

ABRIDGMENT

Pritchett, Harold D., Department of Civil Engineering, Oregon State University, "Application of the Principles of Engineering Economy to the Selection of Highway Culverts," presented at the 45th Annual Meeting of the Highway Research Board, Washington, D. C., January 17-21, 1966. Manuscript copy contains 15 pp. of text, 4 Exhibits, 8 Graphs and 13 references.

Descriptors: Engineering Economy, Highways, Hydrology, Hydraulics, Culverts.

The purpose of this study is to evaluate culvert costs in the long run in terms of first cost, maintenance, and the risk of floods and their associated damages and costs. It is an attempt to use money measures as a basis for determining culvert size and to compare the results with the procedure which is currently being used by the California Division of Highways. The money measures are introduced using the engineering economy approach, a decision-making technique which is used to evaluate proposed investments in money terms.

The method of analysis for the quantity and timing of basin runoff is often questioned. However, a more serious factor which may be questioned is, what is the most economical flood return period which should be used in an analysis for design purposes. Flood return periods are normally expressed in terms of the 10-year flood, 20, 50 etc.

The results of this study indicate that a 10 to 20 year "return period" as determined by using the "Extreme Probability" plotting method, is the most economical period for design, based on the assumptions used in this initial study.