

**HYDROLOGIC/HYDRAULIC ENGINEERING MICROCOMPUTER SOFTWARE
AVAILABLE ON REQUEST FROM THE DEPARTMENT**

PEAK DISCHARGE HYDROLOGY

EPSON - A program that projects design peak flows based on analysis of annual gaged peak flows. Gage records are available on diskettes for most all gaging stations in Va.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

DISCHARGE - A program for estimating the 2, 5, 10, 25, 50, 100 and 500 yr. peak flows using the Daniel G. Anderson Method ("MAGNITUDE AND FREQUENCY OF FLOODS IN NORTHERN VIRGINIA") and the Franklin Snyder Method (A.S.C.E. Journal - Hydraulics Division - October, 1958). One hundred point rainfall curves, in the form of external data files, are supplied with the program for use with the Franklin Snyder Method. Note: This software was recently revised to utilize the Rainfall Precipitation Frequency Data published in NOAA's new ATLAS-14.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

PQTRANS - A program for estimating the peak discharges at an un-gaged location from a nearby gaging station using both the U.S.G.S. and S.C.S. peak discharge transfer formulae.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

REGEQUAT - A program for determining peak discharges using the U.S. Geological Survey's '94 Regional Regression Equations. Program considers natural, rural watersheds but can take the effects of urbanization into account using the Urban Regression Equations.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the EXCEL spreadsheet described below and is no longer available for distribution or support.

REGRESSION EQUATIONS - A Microsoft EXCEL spreadsheet for calculating peak discharges using the USGS' regional regression equations as presented in the publication "Methods for Estimating the Magnitude and Frequency of Peak Discharges of Rural, Unregulated Streams in Virginia" (Bisese, 1995). The effects of urbanization can be taken into account via the included USGS Urban Regression Equations – both 3 and 7-parameter variants.

Computer requirements – WINDOWS-based. Microsoft's EXCEL spreadsheet software is required. A printer is not required but is desirable.

SNYDER – A Microsoft EXCEL spreadsheet for calculating peak discharges using the Franklin F. Snyder method (ASCE Journal of the Hydraulics Division, October, 1958). Rainfall data is predicated on VDOT-derived "B, D, & E" factors from NOAA's "ATLAS-14" rainfall data. An

EXCEL spreadsheet containing the “B, D, & E” factors for all Virginia counties and most larger cities from the Department upon request.

Computer requirements – WINDOWS-based. Microsoft’s EXCEL spreadsheet software is required. A printer is not required but is desirable.

VIRTOC - A program for determining peak discharges using the Rational Formula. Program has several options for calculating both overland and channel flow time. Sixteen regional IDF curves are built into the program. It has both English and SI metric unit capabilities. Note: This software was recently revised to utilize the Rainfall Precipitation Frequency Data published in NOAA’s new ATLAS-14.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

OPEN CHANNEL FLOW

RDDITCH - A program for use in determining depth and velocity for the 2-yr. and 10-yr. peak flows in roadside and median ditches. Flow characteristics are calculated for Manning's "n" values of 0.03, 0.05 and 0.015. The program comes with eighteen regional "IDF" curves that should provide coverage for the entire state. Note: This software was recently revised to utilize the Rainfall Precipitation Frequency Data published in NOAA’s new ATLAS-14.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

RIPRAP - A program for designing rip rap slope protection in accordance with the FHWA's "HEC-11" publication. It considers channel side slopes, bottoms, and slope stability by tractive force procedures and rip rap slope protection for wave action.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

TRAPCHAN - A program for determining normal/critical depth, normal/critical velocity, and rate of flow in a triangular or trapezoidal channel. This program utilizes SI metric units exclusively.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

PIPE FLOW/CULVERT HYDRAULICS

PFLOW - A program for determining normal depth, discharge, and velocity in circular pipes. Both English and SI metric versions are available.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

BRIDGE HYDRAULICS

BRRIPRAP - A program that calculates the size of riprap necessary to protect bridge abutments based on the FHWA's "HEC-18" publication (as revised 4/93). There are actually two programs: an English units version and an SI metric units version (BRRPRP-M).

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

HYDROGRAPH/FLOOD ROUTING

RESROUT - A program which flood routes an input inflow hydrograph using the storage-indicator method.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program is available as the WINDOWS application "RESERVOIR ROUTING" which is a module of the FHWA's "VISUAL URBAN" software suite and has therefore been discontinued and is no longer available for distribution or support.

CRITSTRM - Actually "Critical Storm Duration", the program will determine the ordinates of a hydrograph for the storm even that will produce the largest volume of water for a given frequency using the Rational Formula as a basis for the calculation.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program has been replaced by the new web-based WINDOWS application and is no longer available for distribution or support.

BASIN - Actually "Detention Basin Design", the program will give volume & surface area for a regular, prismatic or irregular basin.

Computer requirements - Developed for MS-DOS but will run under WINDOWS. A printer is not required but is desirable.

Note: This program is available as the WINDOWS application "STORAGE VOLUMES" which is a module of the FHWA's "VISUAL URBAN" software suite and has therefore been discontinued and is no longer available for distribution or support.

MISCELLANEOUS

PROJFLOTATION - Determines hydrostatic uplift forces at the entrance of culvert pipes and the counterweight requirements necessary to offset such forces. Computer requirements - WINDOWS based. A printer is not required but is desirable. Note: there are three installation implementations

available, one each of WINDOWS-95, NT (4.0), and 2000. Anyone requesting a copy of this program needs to specify the implementation for one of those operating systems.