The primary objective of this research is to use post-SPF development crash data to compare the performance of four calibration methodologies (Tarko, 2006; Sawalha and Sayed 2006; AASHTO, 2010; Mehta and Lou, 2013) applied to a base SPF and to a state-specific SPF. The results of the proposed research will shed interesting light on the relative predictive efficacy of using one of the established calibration techniques versus that of developing a new SPF from state-specific data. In particular, the proposed research intends to compliment the current work being conducted under NCHRP 20-07/Task 332, *User’s Guide to Develop Highway Safety Manual Safety Performance Function Calibration Factors*, by utilizing post-SPF development crash data to test calibration performance. Specific attention will be focused on the case of two-lane rural roads as they were one of the first SPFs to be developed within the HSM framework and have already garnered considerable attention nationwide. In addition, the crash data will be used to test the development of a two-lane rural road SPF developed for the Alabama Department of Transportation (ALDOT). Finally, additional analyses will be conducted for the special case of fatal crashes to test the performance of the state-specific and calibrated predictions for low mean problem.