

Culvert performance curves relate the flow through a culvert to the headwater and tailwater elevations. The results of this paper show that for horizontal culverts with square-edge entrances and smooth surfaces the overestimation in the headwater depth can range from 9–45% for headwater depths in the range of 1.5–3 culvert diameters, with lesser overestimations of 7–30% in cases of rounded entrances. These curves are calculated differently by the USGS and Federal Highway Administration (FHWA), leading to the possibility of significant discrepancies in predicted culvert performance under some flow conditions.