

Part 530 – Hydrology

Subpart B – Hydrologic Procedures and Criteria

MN530.11 Hydrology Procedures

- (4) Type II rainfall distribution will be used for all hydrology calculations in Minnesota.

The time of concentration (T_c) may be determined by the method in Engineering Field Handbook, Chapter 2 (EFH2) or by methods in Chapter 15 of NEH Part 630 – Hydrology. Use of the Folmar and Miller equation is strongly recommended, especially for small watersheds which will use EFH2 to calculate the peak discharge. The Folmar & Miller equation for T_c is limited to rural watersheds.

Do not use the Folmar and Miller equation for time of concentration for the following situations:

1. Watersheds that are 30 acres or less in size.
2. Watersheds along the North Shore area.
3. Urban and urbanizing watersheds or watersheds with 10 percent or more urban land use.

Watersheds exceeding 1500 acres in size must be broken into appropriate subareas and modeled in software such as Win TR-55, Win TR-20, and HEC-HMS. For watersheds less than 1500 acres, modeling is optional but encouraged where storage exists behind roads or in natural or constructed depressions.

Non-contributing portions of a watershed may be removed from the total drainage area where appropriate. A clear explanation must be given in project documentation for why the area is non-contributing.

Watersheds with potential storage locations will be modeled using such programs as WinTR-55, WinTR-20, and HEC-HMS. Generally if at least 10 percent of the runoff volume has the potential to be impacted by storage in the watershed, the watershed should be modeled to determine peak discharge. Storage can be ignored, but will most likely result in a more conservative design discharge.