Structurally Deficient Bridges - Proposed Cost Estimates

Owner	Bridge Replacement Cost	Culvert Repalcement Cost	Bridge Rehab Cost	Culvert Rehab Cost	Total Cost
LPA bridges	$ 1,551,321,328	$ 33,000,000	$ 176,871,038	$ 31,016,301	$ 1,792,208,667
State bridges	$ 158,774,000		$ 20,220,000		$ 178,994,000
Total	$ 1,710,095,328	$ 33,000,000	$ 197,091,038	$ 31,016,301	$ 1,971,202,667

Secondary Highway Average deck area = 1587.8 sq. ft.
Primary Highway Average deck area = 8365.1 sq. ft.

Costs used for estimating

$250/ft^2	-Secondary Highway Bridge Replacement
$100/ft^2	-Secondary Highway Bridge Rehab
$250,000 each	-Secondary Highway Culvert Replacement

Costs from 2010 Bridge Needs Report for Primary Highway Bridges

Secondary Highway Structures

There are 5158 Structurally Deficient structures on Secondary highways based on the 2011 National Bridge Inventory (NBI) submittal. Of these 5158 structures, 4381 are proposed for replacement and 777 proposed for rehabilitation. The cost for replacement was based on the existing square footage of deck area. The cost includes approach work, guardrail, traffic control, and that the bridges will be larger than the existing structure. The rehabilitation cost was assumed to be 40% of the cost for replacement. Of the 4381 proposed replacements there are 132 culverts. The culverts were estimated at $250,000 each as replacements. There is 1 culvert that is over 1 mile long and is estimated at $30,900,000 for rehabilitation.

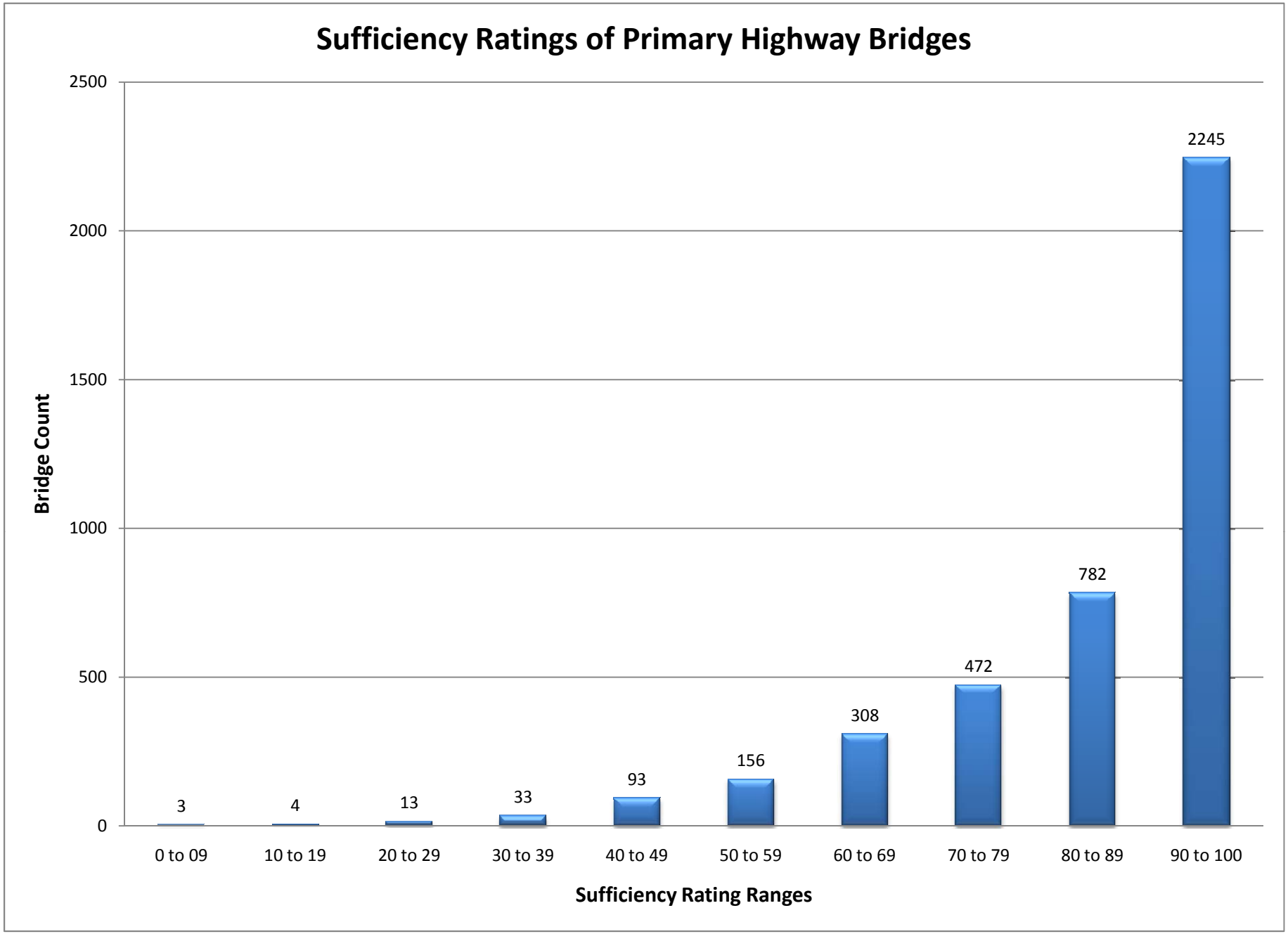
Primary Highway Structures

The state bridge costs are based on the 2010 report "Summary of Bridge Needs". This report considered the proposed project costs for 187 Structurally Deficient bridges from the 2010 NBI submittal. The costs are based on concept estimates, when available, and preliminary estimates made by the Bridge Office. In the "Summary of Bridge Needs" report, 86 bridges were proposed for replacement, 62 were proposed for rehabilitation, 20 had already had the deficiency repaired, 14 had become deficient within the previous 12 months and had not had a project type proposed, and 5 were being monitored.

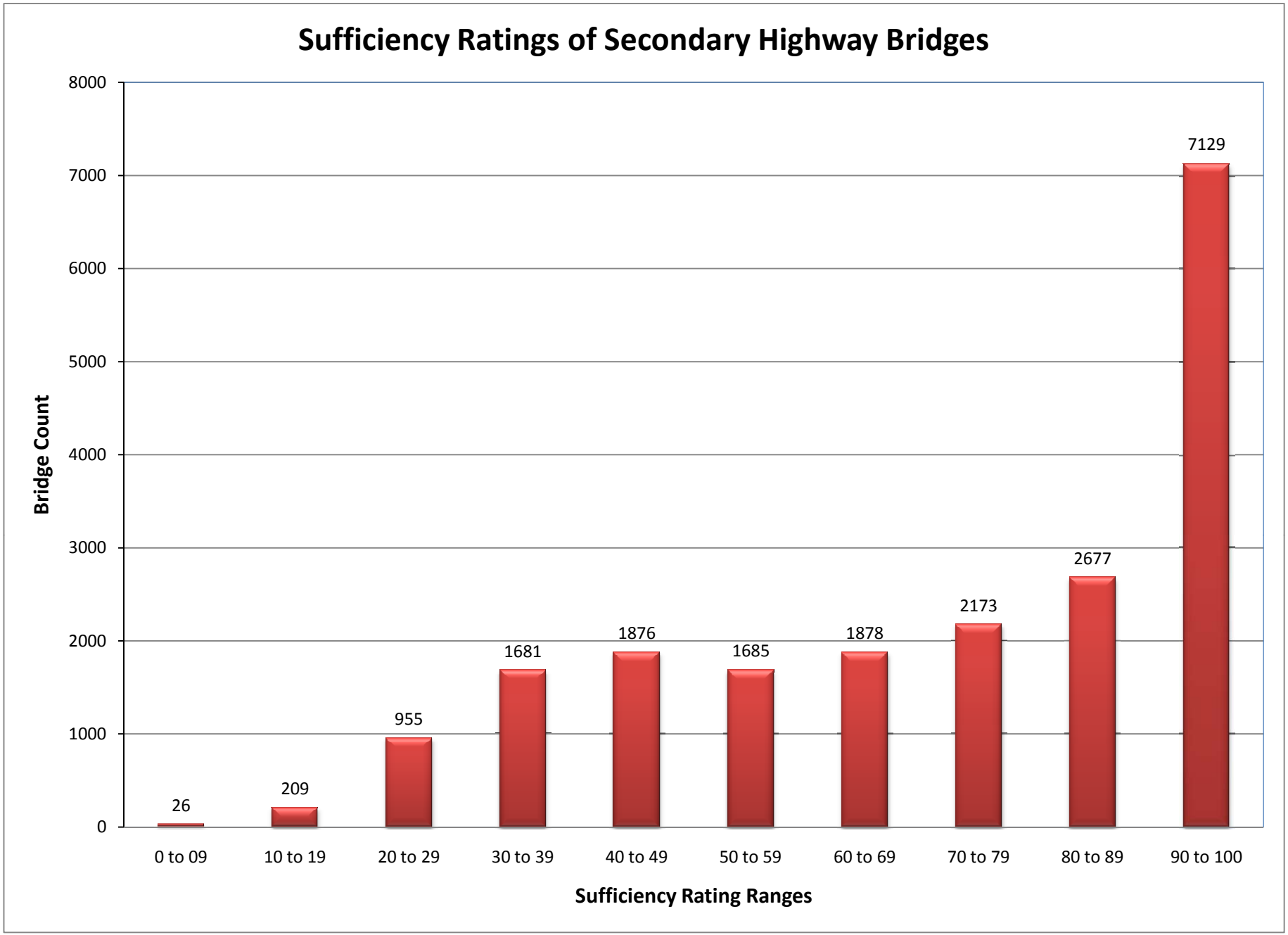
Structurally Deficient Bridges - Work Proposed

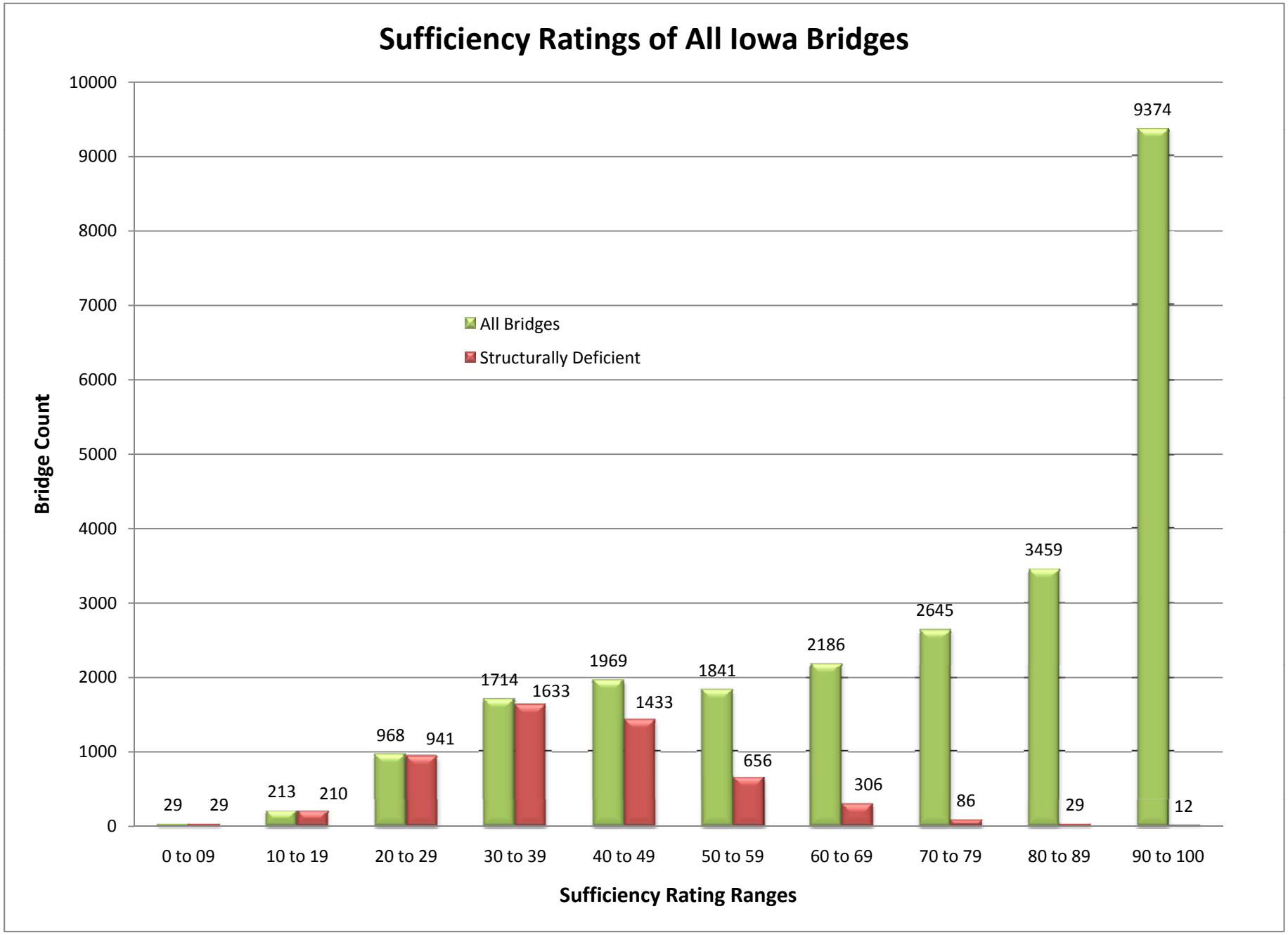
Structurally Deficient Bridges	Owners				
Work Proposed	State	County	Town	City	Grand Total
No Work Type	39	169		13	221
Replacement due to Load Capacity	86	4290	1	184	4561
Replacement due to Realignment of Roadway		3			3
Widening without Deck Replacement		9		2	11
Widening with Deck Replacement	12	6		5	23
Bridge Rehabilitation due to Deterioration or Strength		298		27	325
Bridge Deck Rehabilitation without Widening	21	4		2	27
Bridge Deck Replacement without Widening		9			9
Other Structural Work	29	126		10	165
Grand Total	**187**	**4914**	**1**	**243**	**5345**

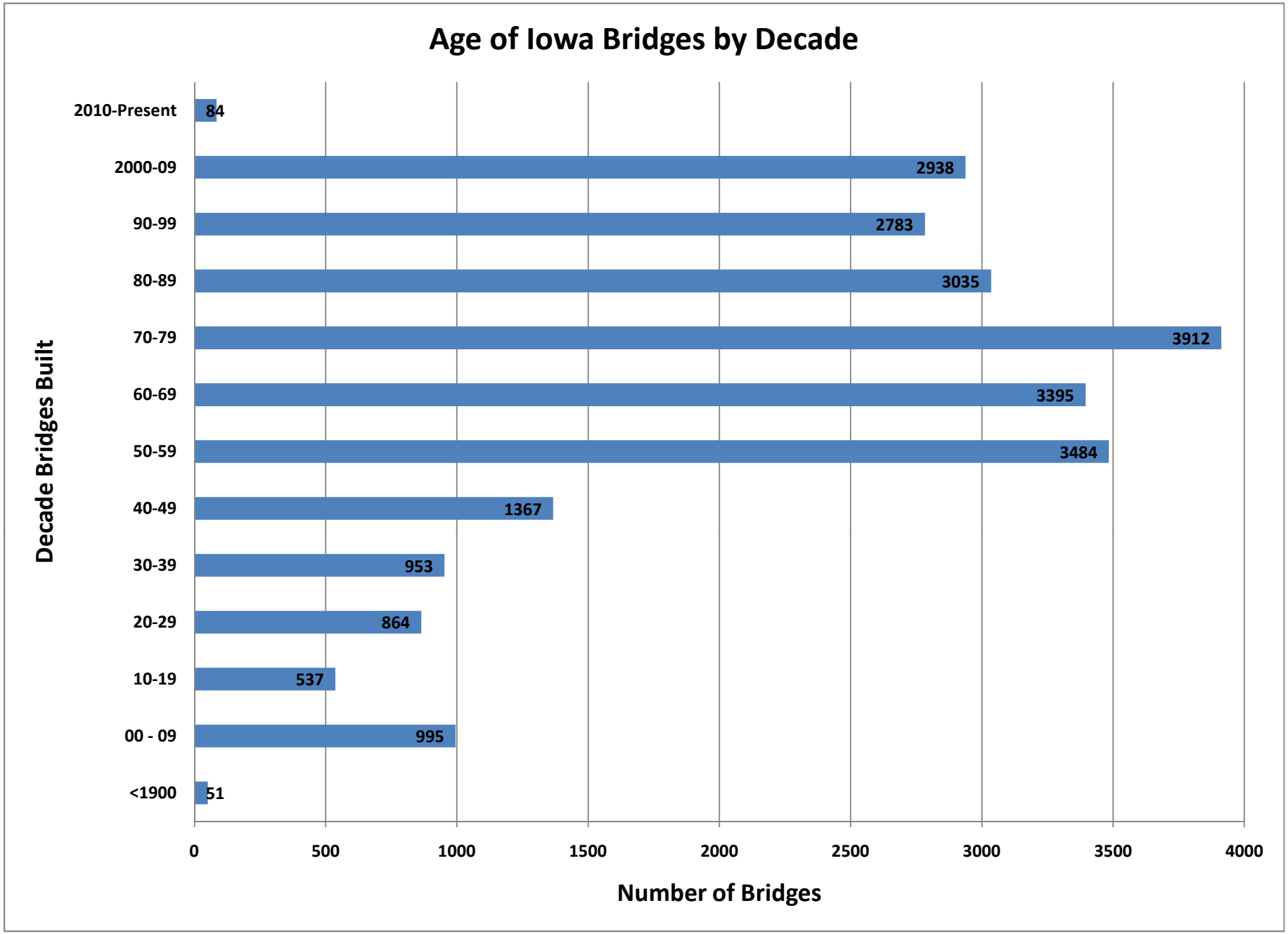
Note: Secondary Highway Bridge Total is 4914+1+243 = 5158


Sufficiency Ratings of Primary Highway Bridges
Bridge Count
2500
2000
1500
1000
500
0
3
4
13
33
93
156
308
472
782
2245
0 to 09
10 to 19
20 to 29
30 to 39
40 to 49
50 to 59
60 to 69
70 to 79
80 to 89
90 to 100
Sufficiency Rating Ranges

July 6, 2011


Sufficiency Ratings of Secondary Highway Bridges
Bridge Count
8000
7000
6000
5000
4000
3000
2000
1000
0
26
209
955
1681
1876
1685
1878
2173
2677
7129
0 to 09
10 to 19
20 to 29
30 to 39
40 to 49
50 to 59
60 to 69
70 to 79
80 to 89
90 to 100
Sufficiency Rating Ranges


Sufficiency Ratings of All Iowa Bridges
Bridge Count
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
All Bridges
Structurally Deficient
29
29
213
210
968
941
1714
1633
1969
1433
1841
656
2186
306
2645
86
3459
29
9374
12
0 to 09
10 to 19
20 to 29
30 to 39
40 to 49
50 to 59
60 to 69
70 to 79
80 to 89
90 to 100
Sufficiency Rating Ranges


Age of Iowa Bridges by Decade
Decade Bridges Built
2010-Present
2000-09
90-99
80-89
70-79
60-69
50-59
40-49
30-39
20-29
10-19
00 - 09
<1900
84
2938
2783
3035
3912
3395
3484
1367
953
864
537
995
51
0
500
1000
1500
2000
2500
3000
3500
4000
Number of Bridges