# APPENDIX O
# IMPACT OF REVISED ACP CURVES AND SCORE CALCULATIONS ON DISTRICT RATINGS

***Impact of Revised ACP Curves and Score Calculations on District Ratings***

The following graphs illustrate the effect that the revised asphalt pavement distress and condition score calculation would have on the ratings for an entire district. Year 2011 PMIS data are used for this analysis. For each section in a district, the data for the asphalt pavement types were extracted from the database and used to calculate a new, modified distress score. For all sections, 50 percent of the longitudinal and 50 percent of the transverse cracks were assumed to be sealed (Depending on the actual percentages of sealed cracks, these numbers could change slightly over that of a section where no cracks were sealed. At higher levels of cracking, the assumption of cracking would cause a slight decrease in the distress and condition score. At low values of cracking, the assumption of 50 percent cracking would cause a slight increase in the distress score.). The new distress and condition scores were then compared to the existing PMIS scores and a plot of the percent of sections by the various condition categories (asphalt pavements only) was created, including the percentage of sections with a distress or condition score less than 70. The analysis was conducted on eight districts (Paris, Ft. Worth, Childress, Amarillo, Lubbock, Odessa, San Angelo, and Abilene). Figures O1 through O32 display the results. Note that due to the constraints of the plotting procedure, one symbol may represent multiple occurrences of the same pair of new and original distress scores. This is most likely to occur at the higher values.

In general, the new, modified PMIS scores are slightly higher. Fewer sections have a distress or condition score of 100 because of the changes at the small levels of distress and the small deducts for flushing and raveling on the higher volume, high speed sections. This reduction is more than offset by the increase in scores at the lower levels. Very low values were, typically, calculated to have higher values where the traffic and speed were low. Table 11 contains the summarized data. The increase in score at the lower values is due to the reduction in the effect of failures and patching and the reduced impact of ride score for lower volume, low AADT roads.

*Paris District*

For the Paris District, the modified methodology tended to increase the values at the low end and the percentage of sections with a distress score less than 70 were reduced (11 percent to 7 percent) and for the condition score were reduced from 16 percent to 11 percent. Overall, the average distress score increased by 1.2 points and the condition score increased 1.0.

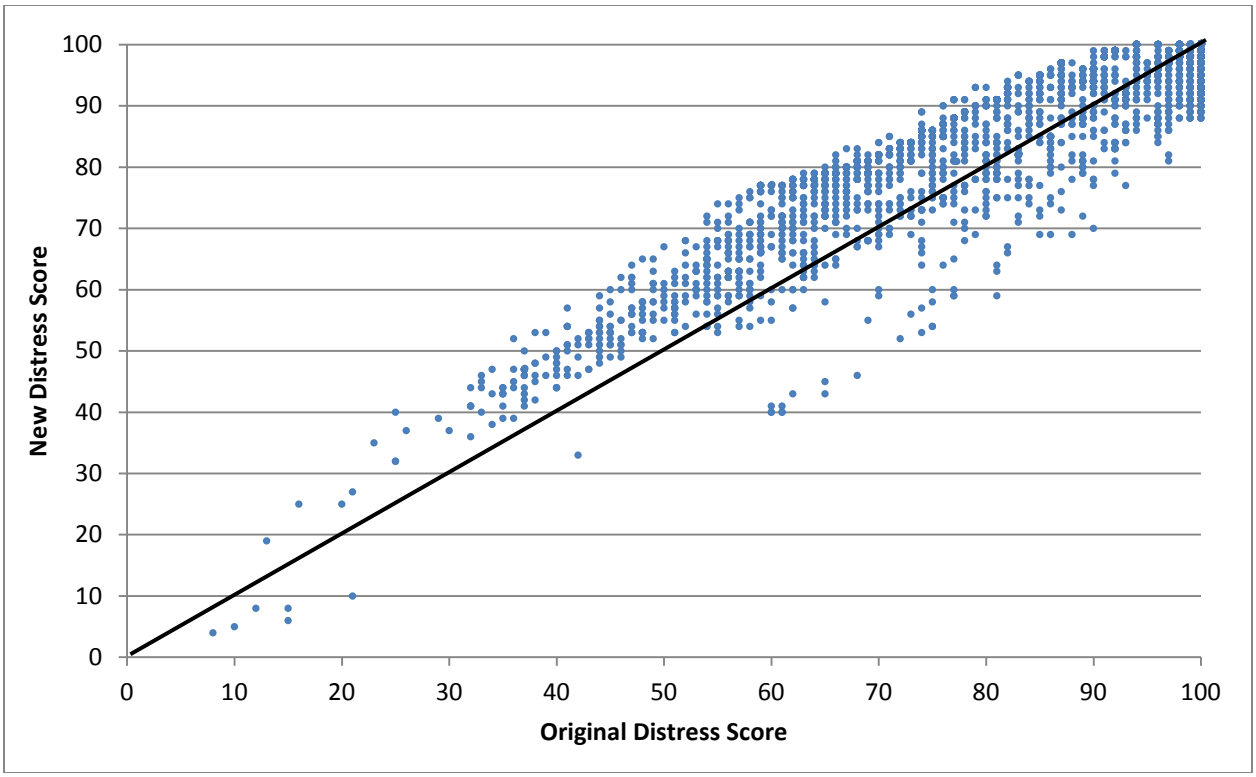


**Figure O1. Comparison of Original and New, Modified Distress Score for the Paris District.**

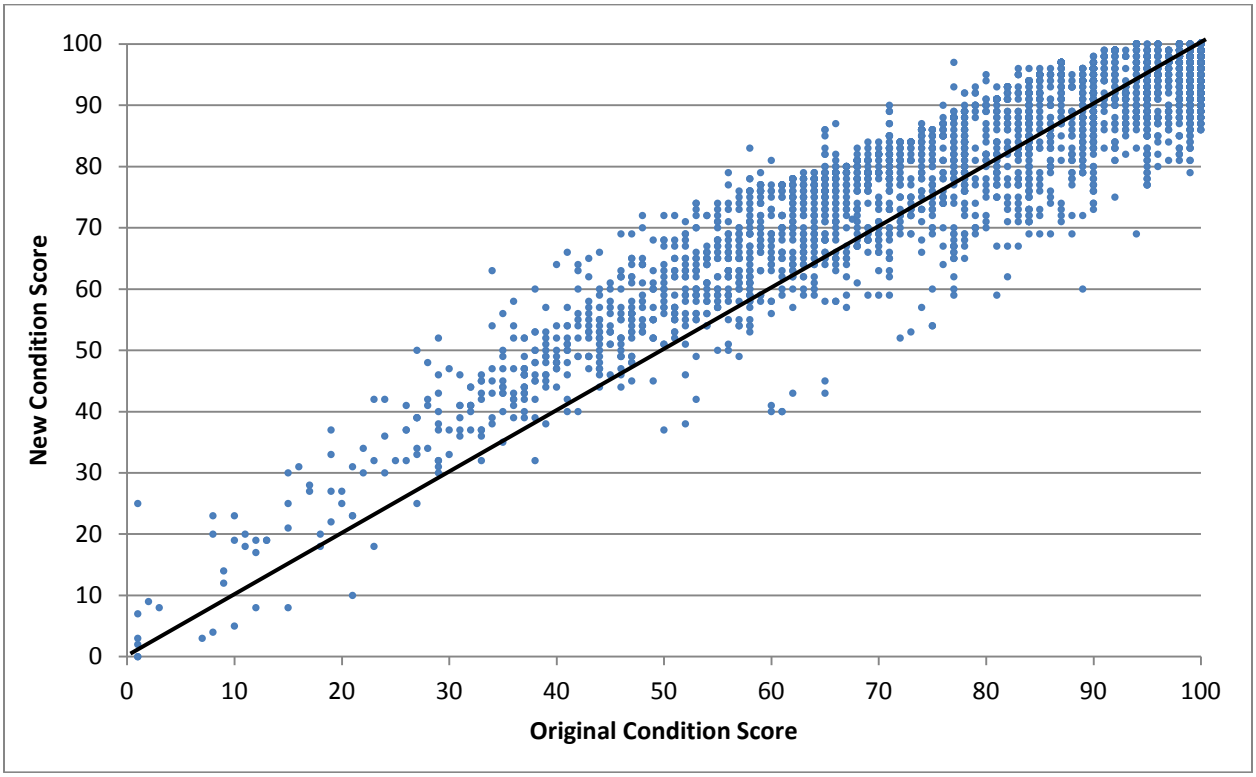


**Figure O2. Comparison of Original and New, Modified Condition Score for the Paris District.**

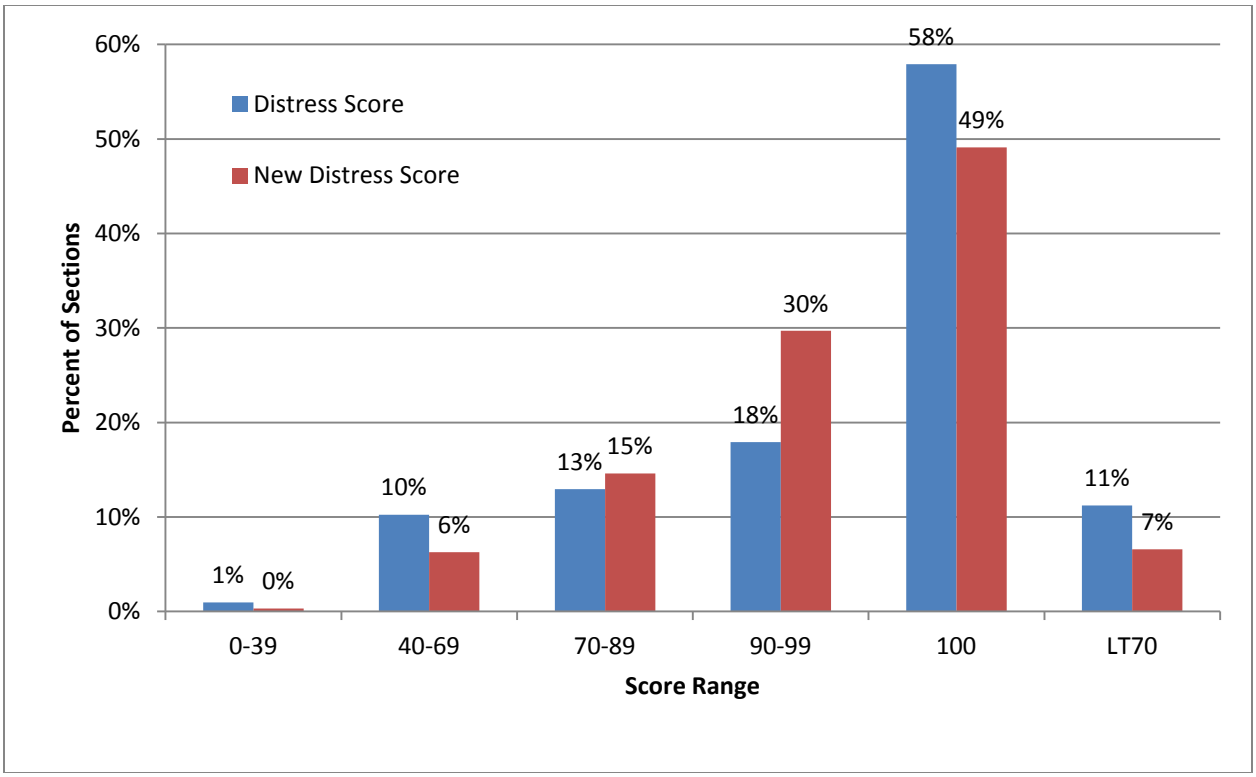


**Figure O3. Percentage of Sections in the Various Distress Score Categories for the Paris District.**

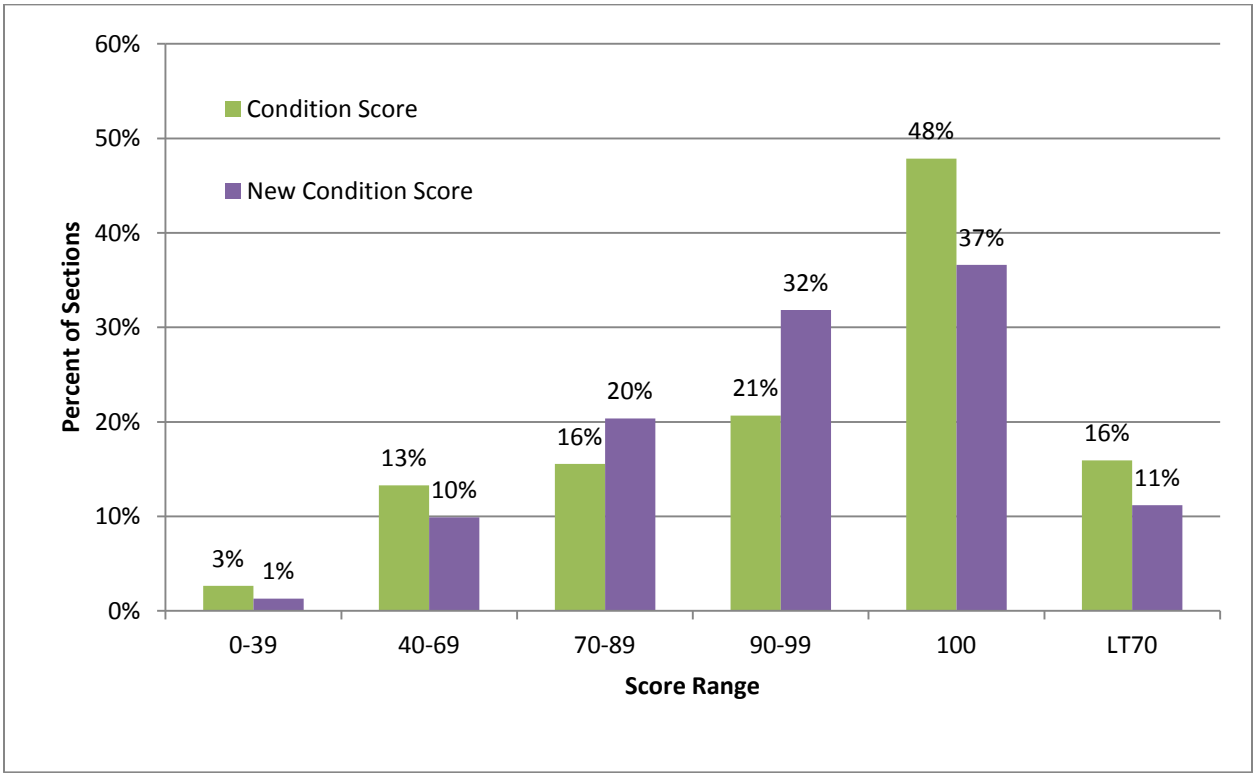


**Figure O4. Percentage of Sections in the Various Condition Score Categories for the Paris District.**

*Fort Worth District*

For the Fort Worth District, the modified methodology tended to increase the values at the low end and the percentage of sections with a distress score less than 70 were cut in half (9 to 4 percent). For the condition score, the difference was slightly less dramatic (12 to 7 percent). Overall, the average distress score increased by 1.8 points and the condition score increased 2.1.

**Figure O5. Comparison of Original and New, Modified Distress Score for the Fort Worth District.**

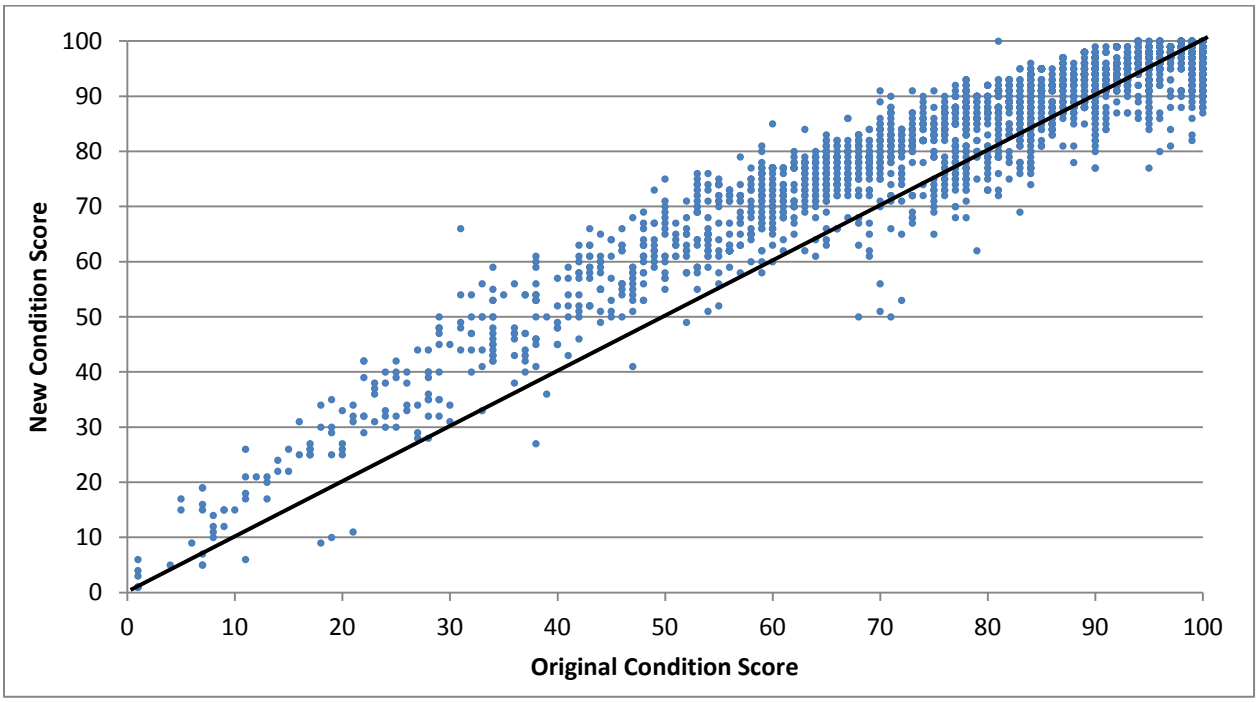


**Figure O6. Comparison of Original and New, Modified Condition Score for the Fort Worth District.**

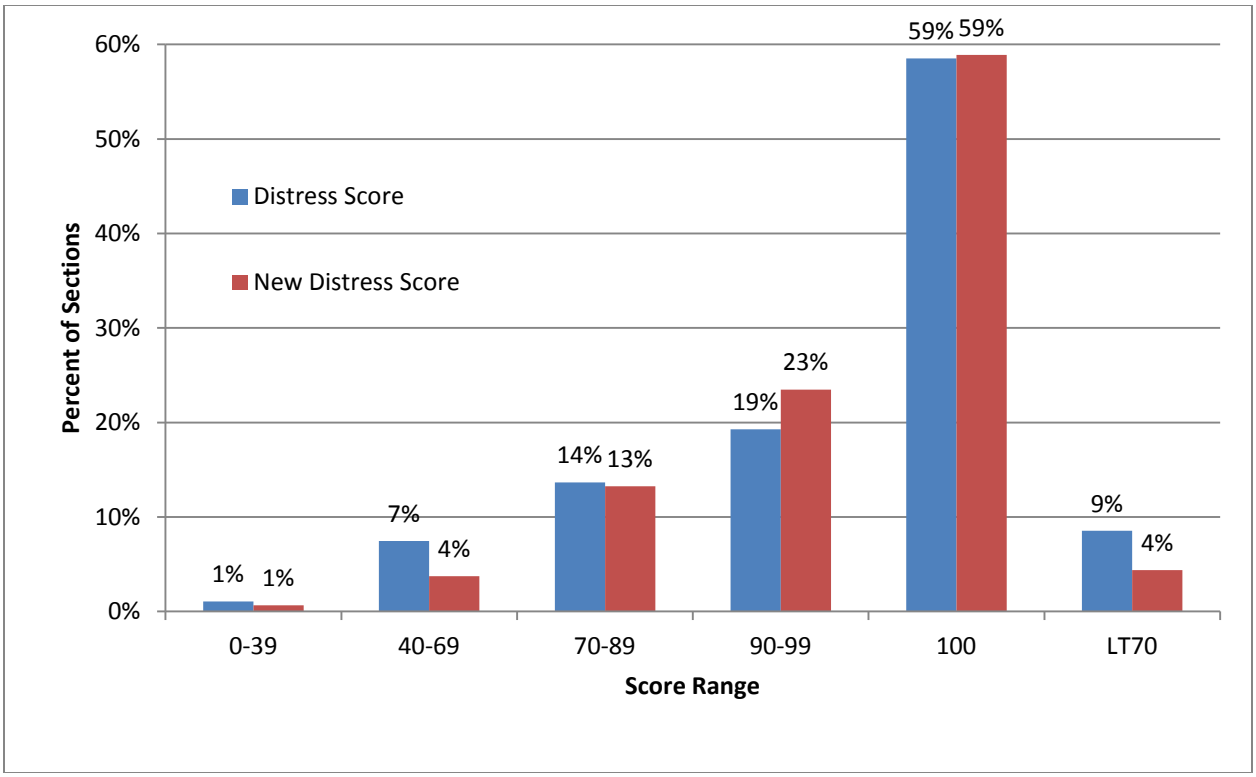


**Figure O7. Percentage of Sections in the Various Distress Score Categories for the Fort Worth District.**

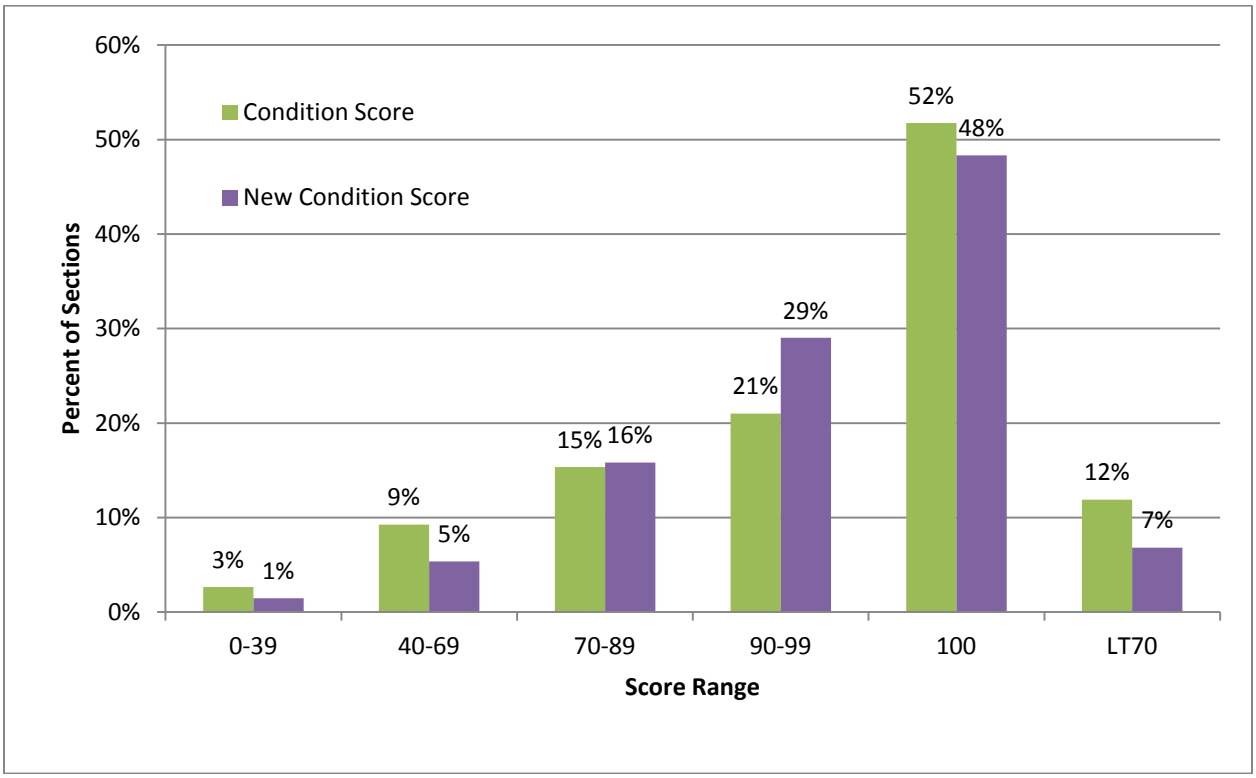


**Figure O8. Percentage of Sections in the Various Condition Score Categories for the Fort Worth District.**

*Childress District*

For the Childress District, the modified methodology had a minor change at the low end, but had a significant effect on the high end for both distress and condition score. Overall, the average distress score increased by 0.3 points and the condition score increased 0.5.

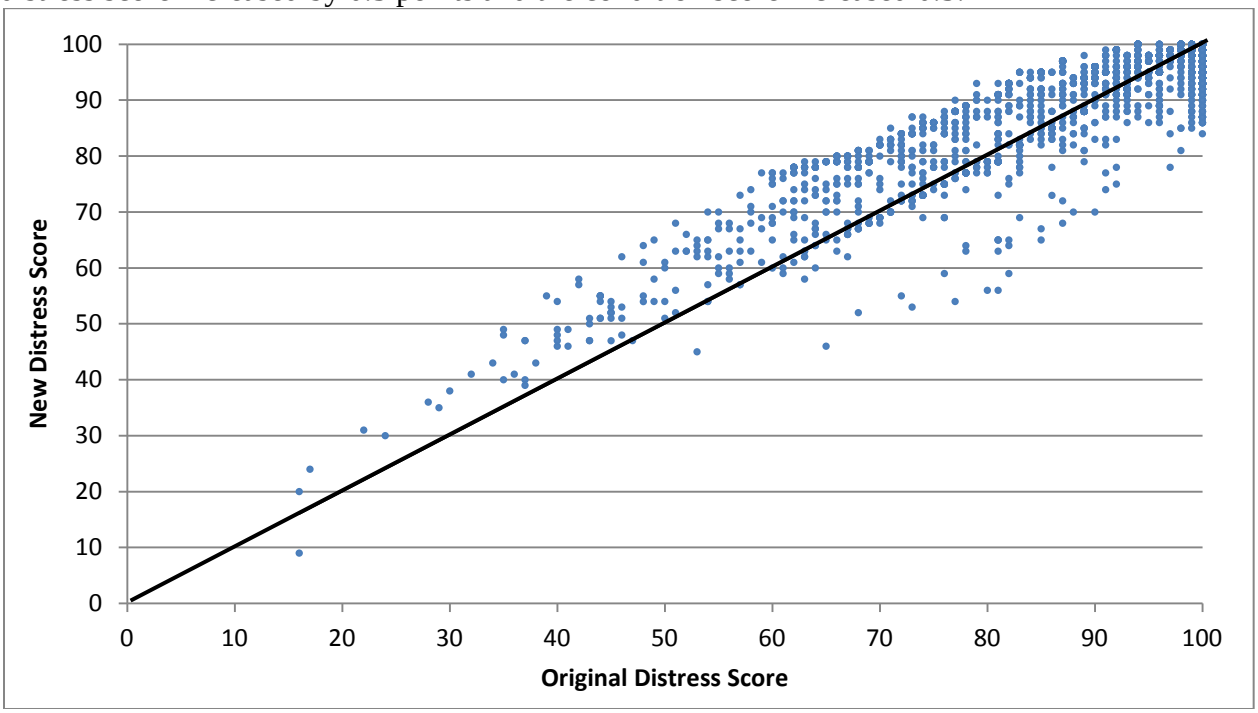


**Figure O9. Comparison of Original and New, Modified Distress Score for the Childress District.**

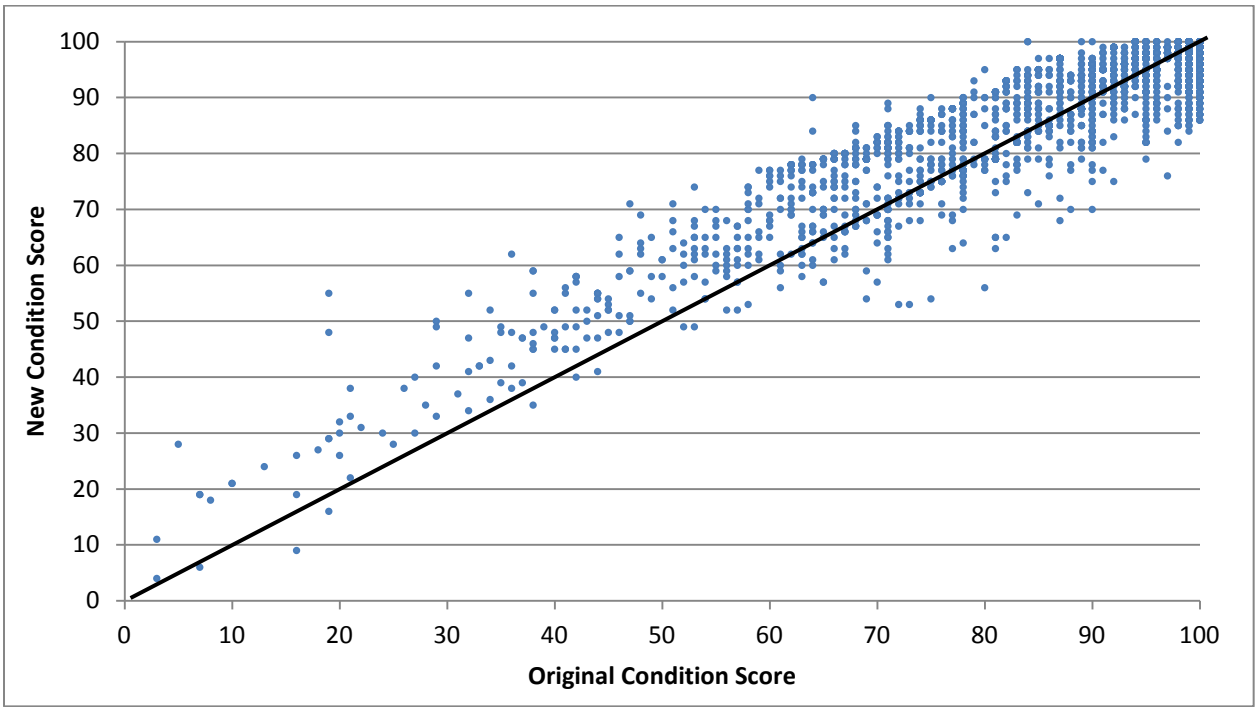


**Figure O10. Comparison of Original and New, Modified Condition Score for the Childress District.**

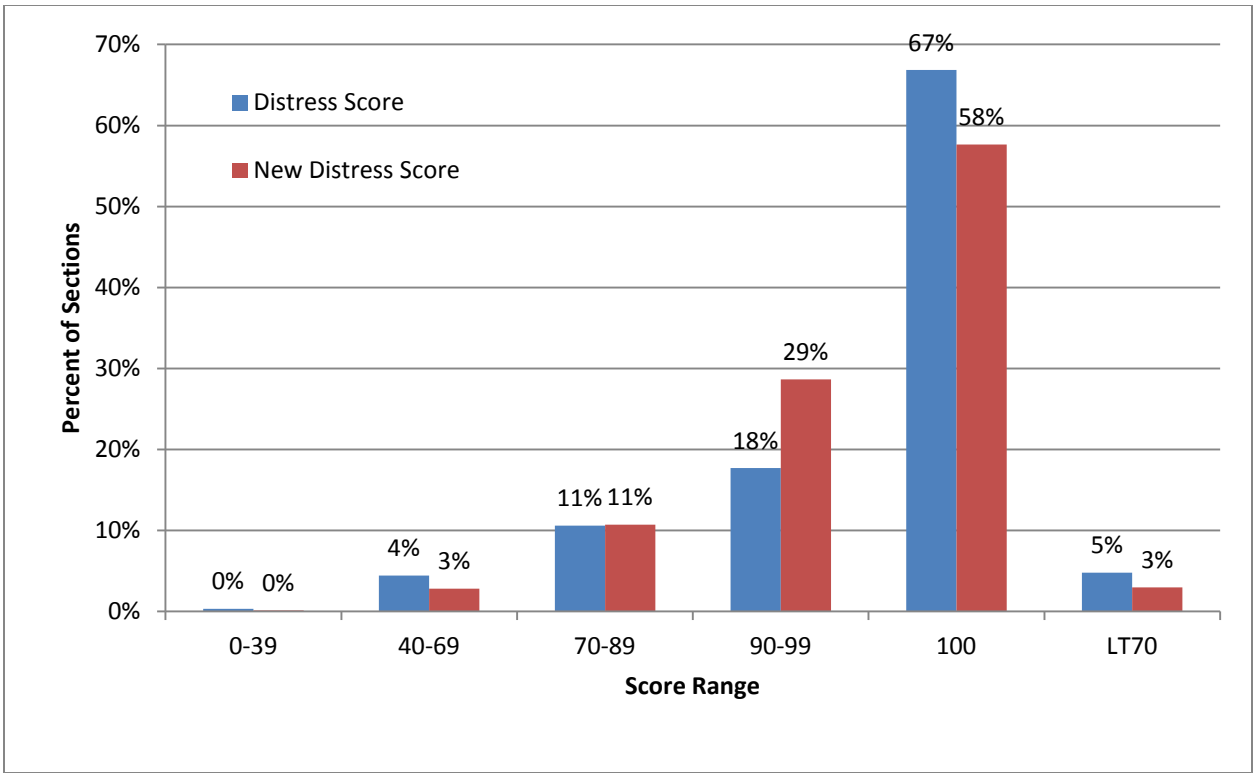


**Figure O11. Percentage of Sections in the Various Distress Score Categories for the Childress District.**

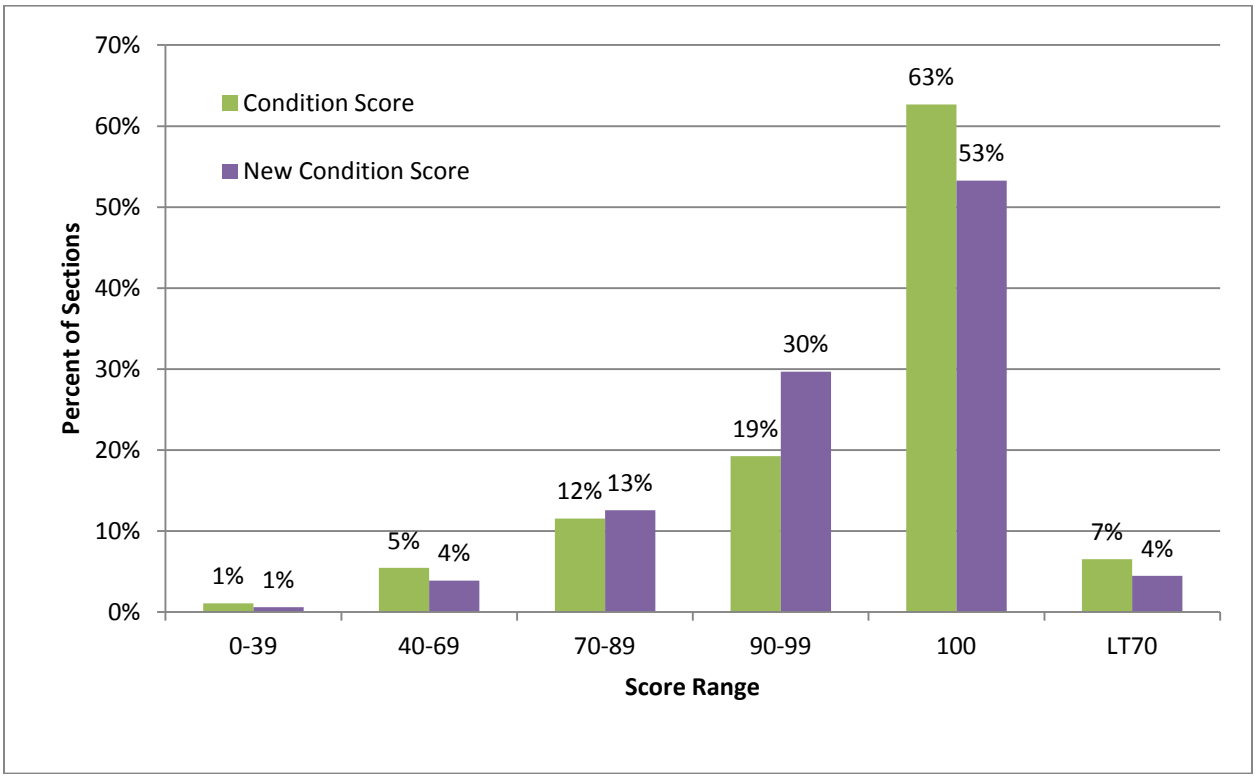


**Figure O12. Percentage of Sections in the Various Condition Score Categories for the Childress District.**

*Amarillo District*

For the Amarillo District, the modified methodology had an effect throughout the ranges. There were fewer low scores, more intermediate scores, and lower percentage of sections with a score of 100. The percentage of sections with a score less than 70 was reduced from 11 to 6 percent for the distress score and from 13 to 9 percent for the condition score. Overall, the average distress score increased by 1.1 points and the condition score increased 0.9.

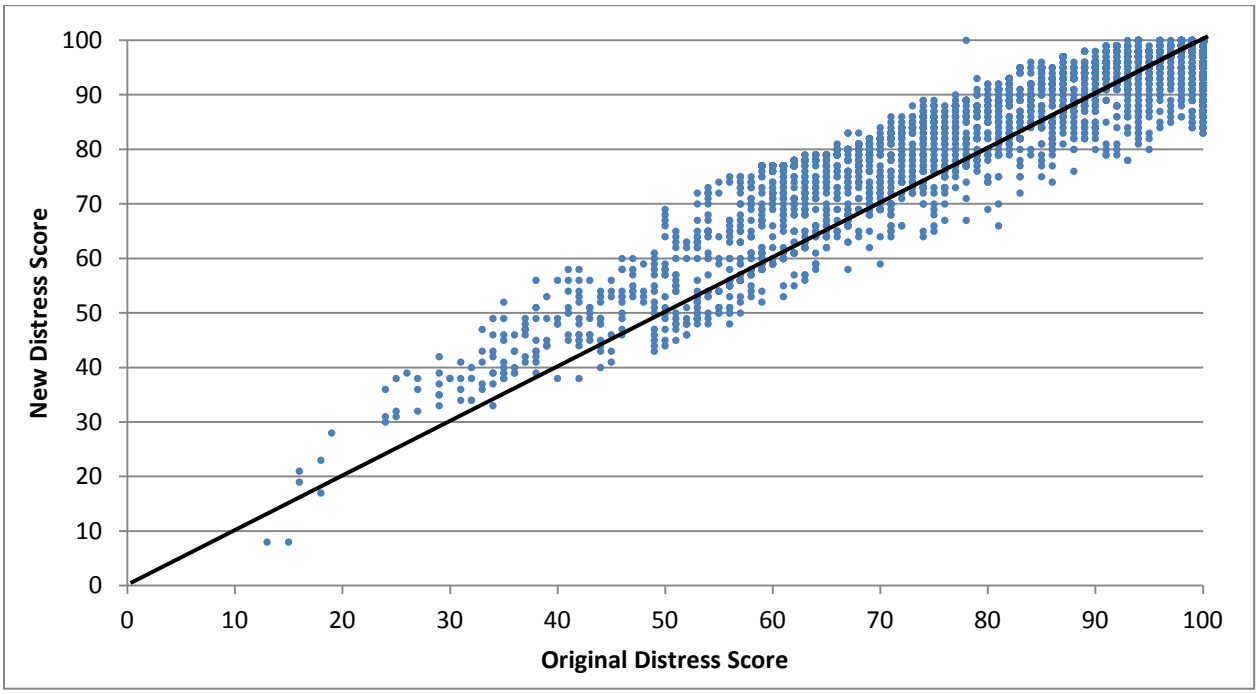


**Figure O13. Comparison of Original and New, Modified Distress Score for the Amarillo District.**

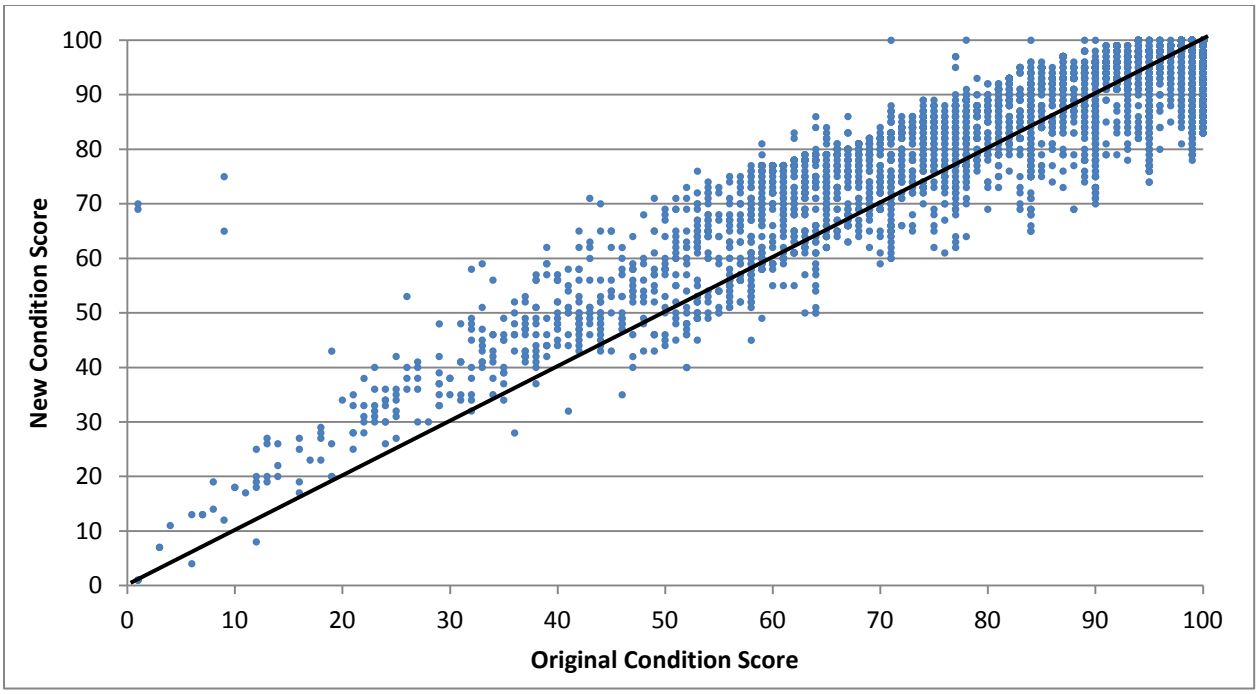


**Figure O14. Comparison of Original and New, Modified Condition Score for the Amarillo District.**

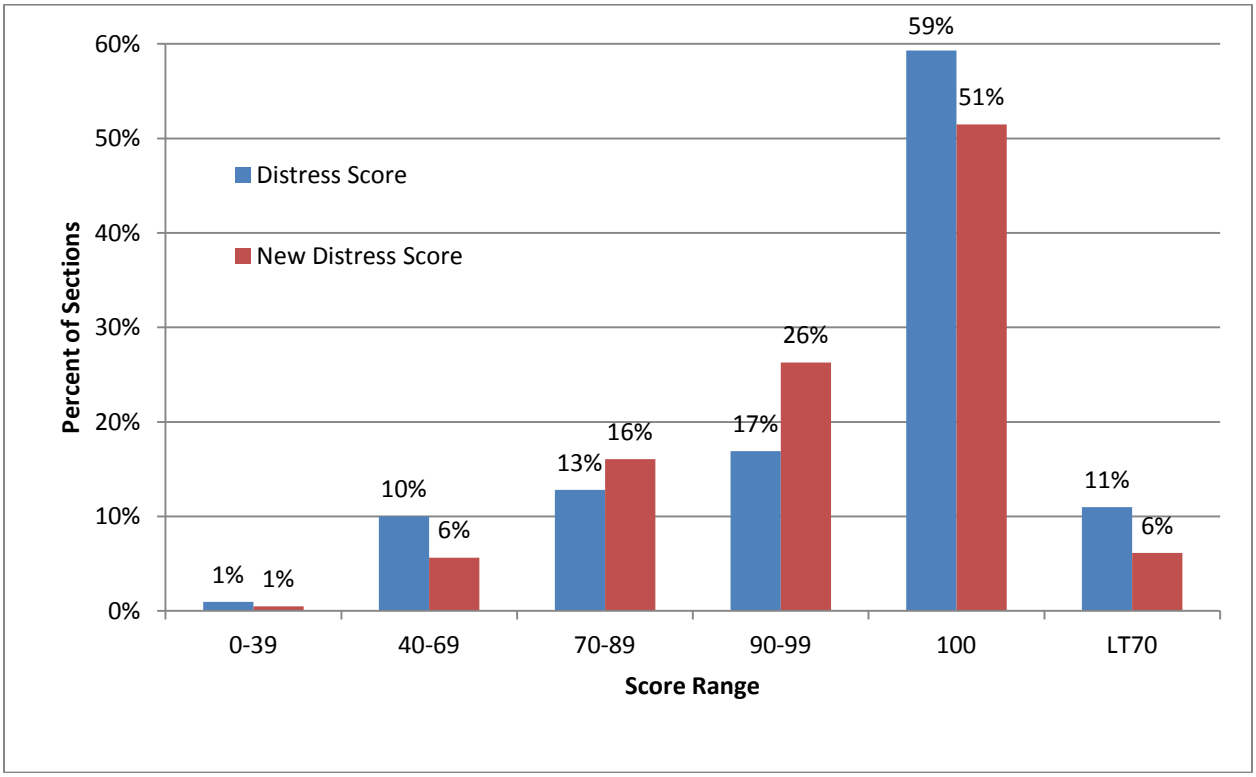


**Figure O15. Percentage of Sections in the Various Distress Score Categories for the Amarillo District.**

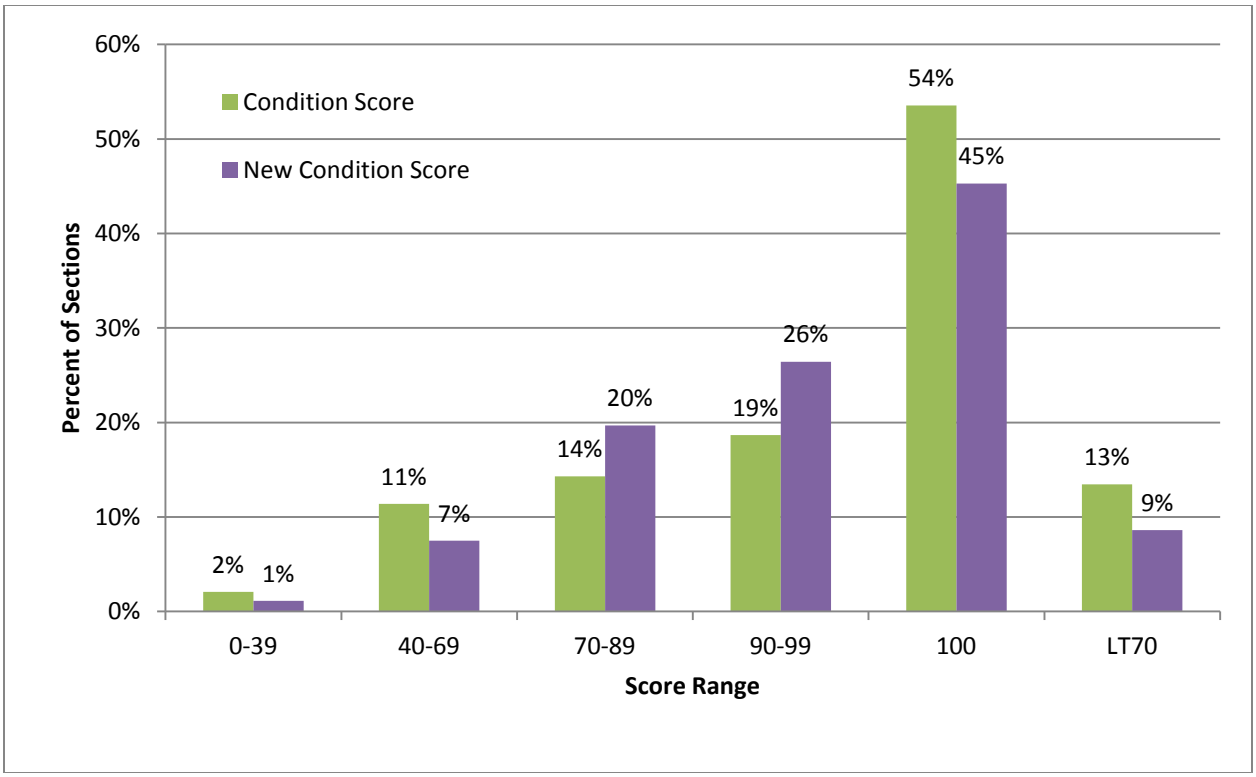


**Figure O16. Percentage of Sections in the Various Condition Score Categories for the Amarillo District.**

*Lubbock District*

For the Lubbock District, the modified methodology tended to increase the values at the low end and the percentage of sections with a distress score less than 70 were cut in half (9 percent to 4 percent). For the condition score, the difference was less dramatic (12 percent to 7 percent). Overall, the average distress score and the condition score increased 1.3 points.

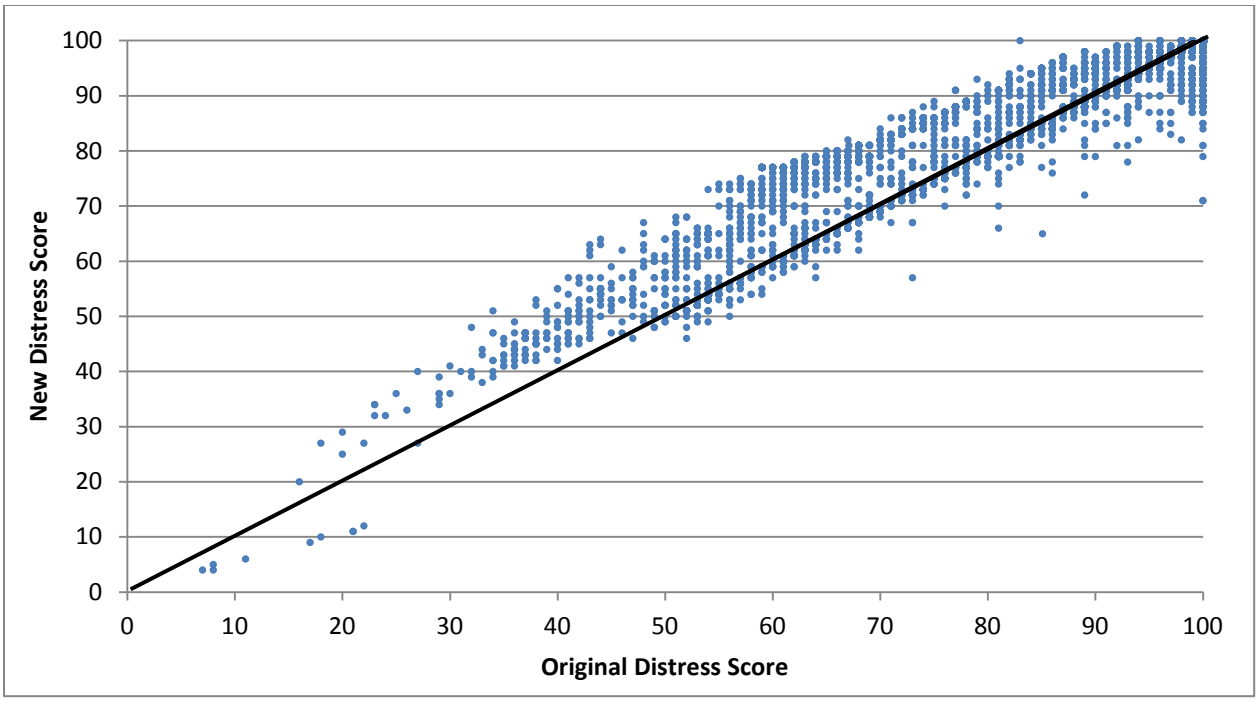


**Figure O17. Comparison of Original and New, Modified Distress Score for the Lubbock District.**

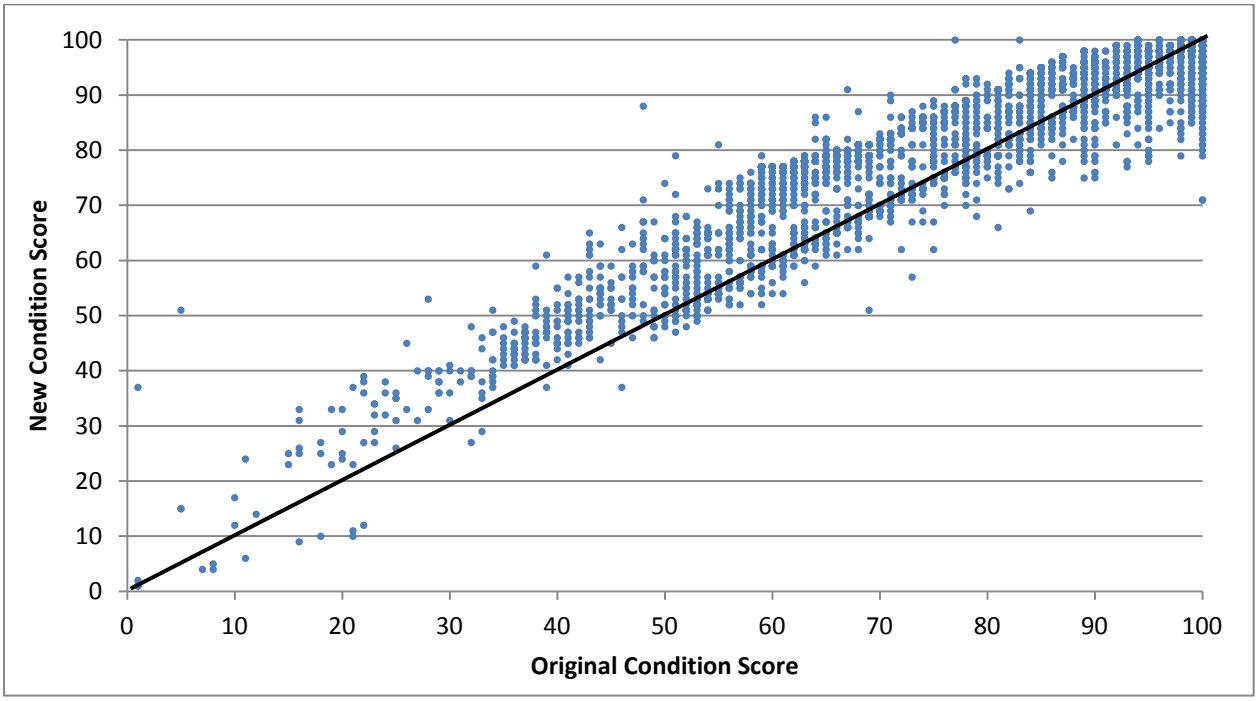


**Figure O18. Comparison of Original and New, Modified Condition Score for the Lubbock District.**

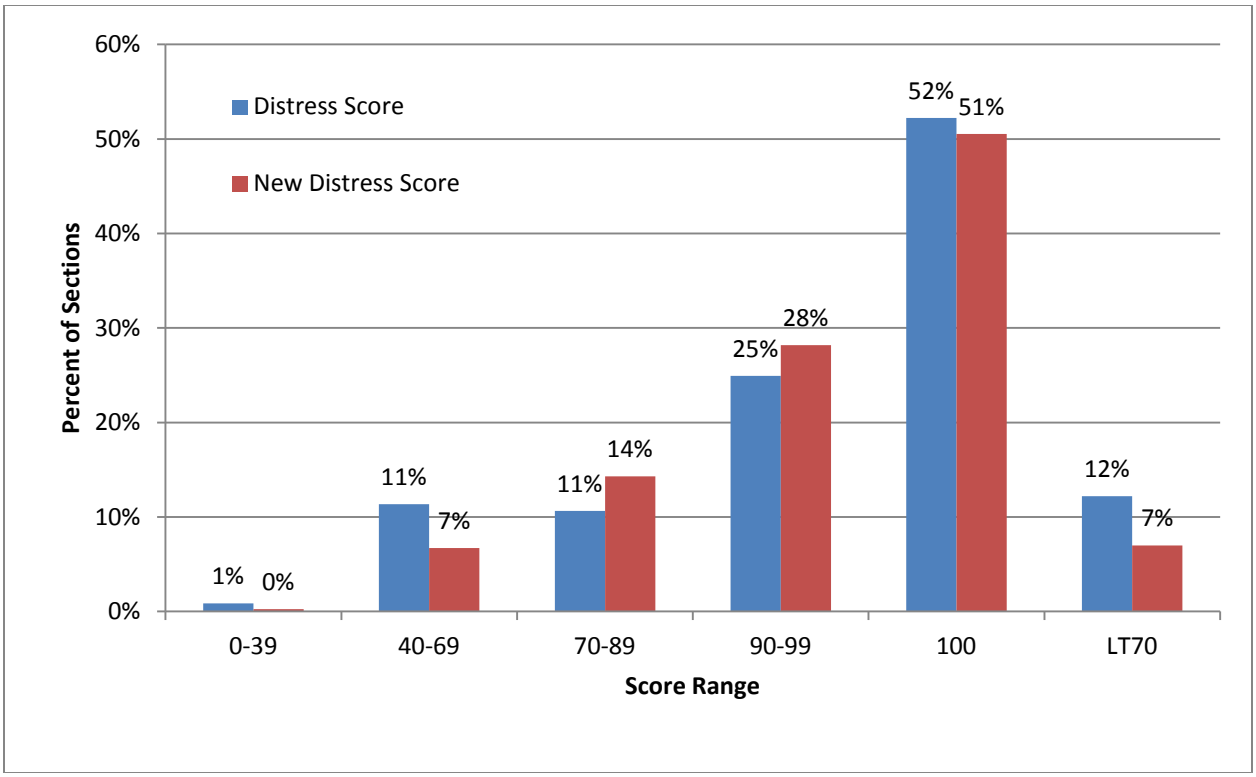


**Figure O19. Percentage of Sections in the Various Distress Score Categories for the Lubbock District.**

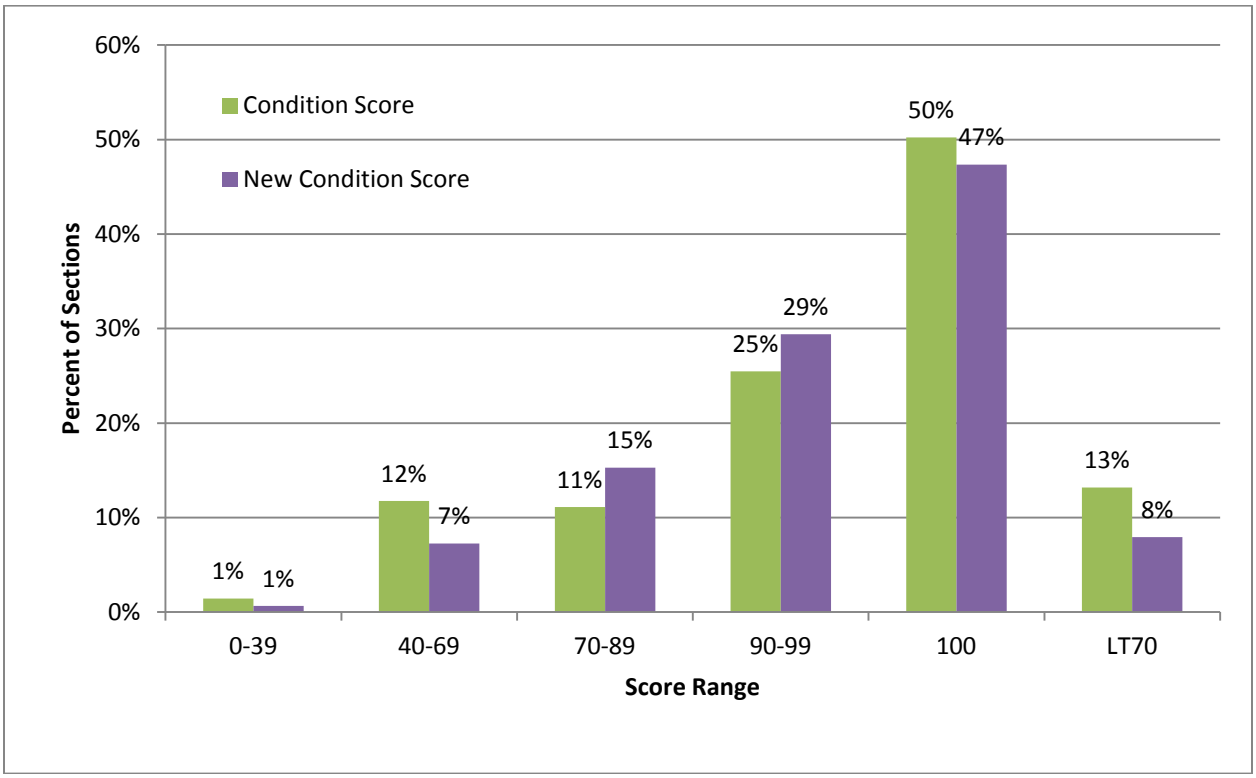


**Figure O20. Percentage of Sections in the Various Condition Score Categories for the Lubbock District.**

*Odessa District*

For the Odessa District, there was really very little change in any of the categories. Overall, the average distress score increased by 0.6 points and the condition score increased 0.9.

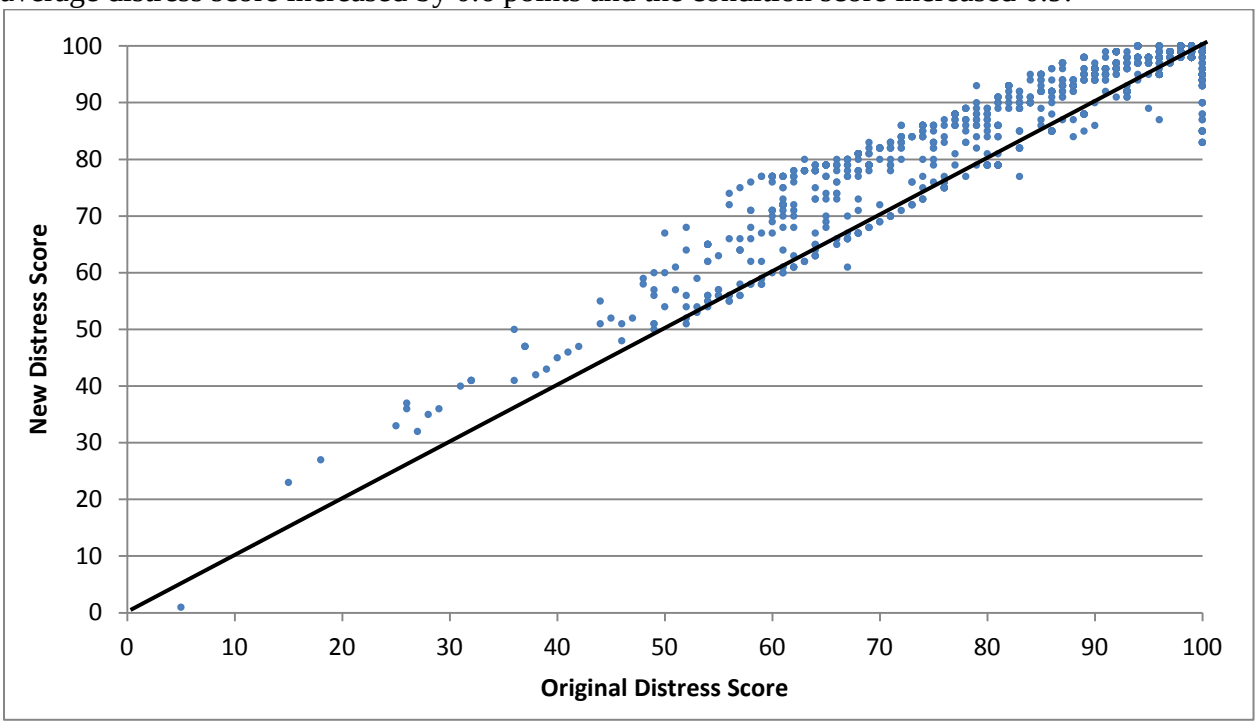


**Figure O21. Comparison of Original and New, Modified Distress Score for the Odessa District.**

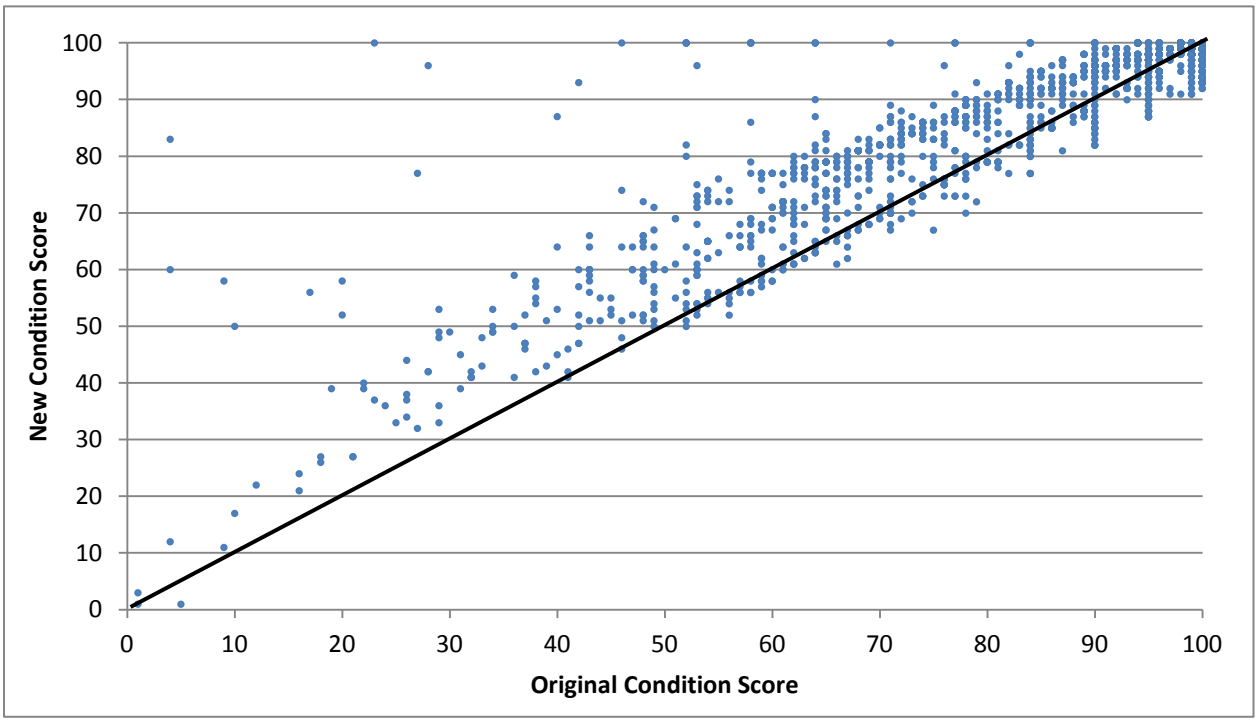


**Figure O22. Comparison of Original and New, Modified Condition Score for the Odessa District.**

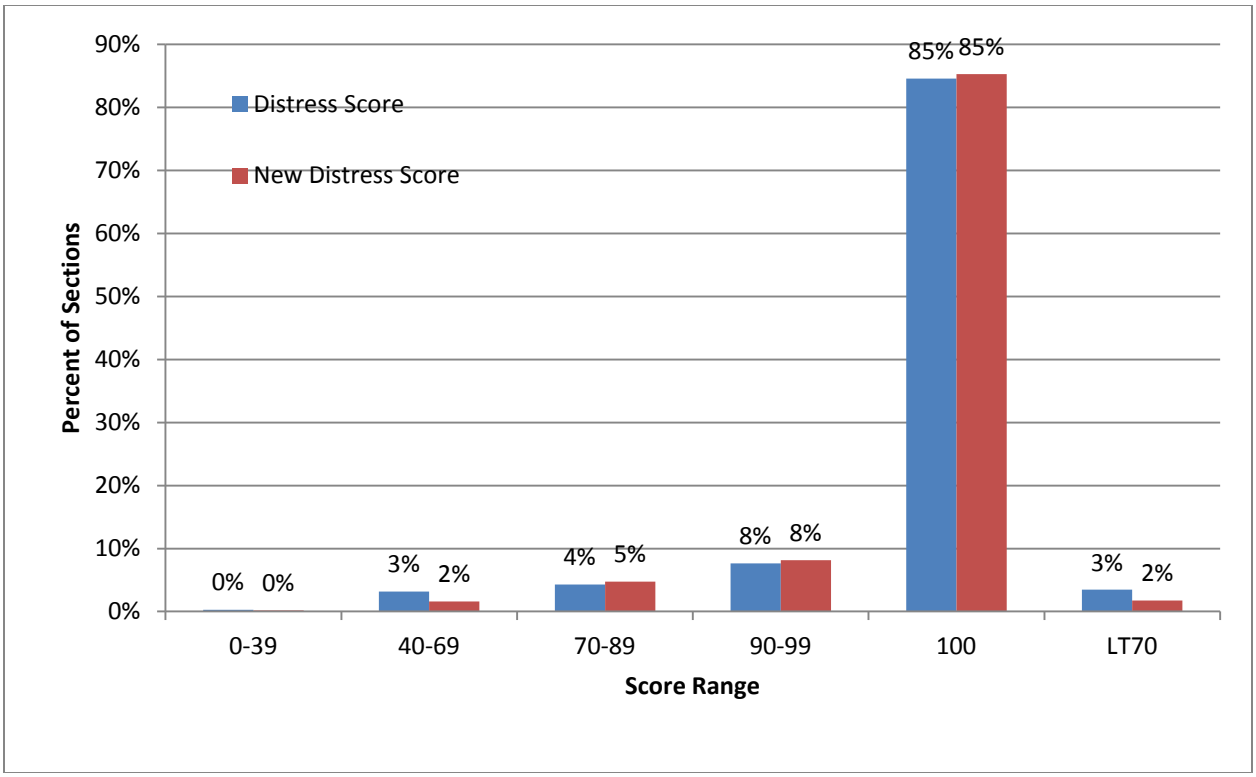


**Figure O23. Percentage of Sections in the Various Distress Score Categories for the Odessa District.**

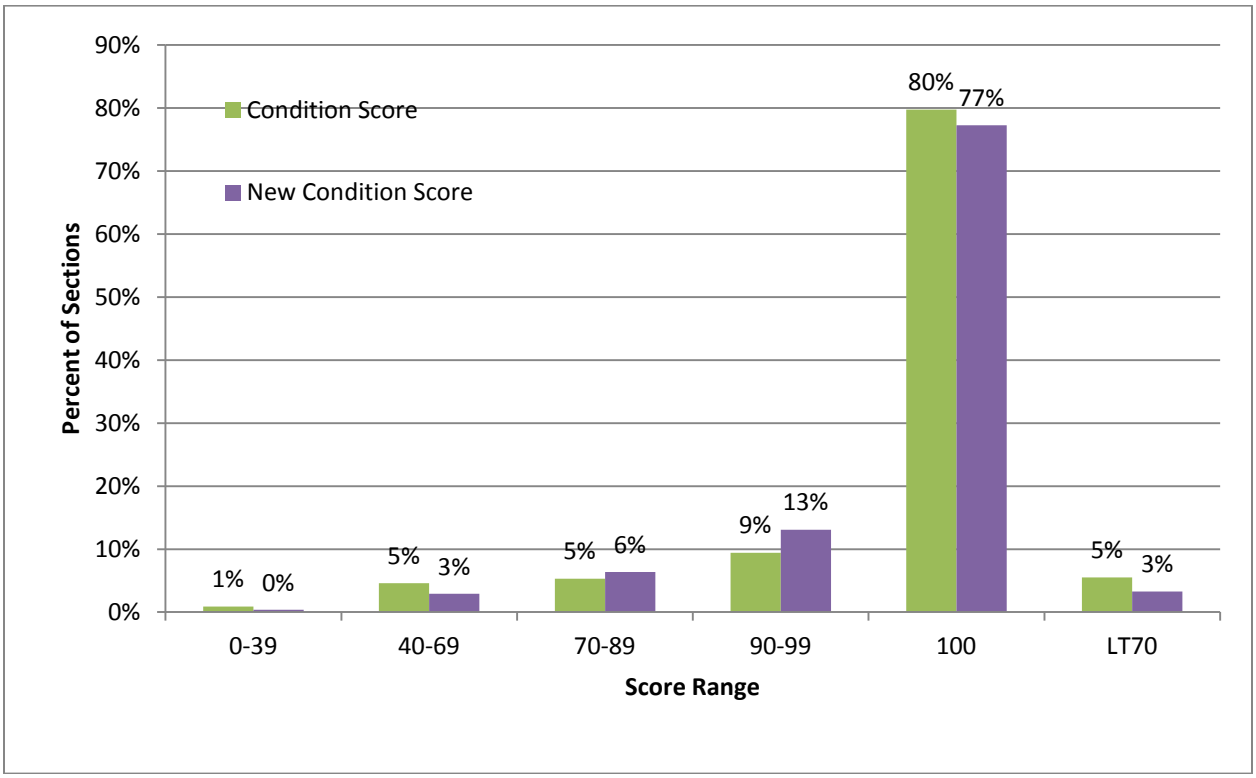


**Figure O24. Percentage of Sections in the Various Condition Score Categories for the Odessa District.**

*San Angelo District*

For the San Angelo District, the modified methodology tended to increase the values at the low end and the percentage of sections with a distress score less than 70 were cut in half (9 percent to 4 percent). For the condition score, the difference was less dramatic (12 percent to 7 percent). Overall, the average distress score increased by 0.9 points and the condition score increased 0.6.

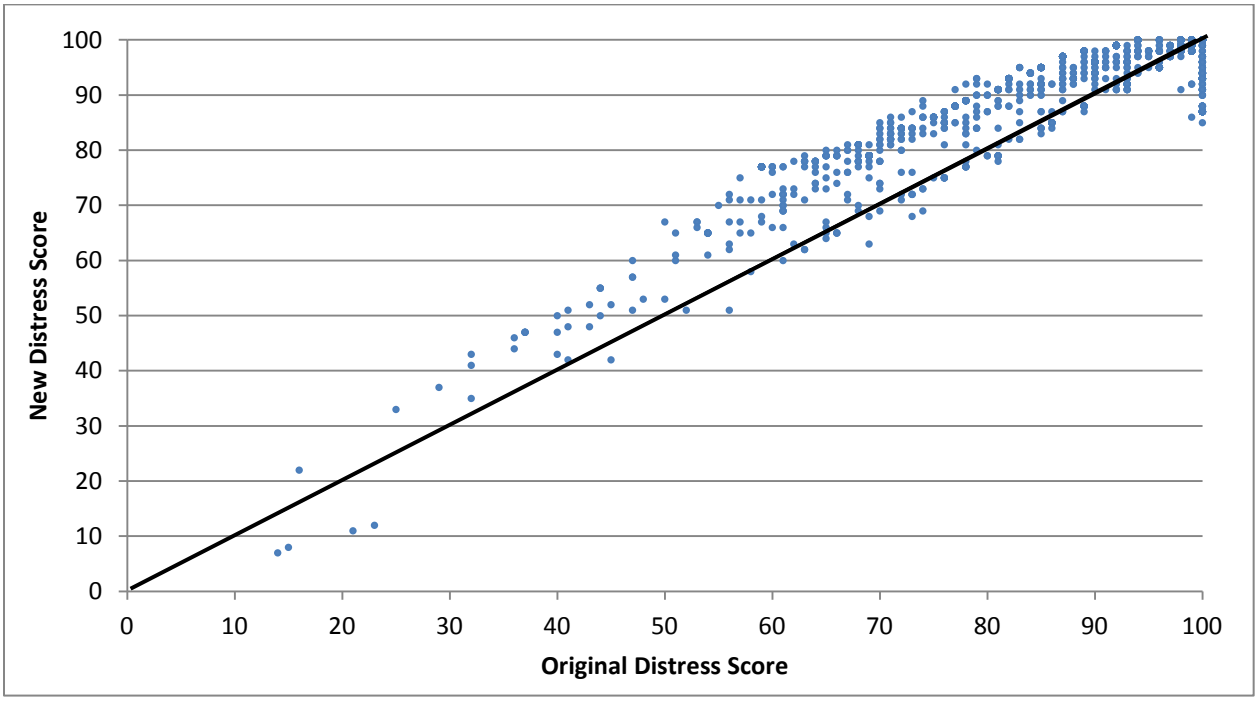


**Figure O25. Comparison of Original and New, Modified Distress Score for the San Angelo District.**

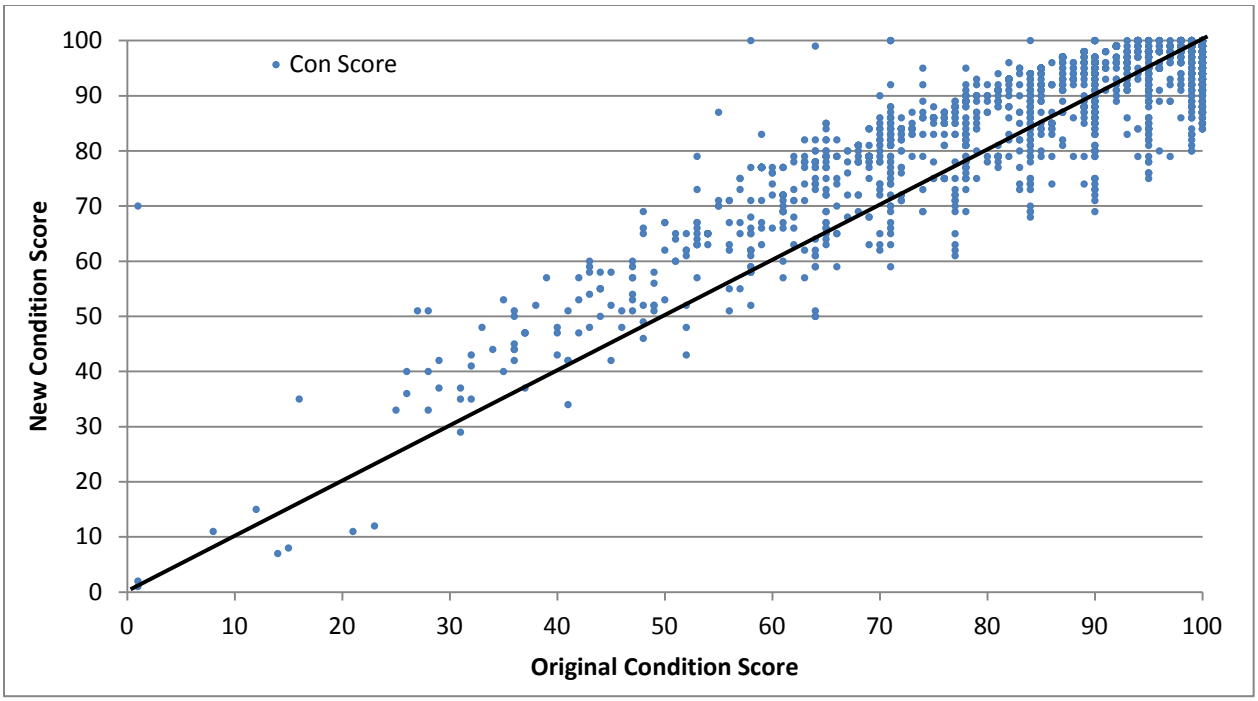


**Figure O26. Comparison of Original and New, Modified Condition Score for the San Angelo District.**

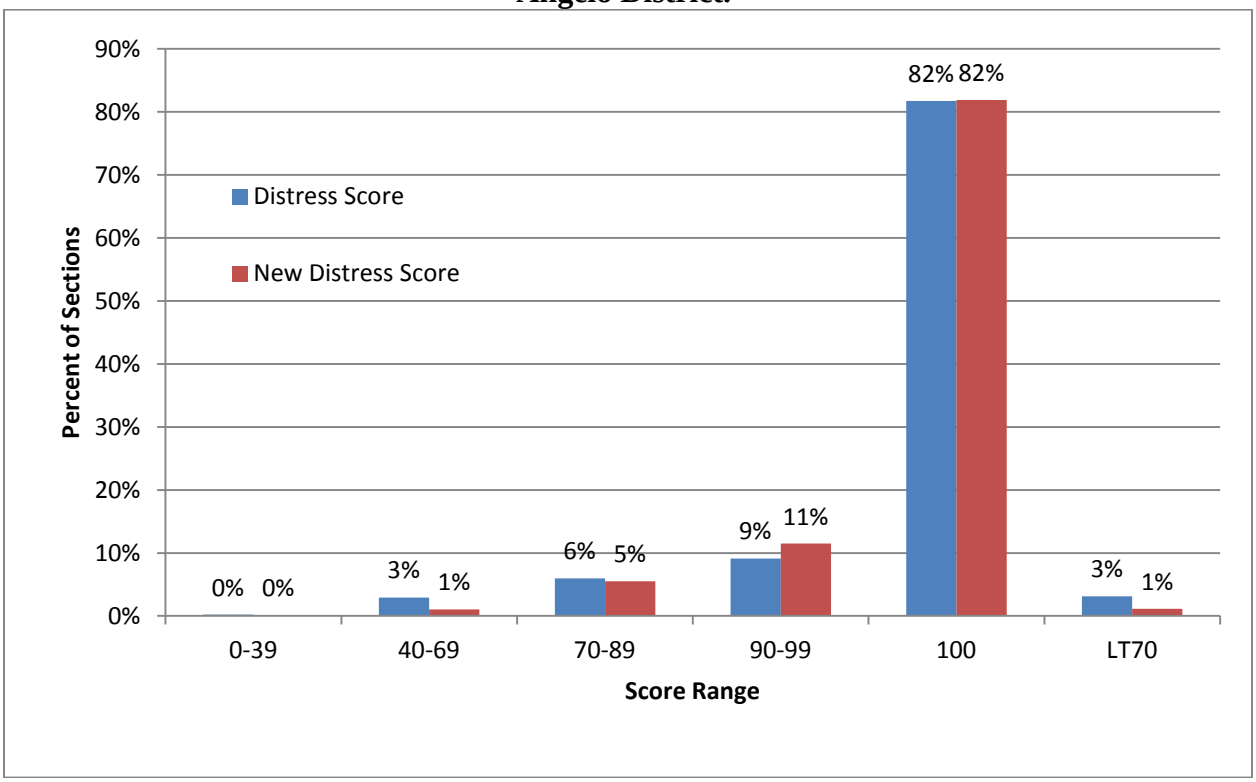


**Figure O27. Percentage of Sections in the Various Distress Score Categories for the San Angelo District.**

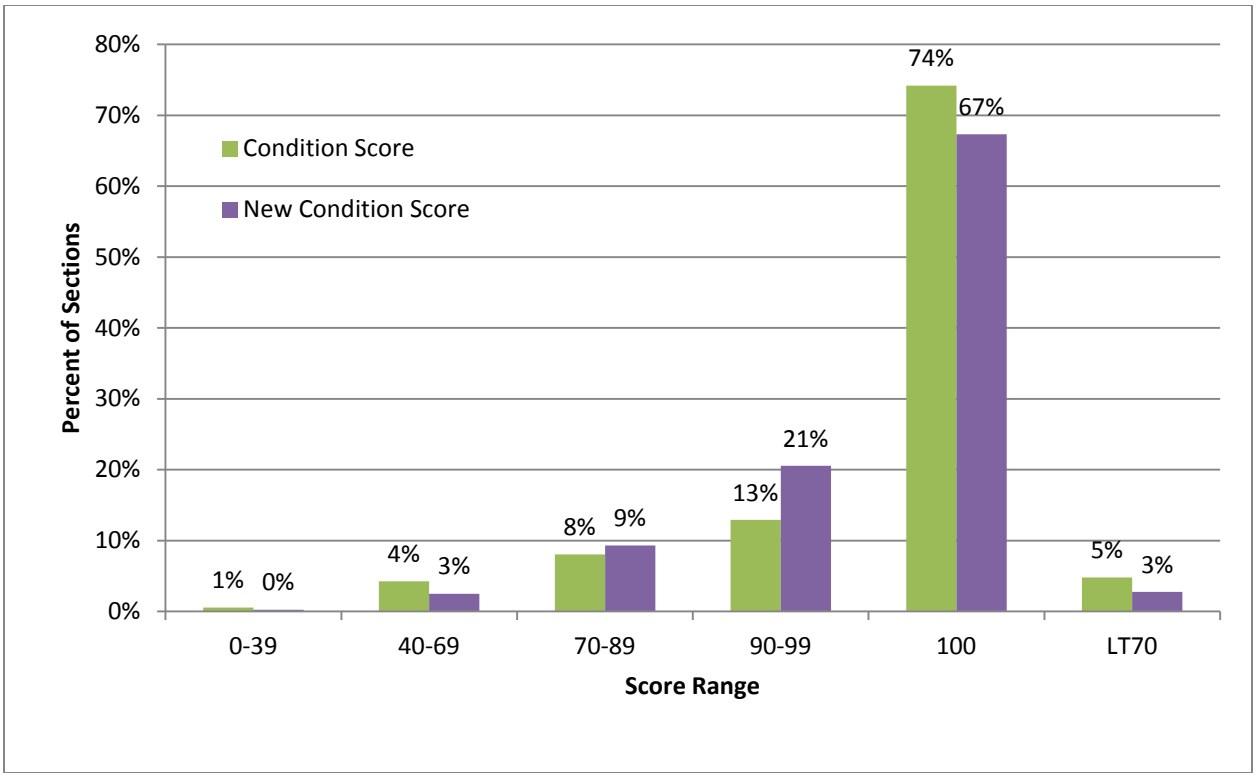


**Figure O28. Percentage of Sections in the Various Condition Score Categories for the San Angelo District.**

*Abilene District*

For the Abilene District, the modified methodology tended to increase the values at the low end and the percentage of sections with a distress score less than 70 were cut in half (9 to 4 percent), as were those of the condition score (11 to 6 percent). Overall, the average distress score and the condition score increased 1.4 points.

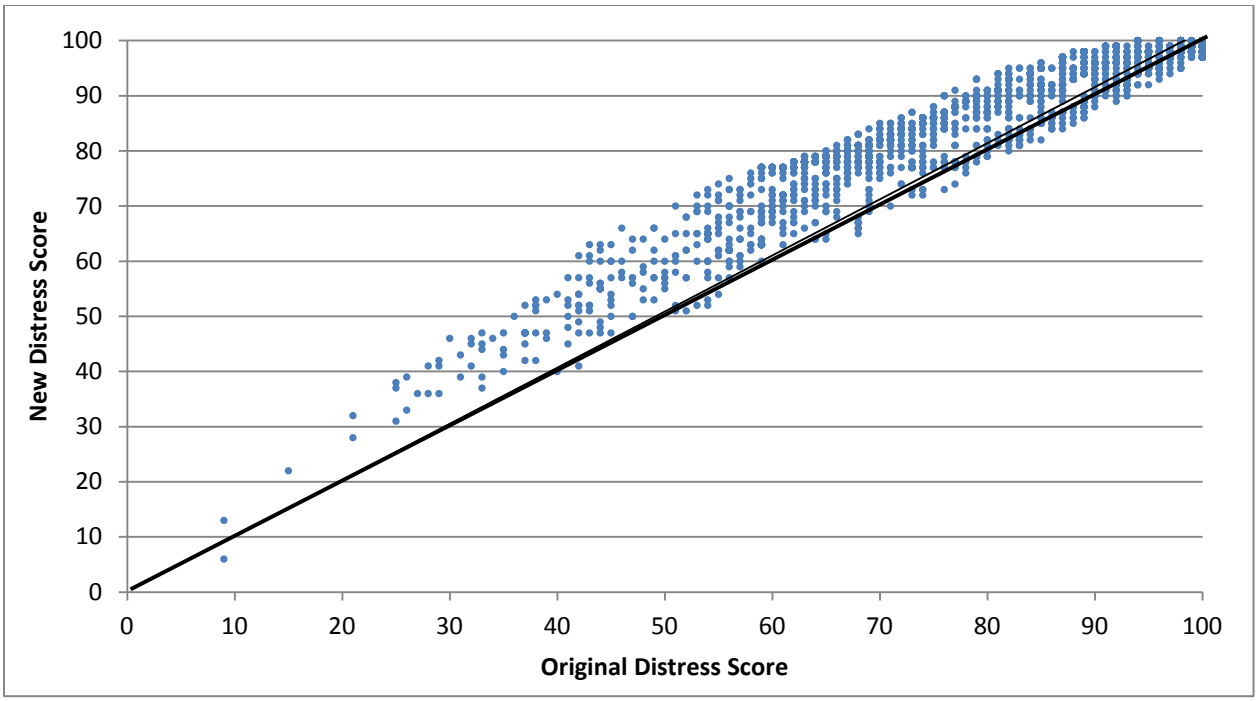


**Figure O29. Comparison of Original and New, Modified Distress Score for the Abilene District.**

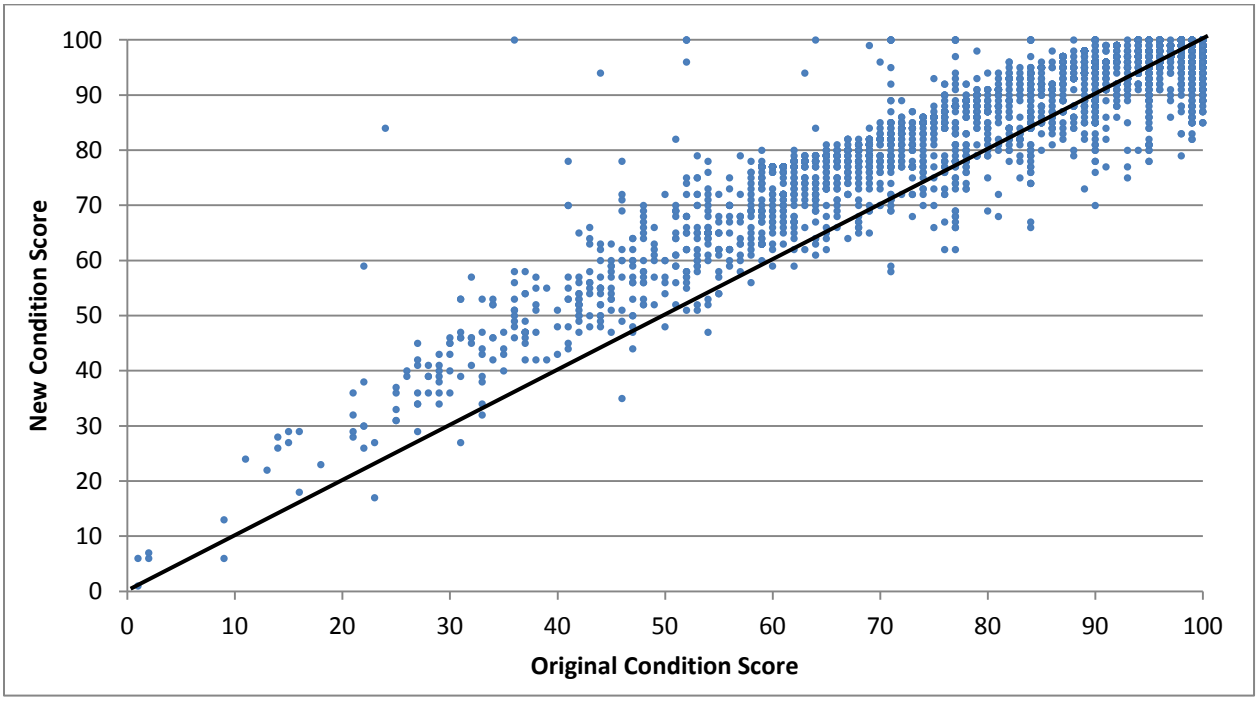


**Figure O30. Comparison of Original and New, Modified Condition Score for the Abilene District.**

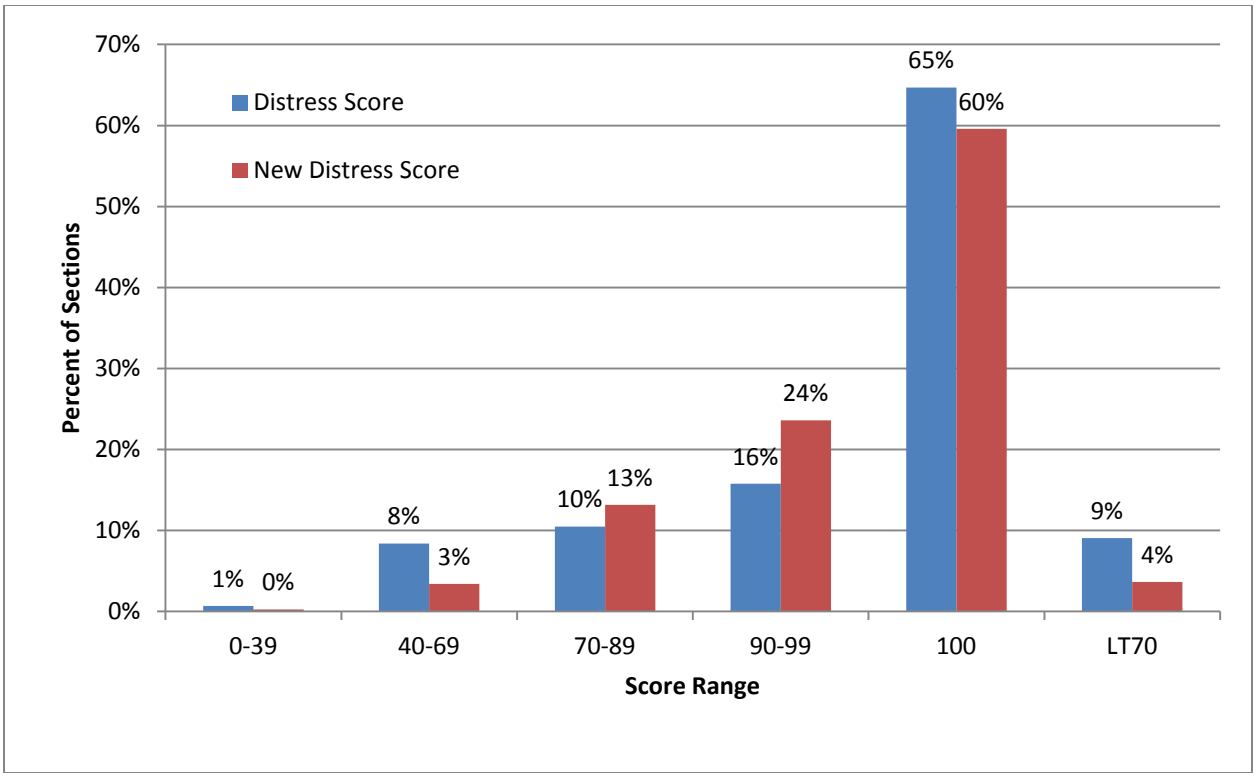


**Figure O31. Percentage of Sections in the Various Distress Score Categories for the Abilene District.**

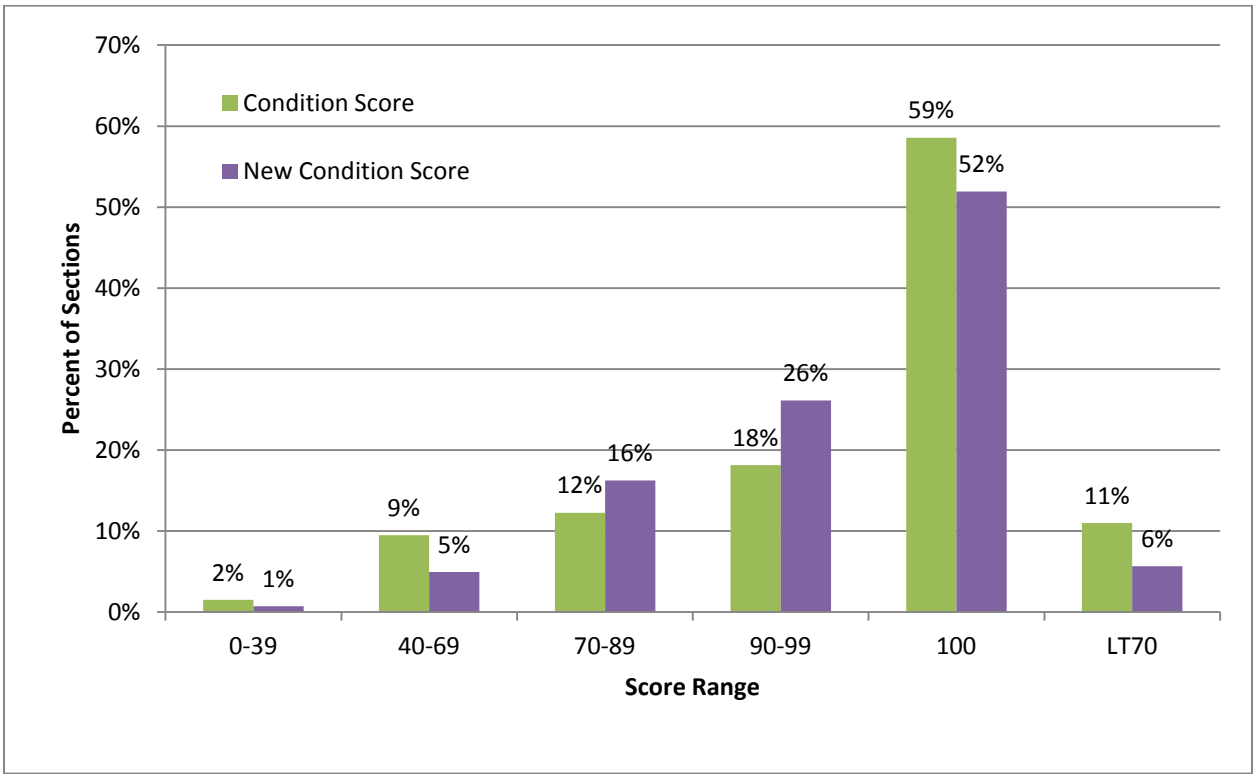


**Figure O32. Percentage of Sections in the Various Condition Score Categories for the Abilene District.**