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Executive Office of Energy & Environmental Affairs

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MassDEP to Review Recent Studies on Precipitation Rates in Massachusetts

The Massachusetts Department of Environmental Protection (MassDEP) is currently evaluating the new precipitation frequency statistics published September 2015 online in the [National Oceanic and Atmospheric Administration \(NOAA\) Atlas 14](#). The existing precipitation frequency statistics referenced in the Wetland regulations, the [Hydrology Handbook for Conservation Commissioners](#), and the [Massachusetts Stormwater Handbook](#) are based on Technical Paper 40 (TP40), published by the U.S. Weather Bureau in 1961. In addition to the new NOAA study, MassDEP is also evaluating the precipitation frequency statistics prepared by the [Northeast Regional Climate Center](#) (NRCC) at Cornell University published online in 2008, relative to the currently used TP40 methodology.

Precipitation frequency statistics are used in calculating stormwater peak runoff rates in order to reduce likelihood of flooding from land development and to measure the extent of vernal pools and bordering lands subject to flooding in the absence of information from the Federal Emergency Management Agency (FEMA). The precipitation frequency statistics are also used to determine the extent of the 10-year floodplain significant to wildlife habitat and the extent of isolated lands subject to flooding.

In order to update the wetland regulations and incorporate the findings of these most recent studies, a regulation amendment is needed to the Wetland regulations at 310 CMR 10.57. Concurrently, revisions will also be needed to the Hydrology and Stormwater Handbooks which incorporate either the NOAA or NRCC atlases in place of TP40. Preliminary MassDEP review indicates that in some cases both NOAA and NRCC have lower precipitation than TP40, while in other cases, greater precipitation rates are expected. MassDEP is considering the need for an Advisory Committee to review and compare each of the three studies. Following completion of the preliminary analysis, proposed regulatory amendments will be undertaken consistent with Massachusetts Executive Order 562 (<http://www.mass.gov/governor/legislationexecorder/execorders/executive-order-no-562.html>).

In the interim, TP 40 values should continue to be used for calculating stormwater peak runoff rates unless an applicant voluntarily chooses to use the NOAA or NRCC Atlases and the selected methodology has a higher precipitation value than that of TP40 for the geographic location being evaluated.