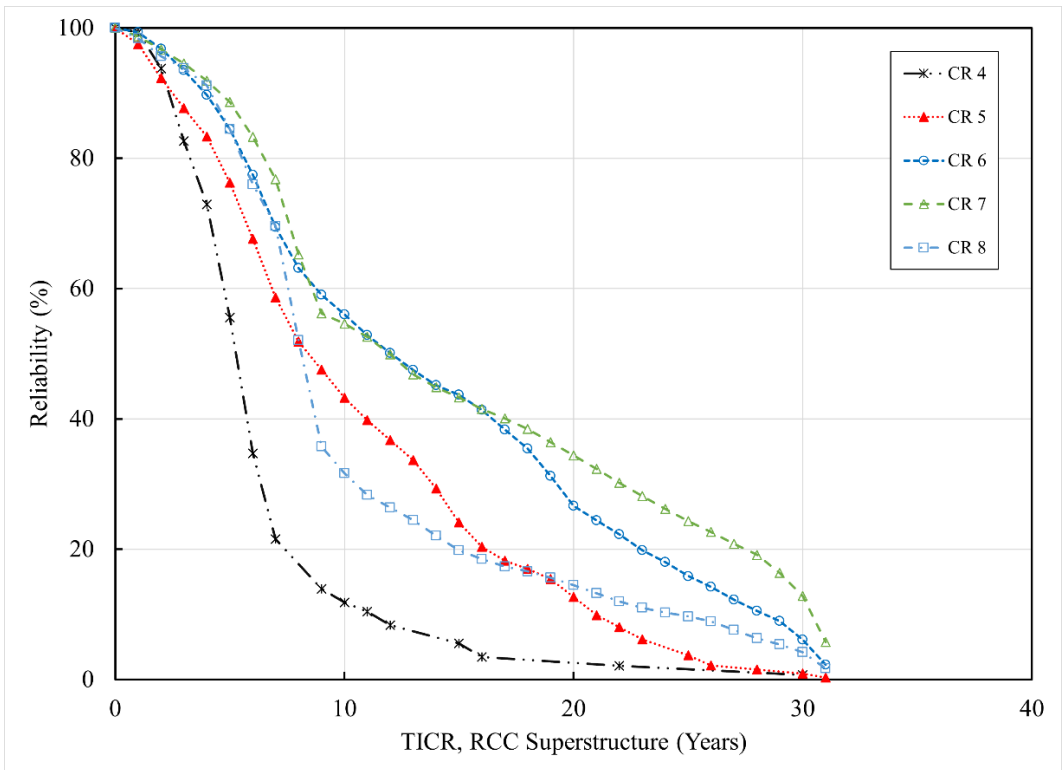


Figure A.150. Reliability graph for R/C superstructures in Washington.

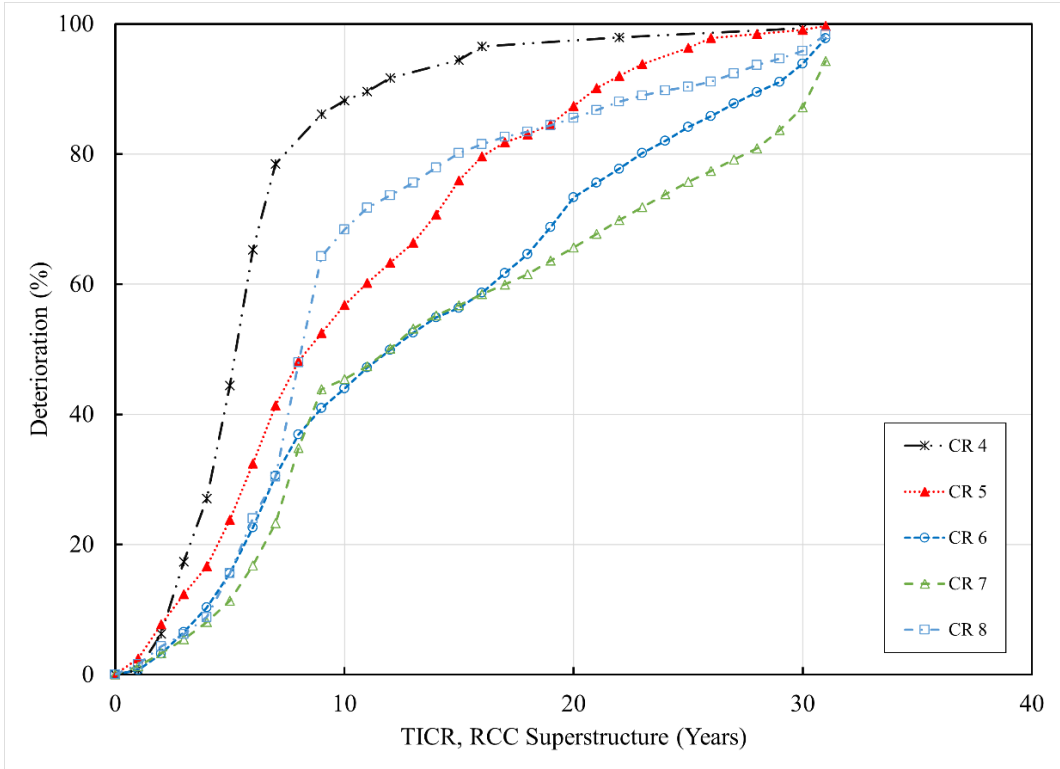


Figure A.151. Deterioration graph for R/C superstructures in Washington.

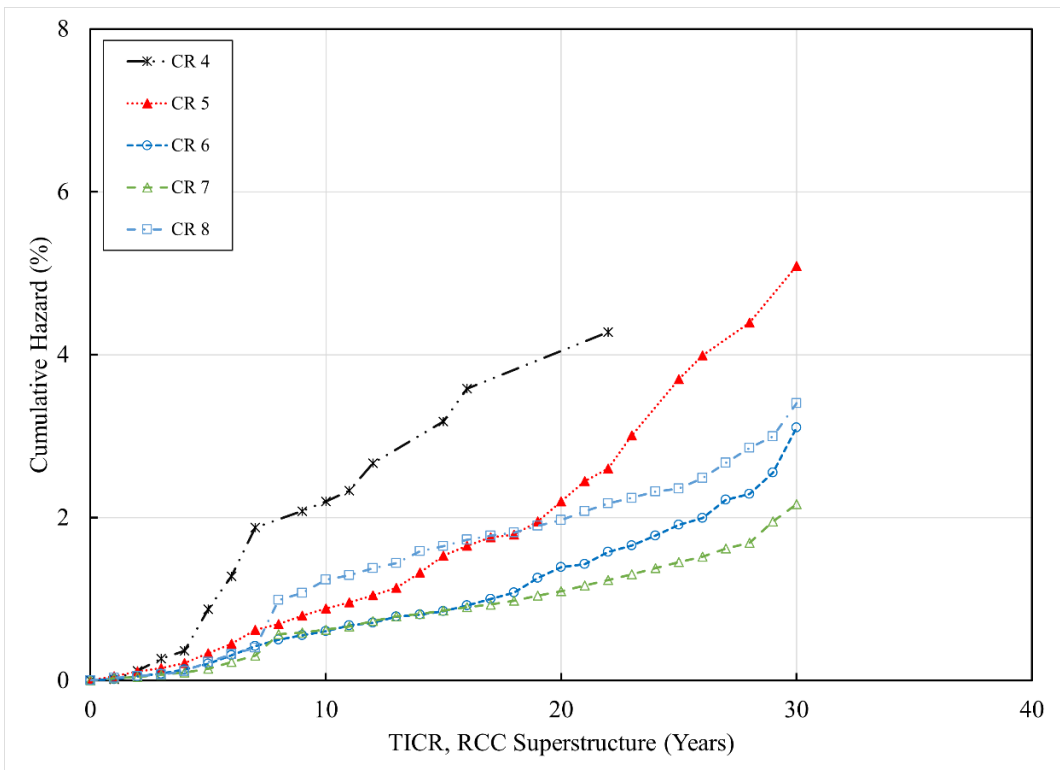


Figure A.152. Cumulative hazard graph for R/C superstructures in Washington.

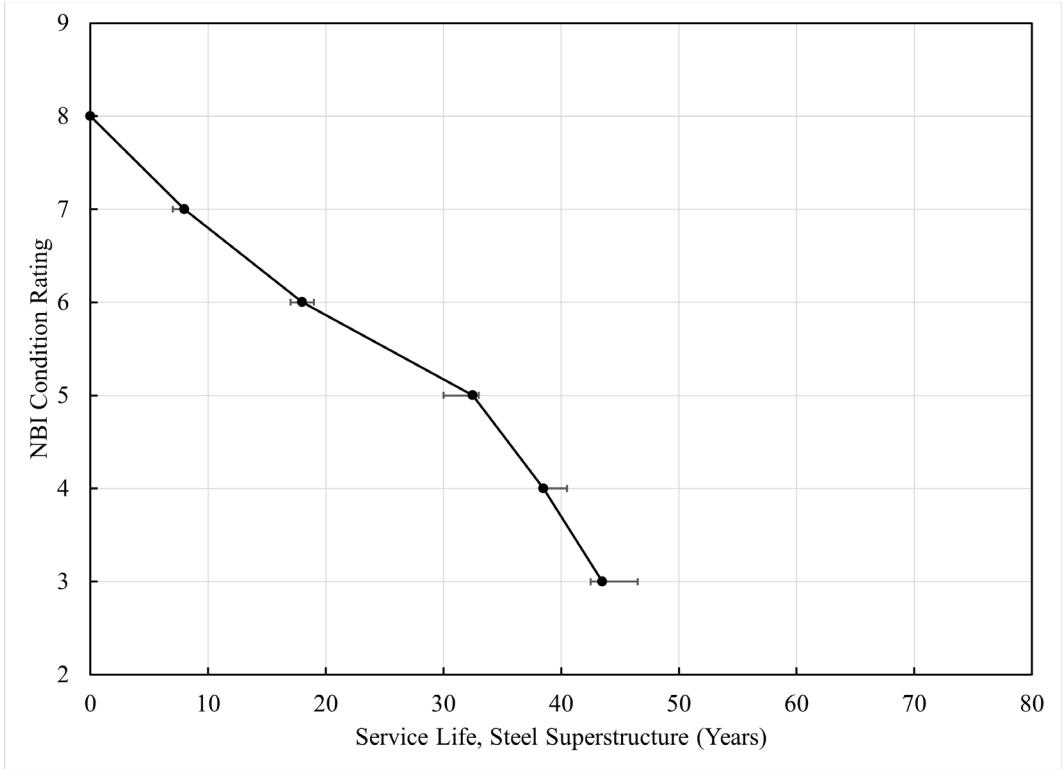


Figure A.153. Service life graph for steel superstructures in Washington.

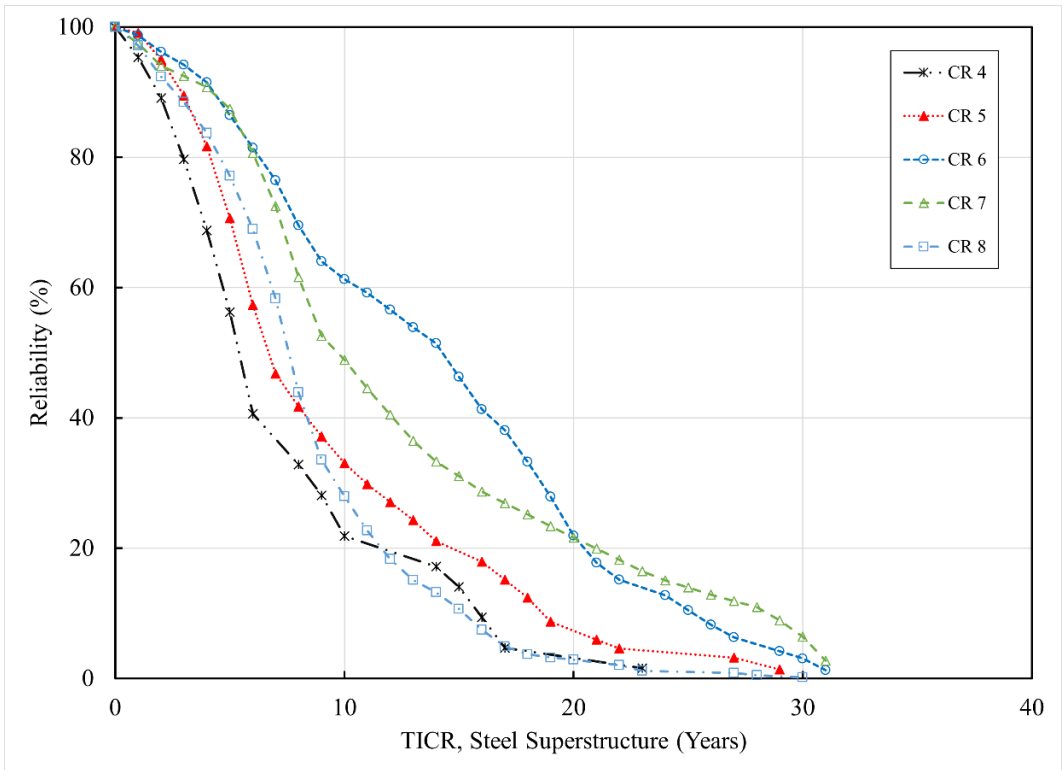


Figure A.154. Reliability graph for steel superstructures in Washington.

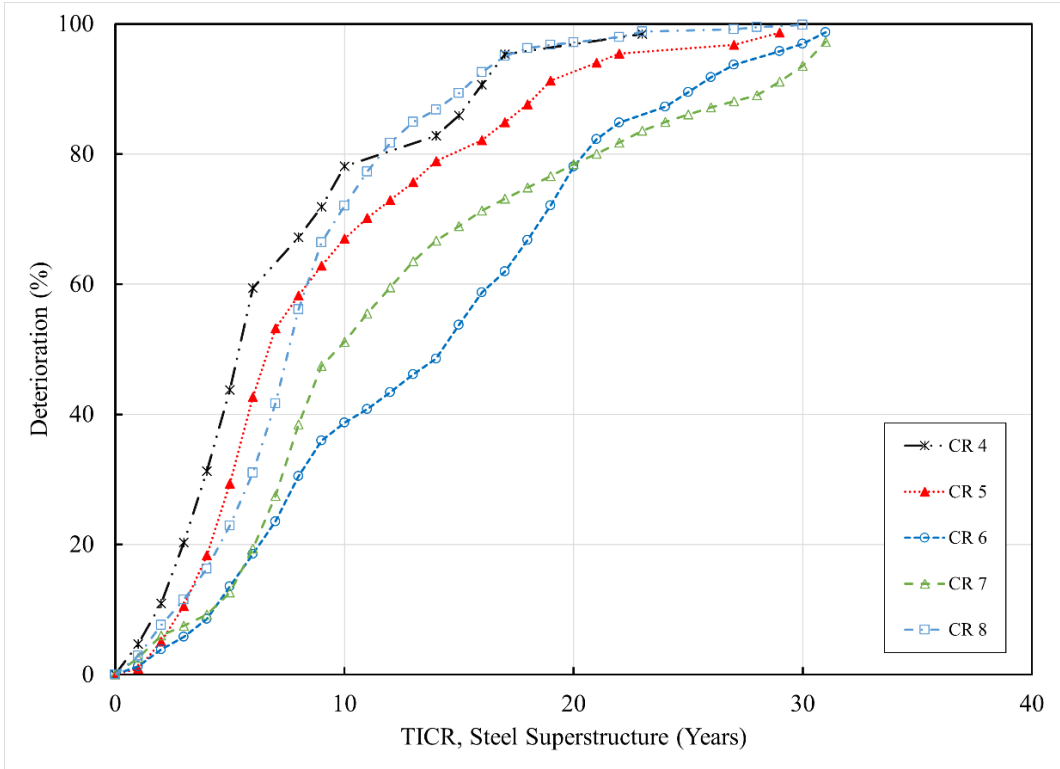


Figure A.155. Deterioration graph for steel superstructures in Washington.

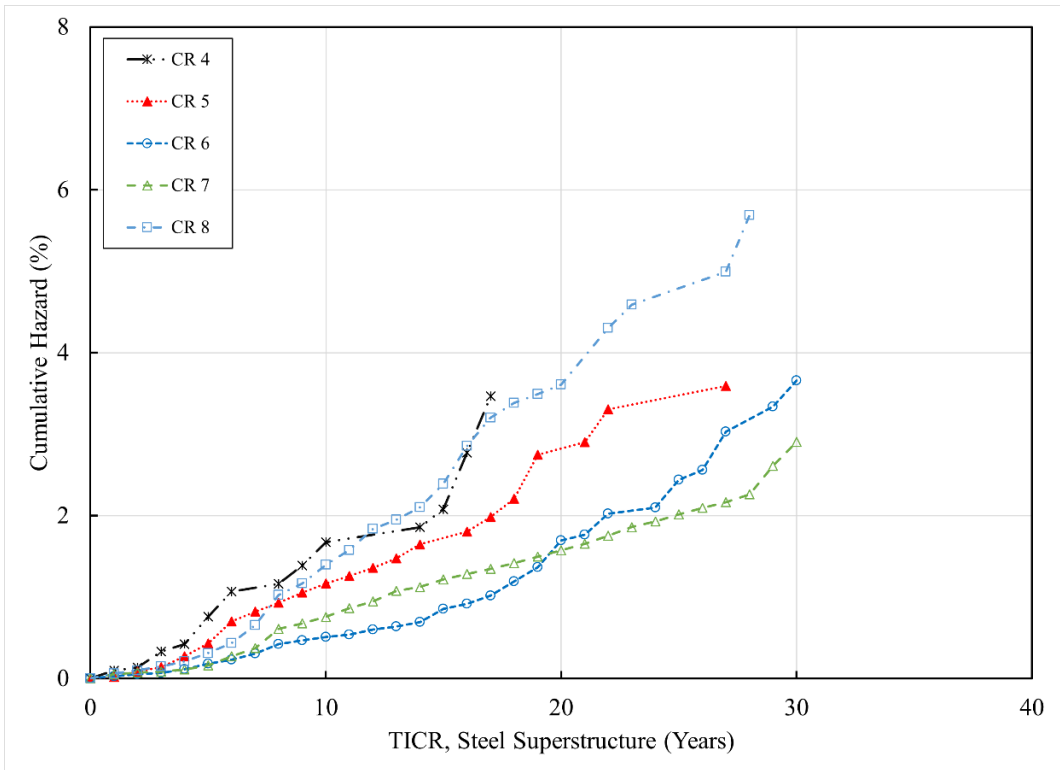


Figure A.156. Cumulative hazard graph for steel superstructures in Washington.

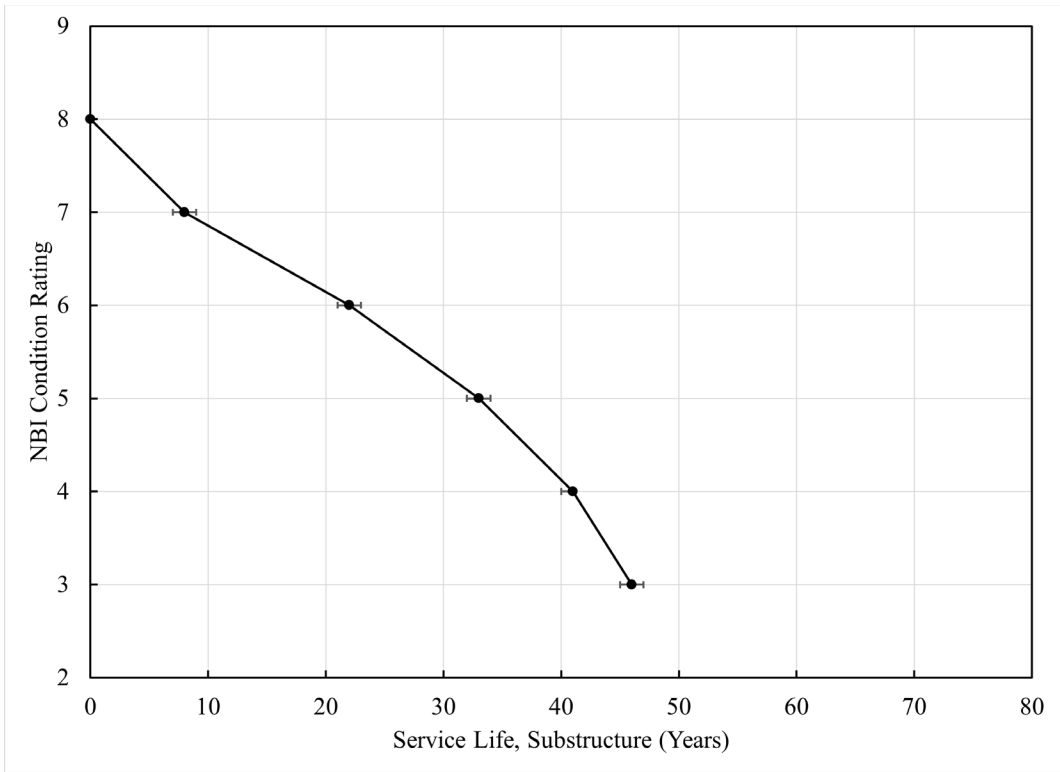


Figure A.157. Service life graph for substructures in Washington.

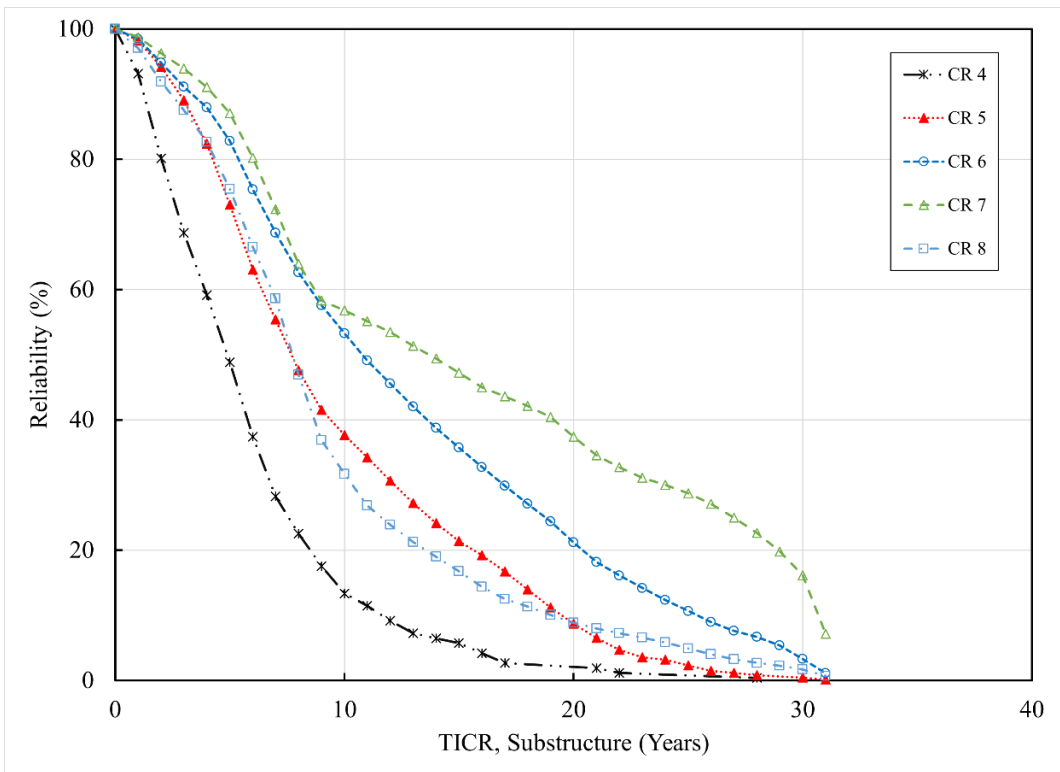


Figure A.158. Reliability graph for substructures in Washington.

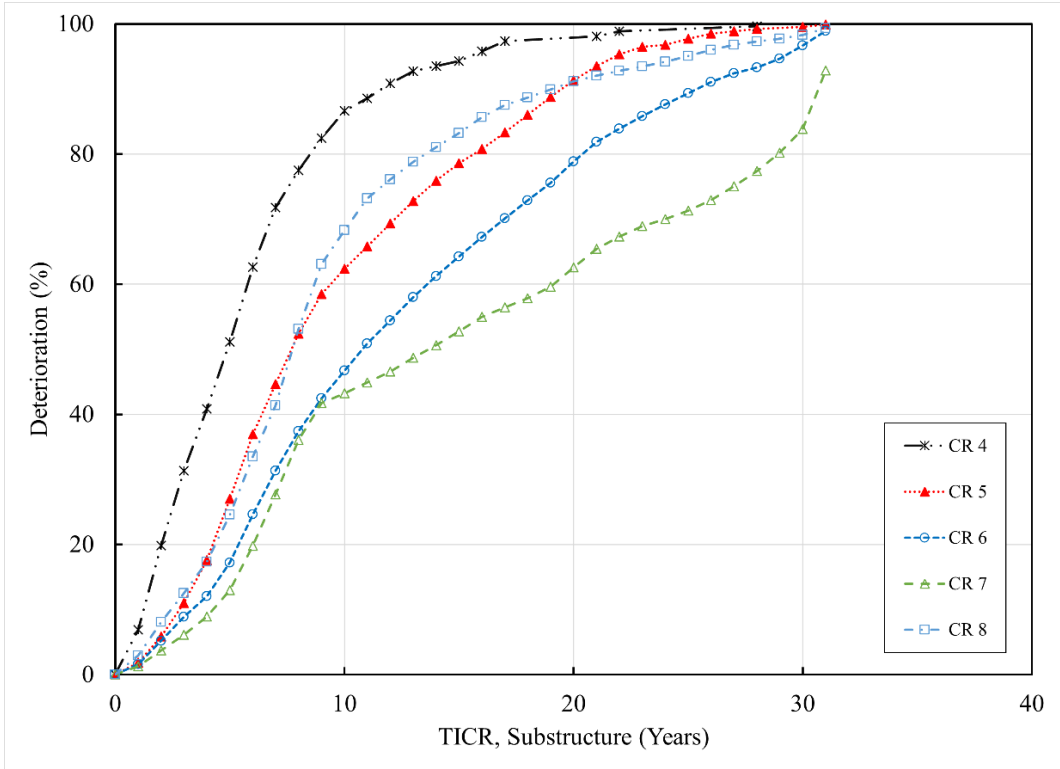


Figure A.159. Deterioration graph for substructures in Washington.

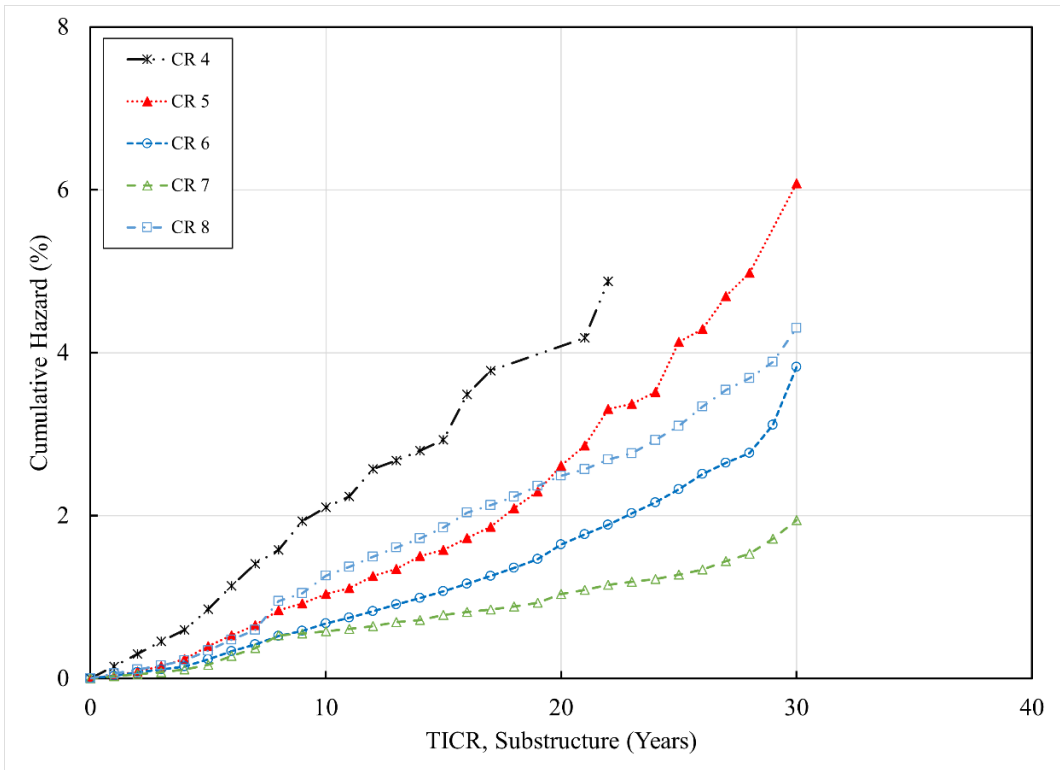


Figure A.160. Cumulative hazard graph for substructures in Washington.

Kaplan Meier Analysis for Wisconsin

Table A.9. Kaplan-Meier Analysis Result for Bridge Components in Wisconsin.

CR	Median TICR	Lower 95% CI	Upper 95% CI	Mean TICR	Standard Error for the Mean TICR
Deck					
4	5	5	6	6.85	0.193
5	7	7	8	8.98	0.146
6	11	10	12	12.59	0.143
7	11	10	12	12.19	0.102
8	8	8	9	9.98	0.107
Prestressed Concrete Superstructure					
4	4	3	5	5.06	0.484
5	7	6	8	7.68	0.380
6	8	7	8	10.21	0.348
7	11	10	11	11.72	0.169
8	16	15	16	17.16	0.177
Reinforced Concrete Superstructure					
4	6	5	7	8.64	0.923
5	9	7	11	10.56	0.623
6	15	13	16	15.93	0.634
7	8	7	10	10.04	0.536
8	12	10	14	13.32	0.546
Steel Superstructure					
4	4	4	5	6.02	0.288
5	9	8	10	10.73	0.230
6	13	12	14	14.71	0.212
7	11	10	12	11.74	0.169
8	13	12	13	13.41	0.157
Substructure					
4	7	6	7	8.54	0.294
5	8	7	8	9.75	0.174
6	14	13	14	15.07	0.171
7	12	11	12	12.89	0.124
8	11	10	11	12.48	0.122

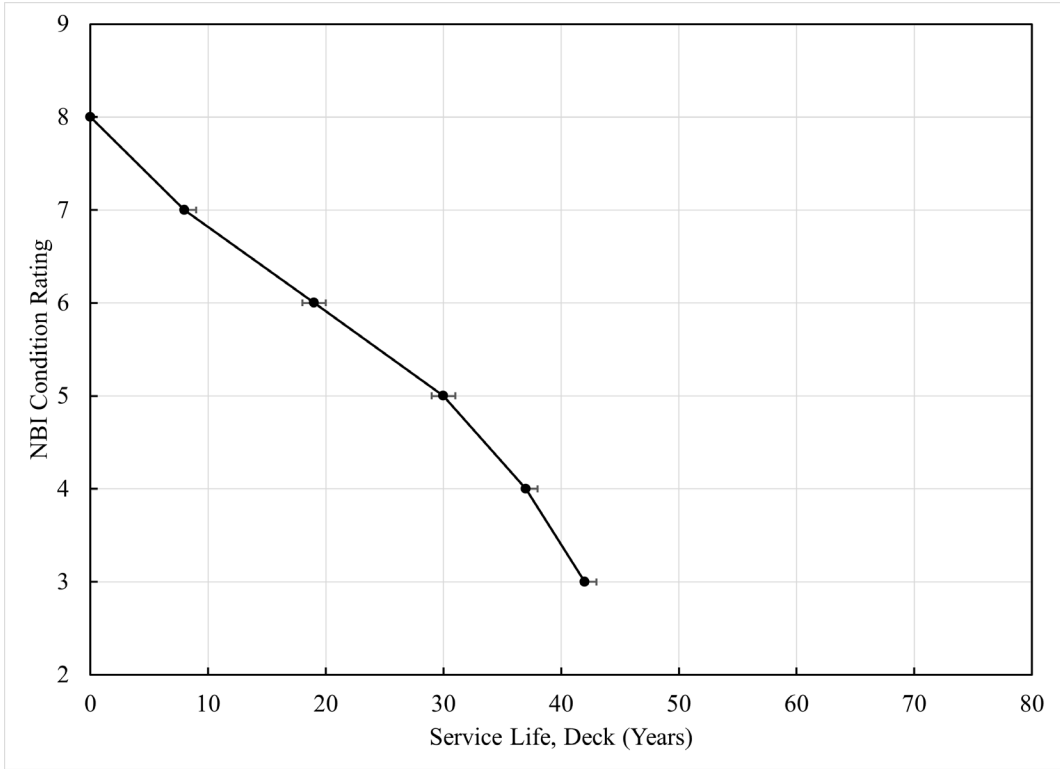


Figure A.161. Service life graph for bridge decks in Wisconsin.

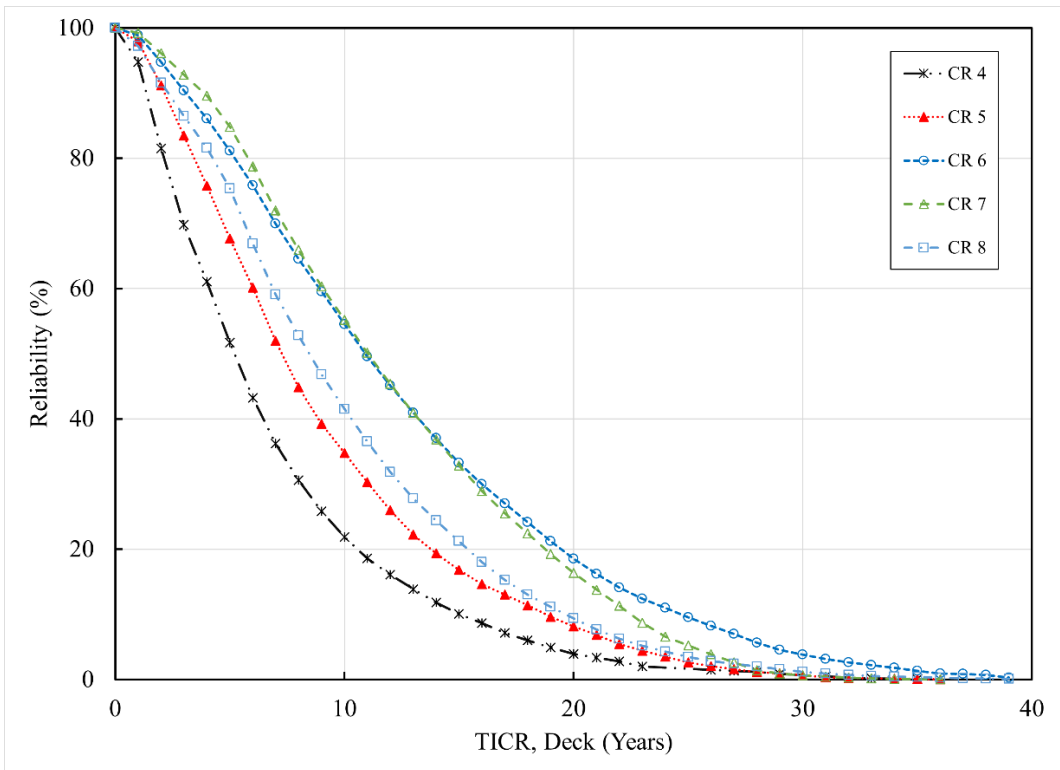


Figure A.162. Reliability graph for bridge decks in Wisconsin.

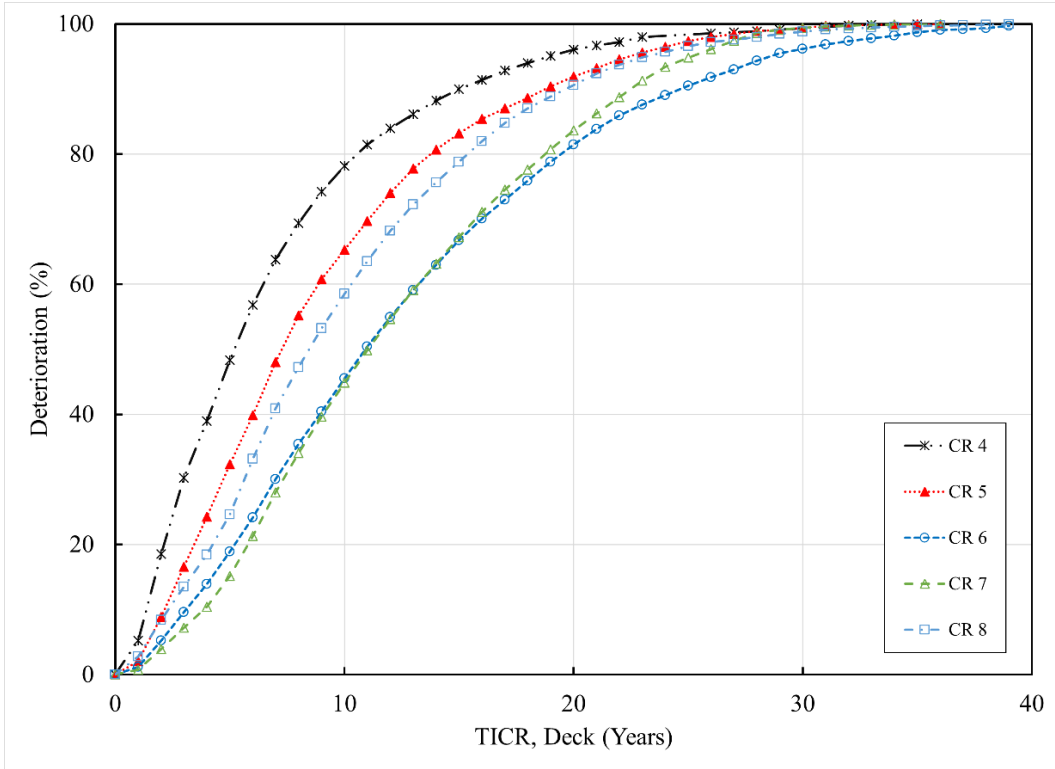


Figure A.163. Deterioration graph for bridge decks in Wisconsin.

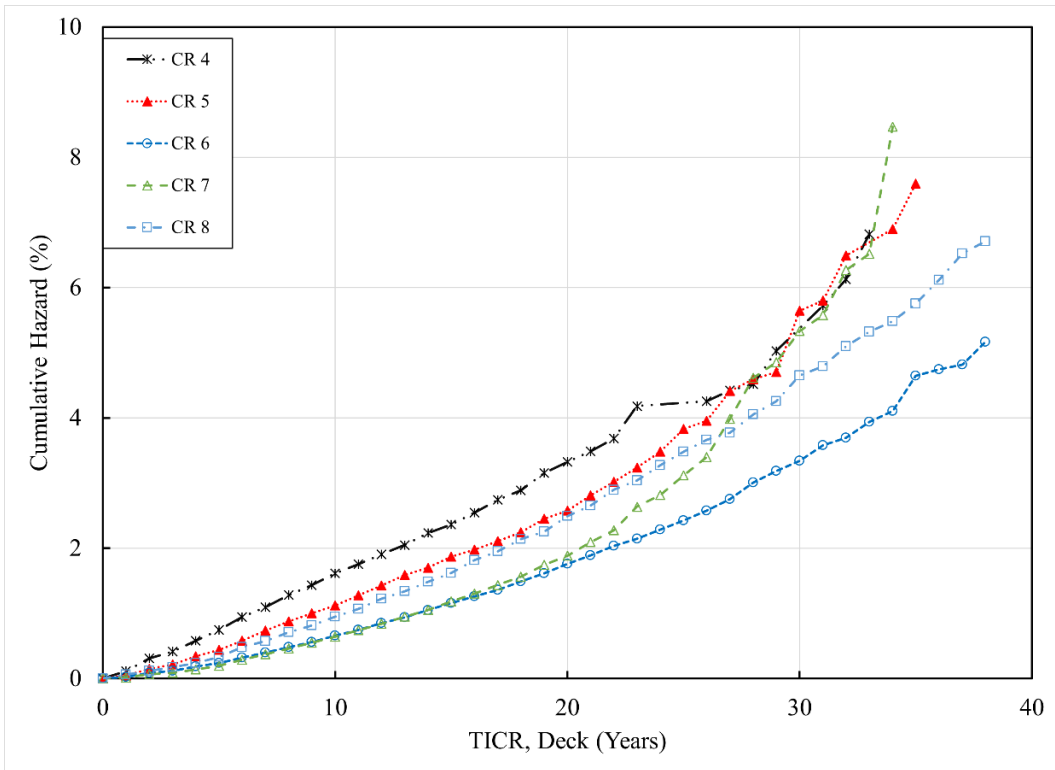


Figure A.164. Cumulative hazard graph for bridge decks in Wisconsin.

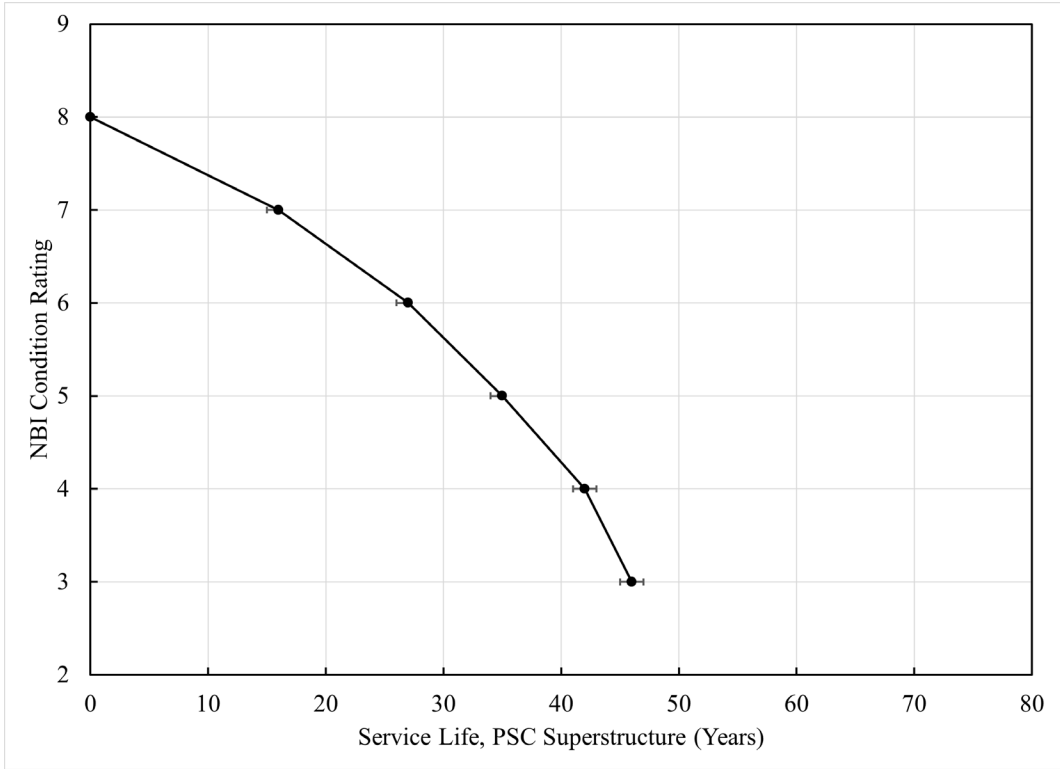


Figure A.165. Service life graph for PSC superstructures in Wisconsin.

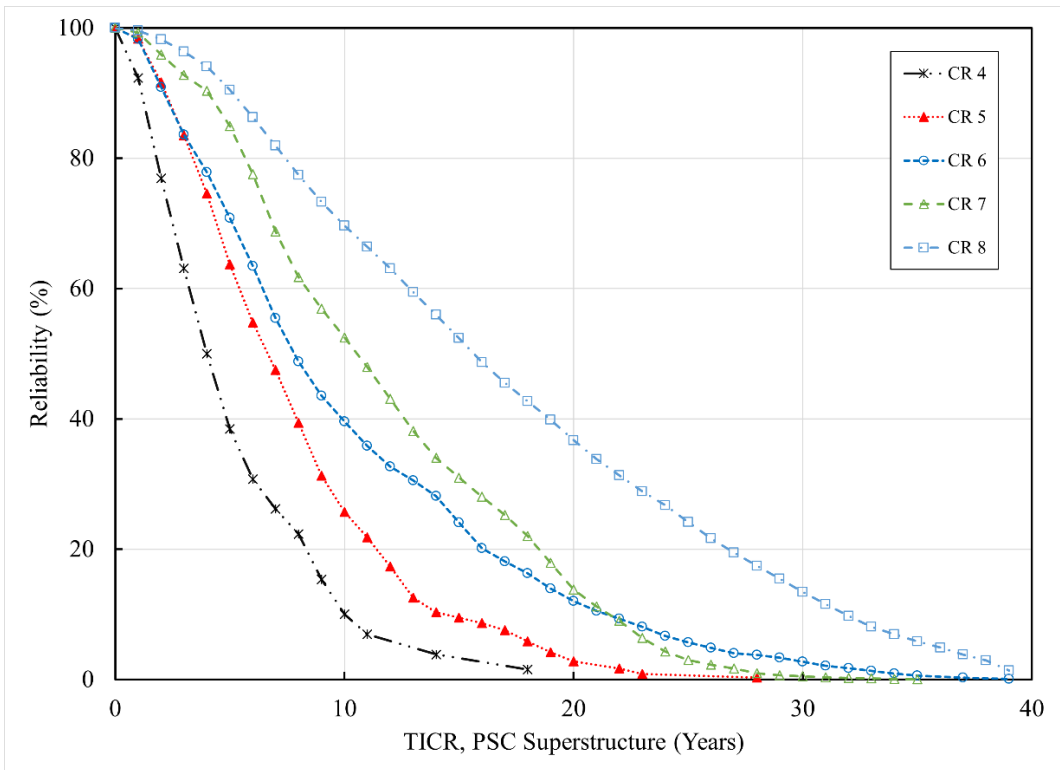


Figure A.166. Reliability graph for PSC superstructures in Wisconsin.

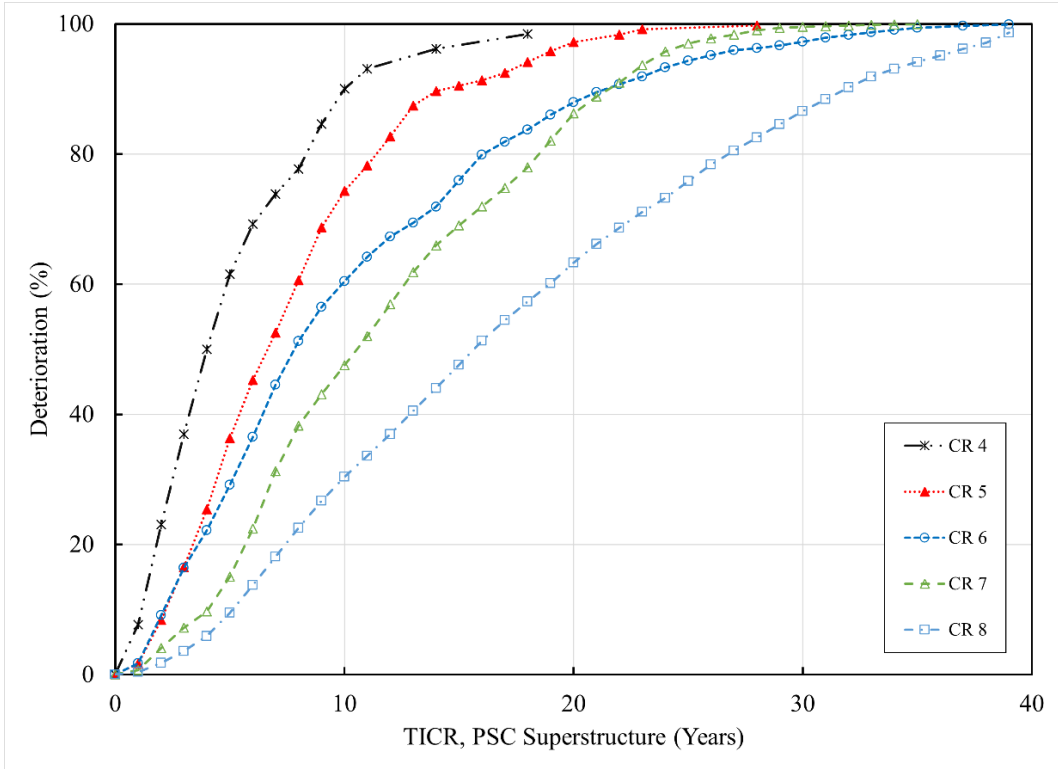


Figure A.167. Deterioration graph for PSC superstructures in Wisconsin.

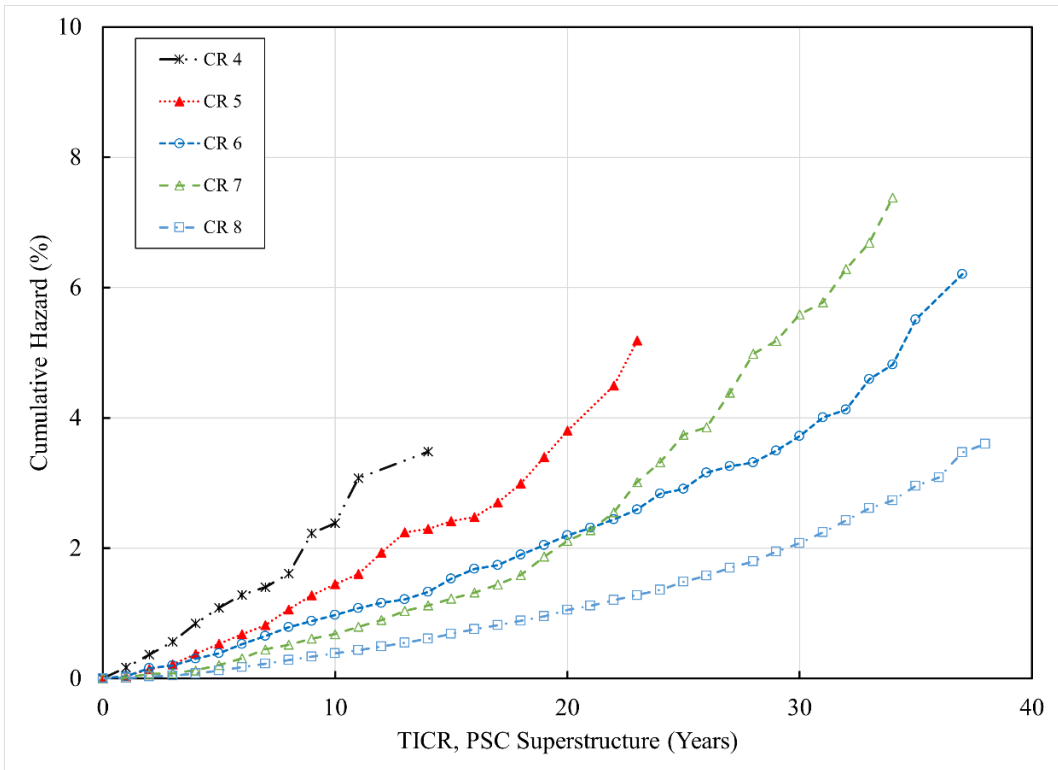


Figure A.168. Cumulative hazard graph for PSC superstructures in Wisconsin.

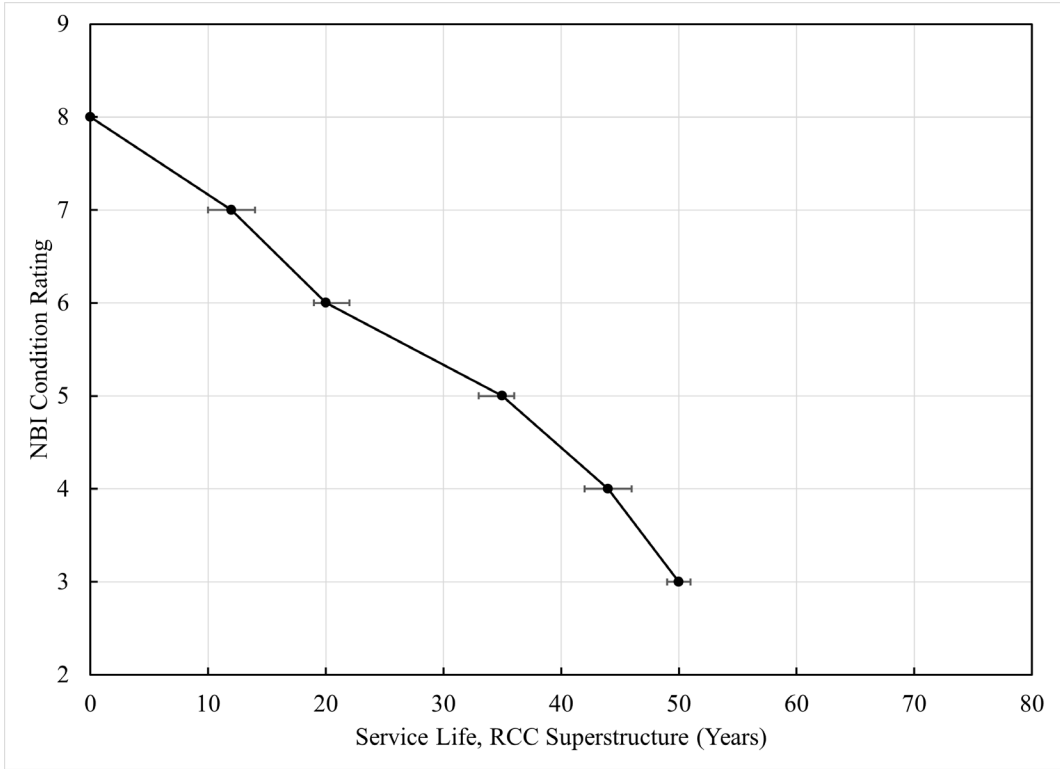


Figure A.169. Service life graph for R/C superstructures in Wisconsin.

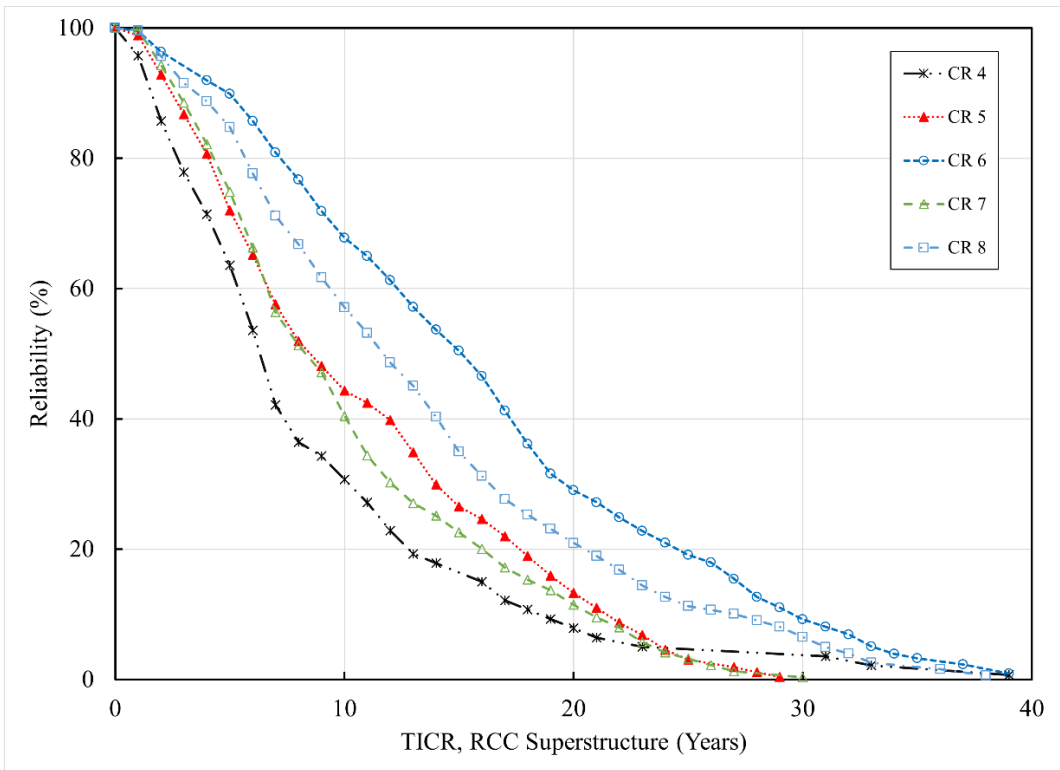


Figure A.170. Reliability graph for R/C superstructures in Wisconsin.

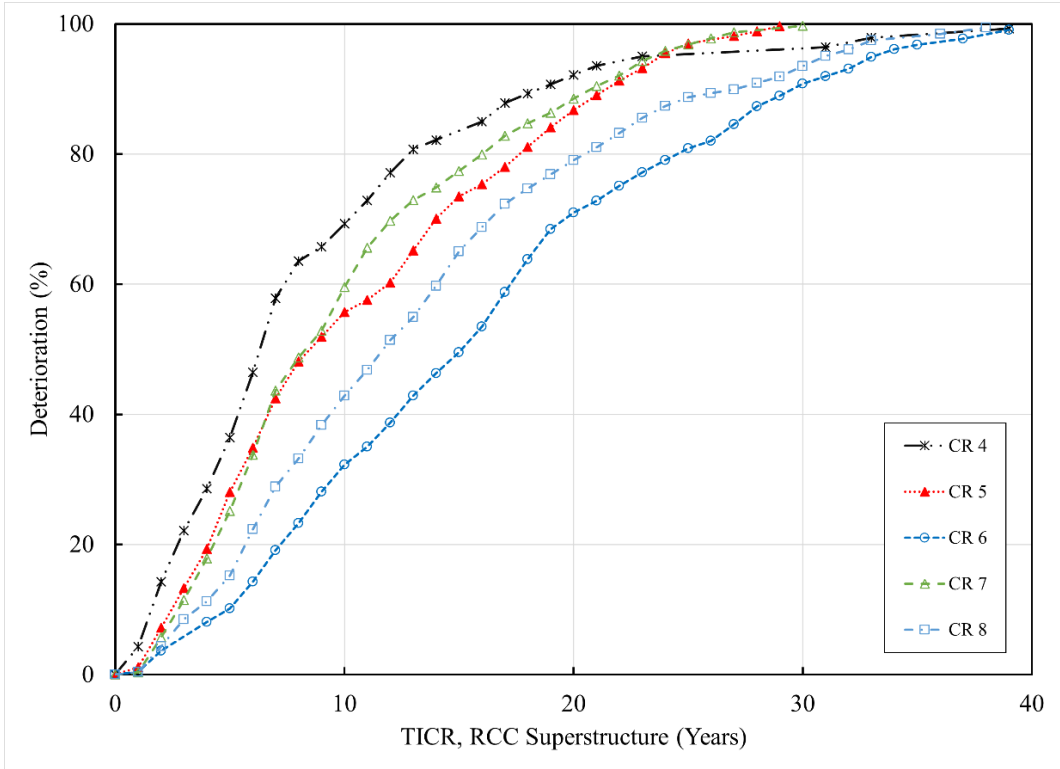


Figure A.171. Deterioration graph for R/C superstructures in Wisconsin.

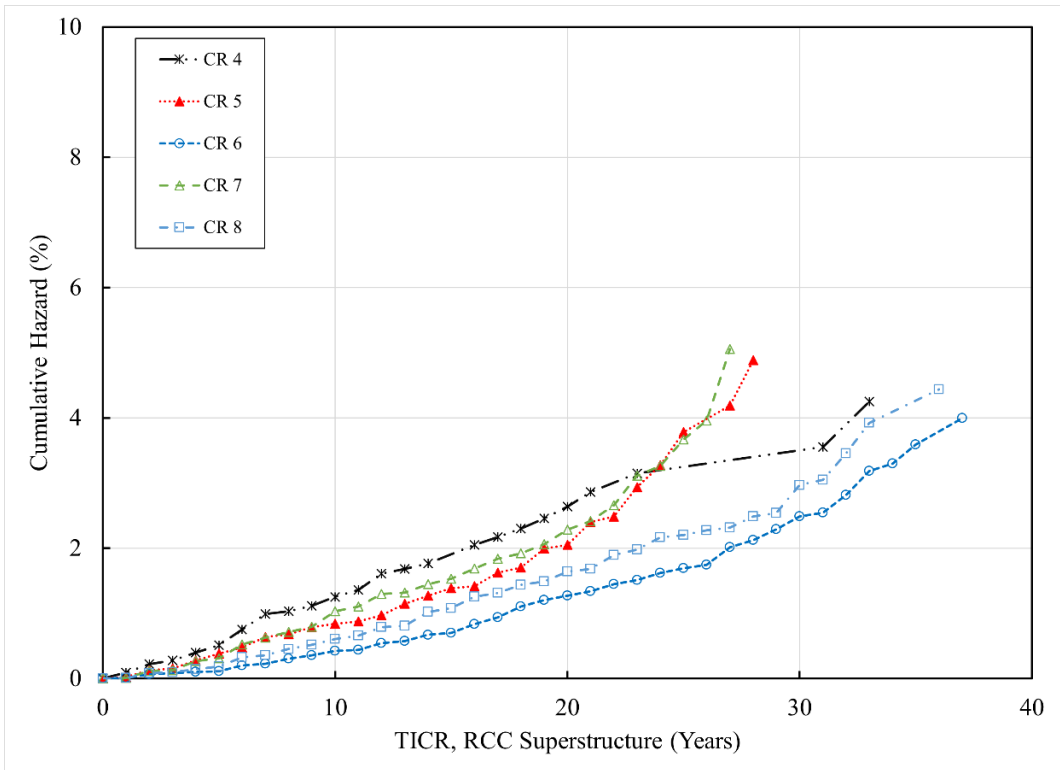


Figure A.172. Cumulative hazard graph for R/C superstructures in Wisconsin.

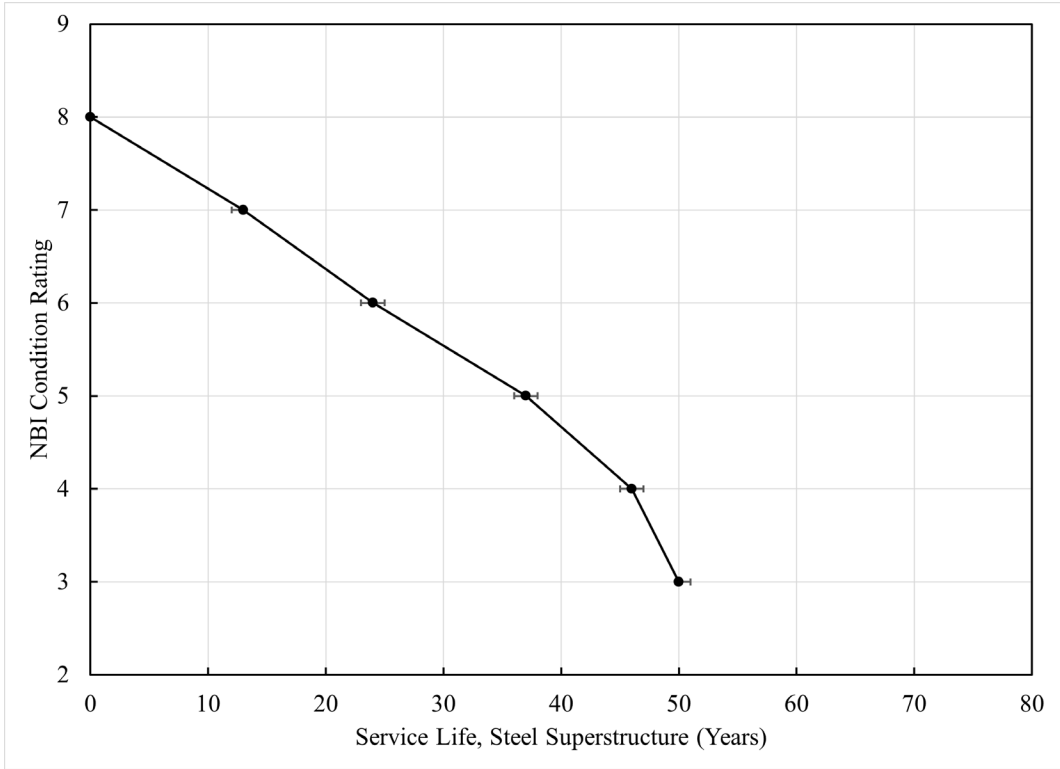


Figure A.173. Service life graph for steel superstructures in Wisconsin.

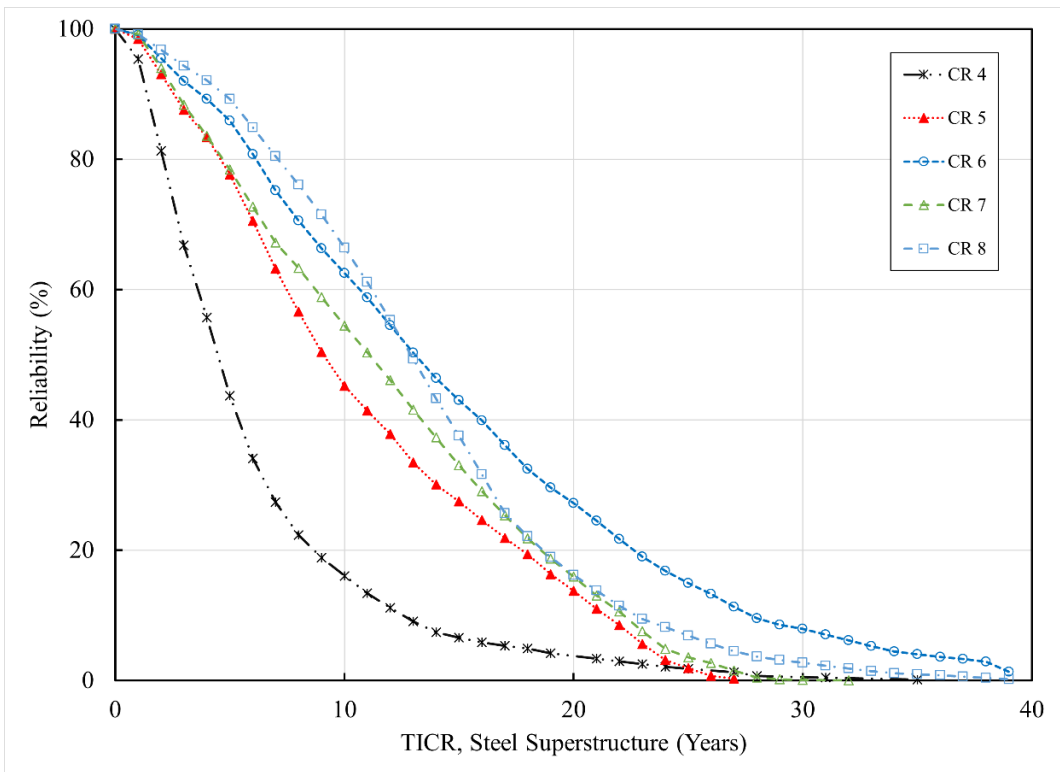


Figure A.174. Reliability graph for steel superstructures in Wisconsin.

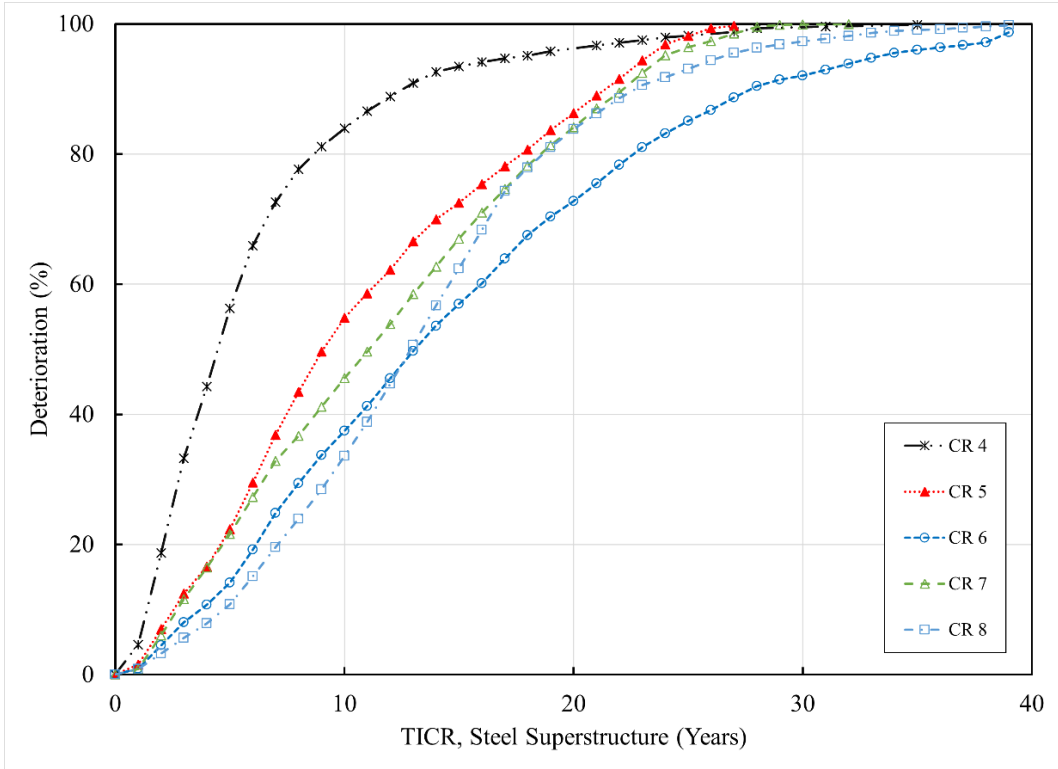


Figure A.175. Deterioration graph for steel superstructures in Wisconsin.

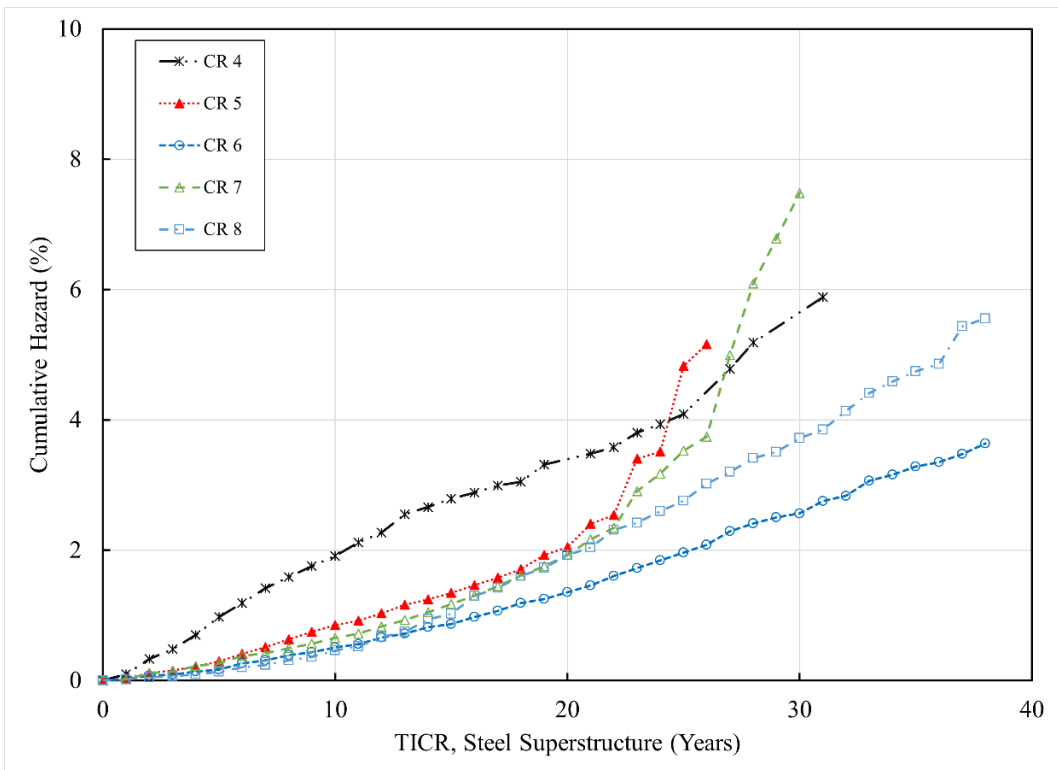


Figure A.176. Cumulative hazard graph for steel superstructures in Wisconsin.

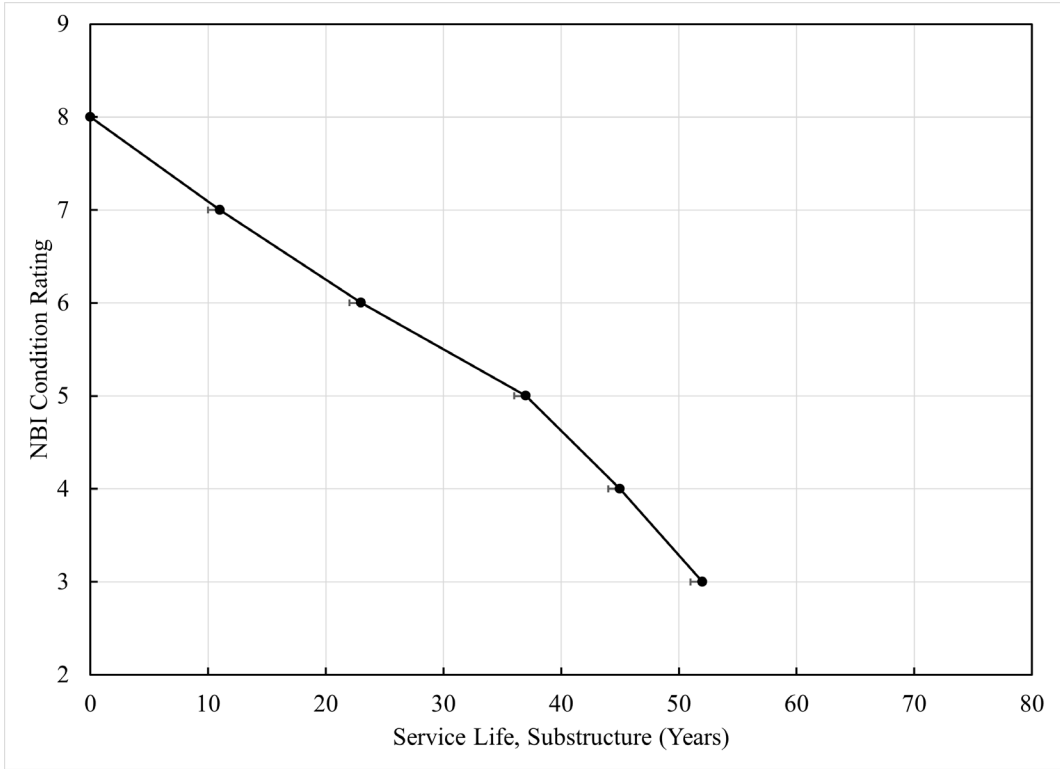


Figure A.177. Service life graph for substructures in Wisconsin.

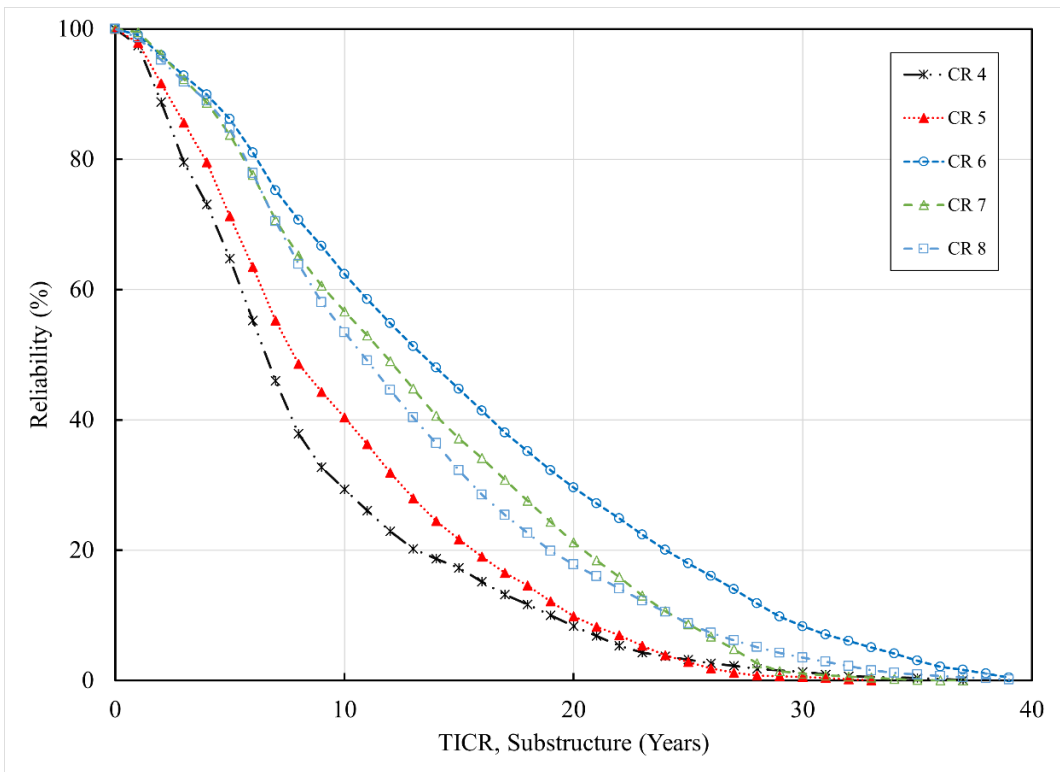


Figure A.178. Reliability graph for substructures in Wisconsin.

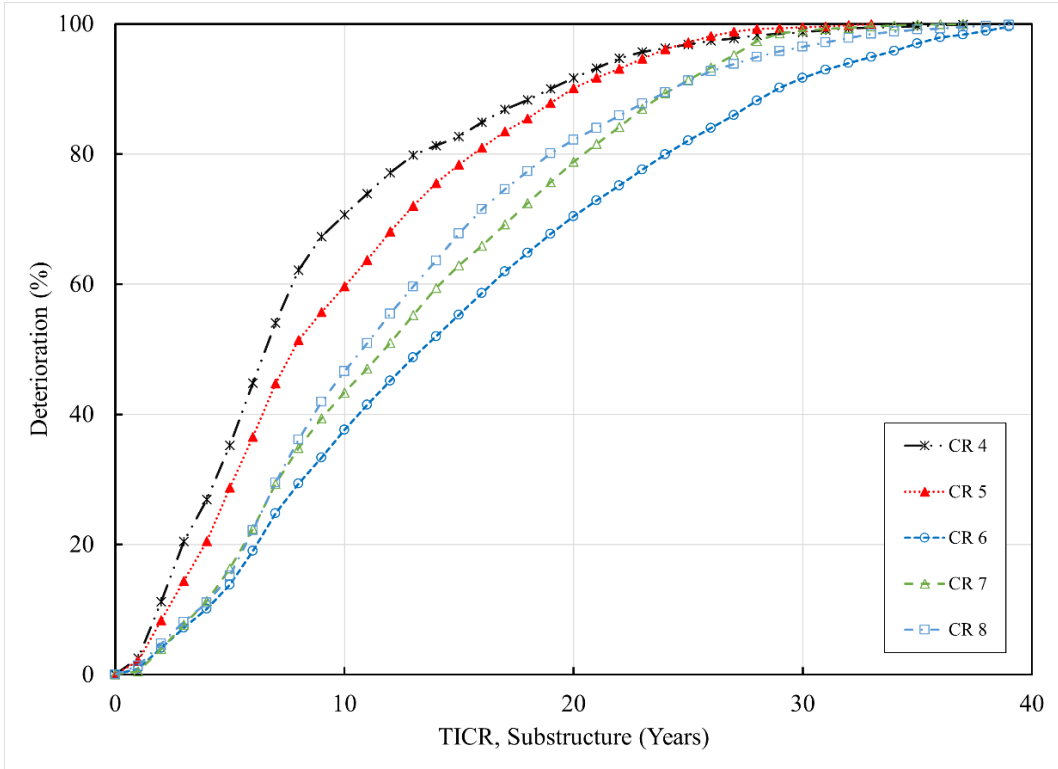


Figure A.179. Deterioration graph for substructures in Wisconsin.

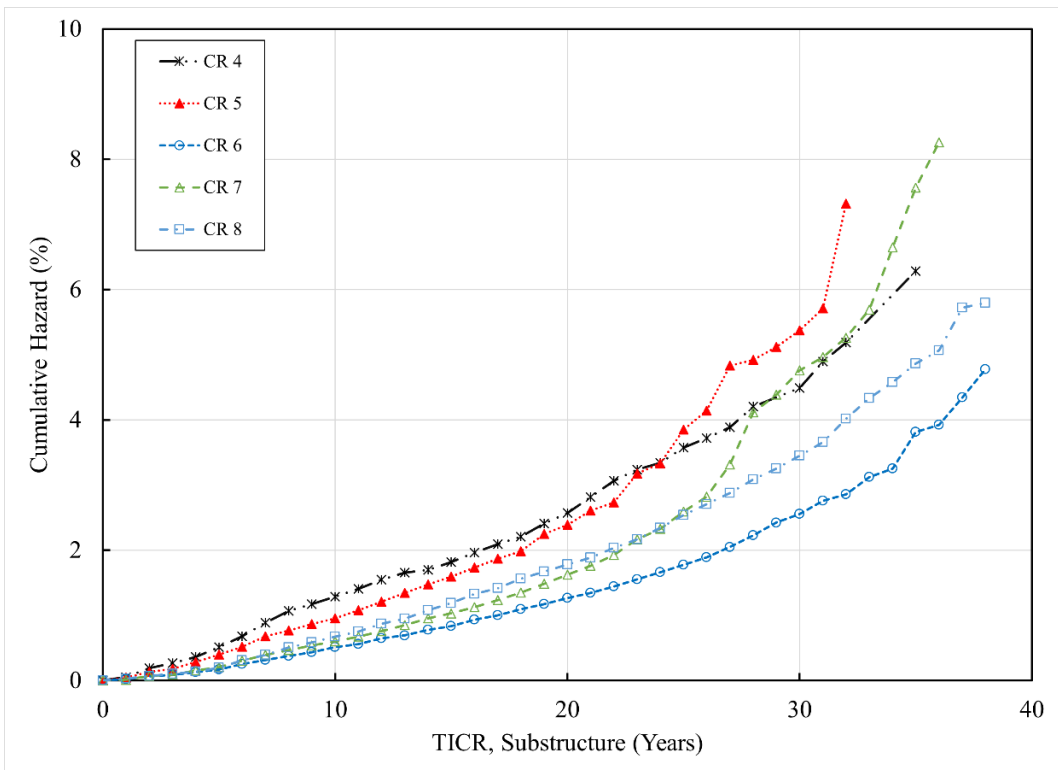


Figure A.180. Cumulative hazard graph for substructures in Wisconsin.