

multiple box culvert structure costing \$1,134,000. Costs for bridges longer than 50 feet are calculated using the square footage of the deck and an average replacement unit cost. Unit replacement costs were \$530 per square foot of deck area. All costs include approach grading, preliminary engineering and construction engineering costs. Preliminary engineering costs are assumed to add an additional 10% to the bid price, while construction engineering adds another 10% to the total price.

7.1.5. Results – Major Structures

Estimated statewide bridge improvement and preventive maintenance needs for the study period, 2024-2043 are \$1.087 billion. Statewide bridge needs by biennium are shown in Table 23 with needs for individual counties presented in Table 24.

Table 23. Statewide Major Bridge Needs: 2024-2043

Period	Replacement		Maintenance Cost (million)	Total Cost (million)
	Number	Cost (million)		
2024-2025	141	\$178.0	\$0.943	\$178.943
2026-2027	141	\$178.0	\$0.943	\$178.943
2028-2029	141	\$178.0	\$0.943	\$178.943
2030-2031	141	\$178.0	\$0.943	\$178.943
2032-2033	141	\$178.0	\$0.943	\$178.943
2034-2043	142	\$178.3	\$14.145	\$192.445

Table 24. County and Township Major Bridge Needs by County: 2024-2043 (\$2024)

County	Replacement Bridges	Replacement Cost	Preventive Maintenance Cost	Total Cost
Adams	7	\$6,888,488	\$281,726	\$7,170,213
Barnes	8	\$28,573,629	\$726,365	\$29,299,994
Benson	4	\$2,148,908	\$84,734	\$2,233,642
Billings	7	\$11,541,686	\$175,752	\$11,717,437
Bottineau	33	\$32,632,751	\$371,767	\$33,004,518
Bowman	12	\$7,657,782	\$152,189	\$7,809,971
Burke	6	\$3,210,000	\$41,537	\$3,251,537
Burleigh	8	\$4,447,150	\$443,540	\$4,890,689
Cass	43	\$67,083,305	\$2,611,942	\$69,695,248
Cavalier	8	\$6,581,618	\$107,726	\$6,689,344
Dickey	3	\$8,340,325	\$515,219	\$8,855,544
Divide	2	\$1,070,000	\$78,929	\$1,148,929
Dunn	6	\$8,615,888	\$356,721	\$8,972,609
Eddy	3	\$6,394,805	\$246,622	\$6,641,427
Emmons	8	\$6,814,689	\$317,254	\$7,131,943
Foster	3	\$4,378,343	\$107,633	\$4,485,975
Golden Valley	4	\$4,864,477	\$106,377	\$4,970,854
Grand Forks	69	\$50,994,703	\$1,505,649	\$52,500,352
Grant	24	\$52,172,451	\$198,248	\$52,370,699
Griggs	1	\$2,572,686	\$178,237	\$2,750,922

County	Replacement Bridges	Replacement Cost	Preventive Maintenance Cost	Total Cost
Hettinger	27	\$21,271,138	\$270,892	\$21,542,031
Kidder	0	\$0	\$0	\$0
LaMoure	11	\$13,406,190	\$292,155	\$13,698,345
Logan	3	\$1,070,000	\$75,214	\$1,145,214
McHenry	40	\$41,817,900	\$248,191	\$42,066,090
McIntosh	2	\$2,864,434	\$0	\$2,864,434
McKenzie	15	\$20,948,780	\$493,855	\$21,442,636
McLean	7	\$10,268,972	\$331,983	\$10,600,955
Mercer	21	\$44,465,729	\$306,424	\$44,772,153
Morton	67	\$74,452,252	\$914,782	\$75,367,034
Mountrail	1	\$1,513,908	\$216,550	\$1,730,459
Nelson	3	\$5,401,808	\$262,719	\$5,664,527
Oliver	7	\$13,028,574	\$102,033	\$13,130,607
Pembina	62	\$59,987,516	\$525,743	\$60,513,259
Pierce	1	\$535,000	\$0	\$535,000
Ramsey	3	\$3,282,255	\$179,017	\$3,461,273
Ransom	7	\$25,100,829	\$316,179	\$25,417,007
Renville	6	\$12,817,511	\$128,672	\$12,946,183
Richland	49	\$56,553,486	\$1,356,462	\$57,909,948
Rolette	2	\$1,070,000	\$51,342	\$1,121,342
Sargent	6	\$3,210,000	\$22,419	\$3,232,419
Sheridan	0	\$0	\$0	\$0
Sioux	1	\$535,000	\$154,888	\$689,888
Slope	2	\$8,291,283	\$187,607	\$8,478,890
Stark	23	\$37,857,251	\$546,073	\$38,403,324
Steele	29	\$24,276,691	\$461,212	\$24,737,903
Stutsman	11	\$21,854,591	\$397,453	\$22,252,044
Towner	11	\$7,682,000	\$48,336	\$7,730,336
Traill	61	\$128,693,178	\$607,596	\$129,300,774
Walsh	68	\$68,213,690	\$913,930	\$69,127,620
Ward	22	\$29,362,926	\$353,487	\$29,716,413
Wells	4	\$2,800,434	\$316,106	\$3,116,541
Williams	16	\$8,688,000	\$170,544	\$8,858,544
Statewide	847	\$1,068,305,012	\$18,860,031	\$1,087,165,04

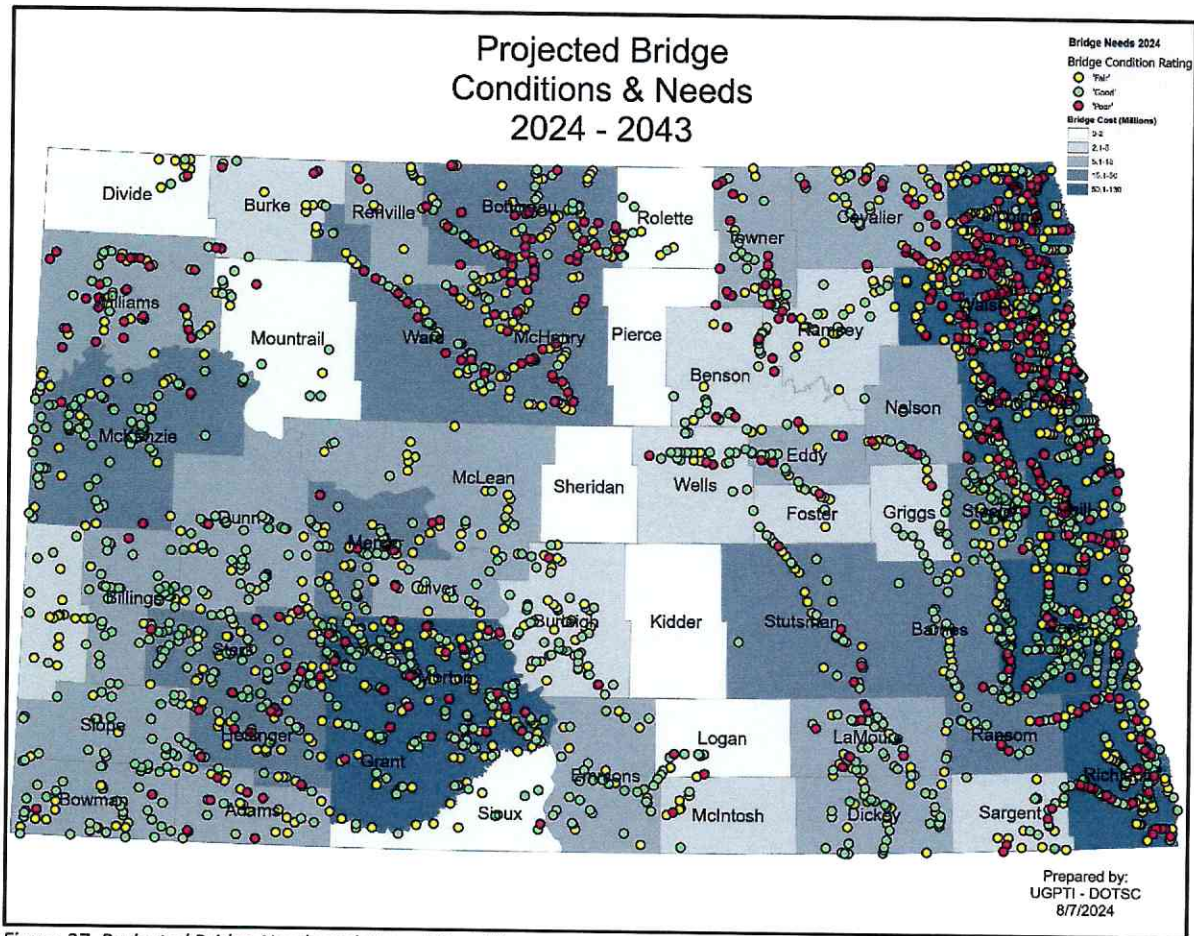


Figure 27. Projected Bridge Needs and Current Conditions

7.2. Minor Structures

Previous needs studies did not include bridge needs for smaller structures that are not included in the National Bridge Inventory which is only for bridges with spans of greater than 20 feet. However, there had been a lot of discussion about adding minor structures to this study for several years. The main issue was that no up-to-date inventory was available for each of the 53 counties in North Dakota. The UGPTI Geographic Road Inventory Tool has a minor structure layer but it was not being utilized by all of the counties. In the summer of 2023, a 1985 inventory of minor structures from the ND DOT was digitized and imported into the GRIT layer. After a meeting with the ND County Bridge Needs Steering Committee in July of 2023, support was overwhelming to move forward with a needs analysis for minor structures which had a span range of 8 to 20 feet. Discussions on the size range had actually begun in the fall of 2021 when the previous report's analysis began. The study team and the steering committee agree that the occurrence of these structures failing can cause severe injury or death to the traveling public. Failures of these structures can also impact the agricultural and oil economies on a local, regional and statewide basis by increasing detour lengths for deliveries of inputs and of the affiliated products produced here in North Dakota.