Different near-wall scalings are reviewed by the use of data from direct numerical simulations (DNS) of attached and separated adverse pressure gradient turbulent boundary layers. The turbulent boundary layer equation is analysed in order to extend the validity of existing wall damping functions to turbulent boundary layers under severe adverse pressure gradients. A proposed near-wall scaling is based on local quantities and the wall distance, which makes it applicable for general computational fluid dynamics (CFD) methods. It was found to have a similar behaviour as the pressure-gradient corrected analytical y^* scaling and avoids the inconsistencies present in the y^+ scaling. The performance of the model is illustrated by model computations using explicit algebraic Reynolds stress models with near-wall damping based on different scalings.