1.12 Floodplains

A "floodplain" is the lowland adjacent to a river, lake or ocean. Floodplains are designated by the frequency of the flood that is large enough to cover them. For example, the 10-year floodplain will be covered by the 10-year flood, and the 100-year floodplain will be covered by the 100-year flood.

Flood frequencies, such as the "100-year flood," are determined by plotting a graph of the size of all known floods for an area and determining how often floods of a particular size occur. In the absence of sufficient stream flow gage data, flood flows are computed based on watrershed characteristics and rainfall data. Another way of expressing the flood frequency is the chance of occurrence in a given year, which is the percentage of the probability of flooding each year. For example, the 100-year flood has a 1% chance of occurring in any given year.

Development within the floodplain, including flood control facilities, can alter the natural floodplain. Reservoirs, lakes, ponds, wetlands and the overbank areas adjacent to a stream or river tend to store water during flood events, with later slower release as the river level subsides. This storage of floodwaters provides a detention benefit and reduces the peak flow proceeding downstream. Filling of floodplains, or reduction in floodplain volume by construction of levees, reduces the amount of storage volume available during a flood, and results in increased peak flows downstream. Well-vegetated floodplains provide additional benefits of serving as a buffer along a stream, providing shade to help maintain cooler water temperatures, and reducing NPS loading to the waterway. Floodplain areas are partially protected under NJAC regulations, which prohibit more than 20% net fill of the flood storage volume on a site and require zero net fill in areas tributary to the Upper Passaic River.

The Passaic River Basin, including areas in WMA 6 and downstream, is at risk of frequent flooding due to its topography and heavy development within the floodplain. The flood of record for the Passaic Basin is the flood of October 1903. More recent severe floods occurred in WMA 6 in September 1999, October 1996, May 1989, April 1984, January 1979, and August 1971. The severity of each flood varied with location in the watershed. Plate 1.12.1 shows floodplains within Watershed Management Area 6. The Great Swamp, Great Piece Meadows and Troy Meadows provide large floodplain areas. There are wide floodplains along the lower reaches of the Dead River and the reach of the Passaic River below the confluence with the Dead River; along the lower reaches of the Whippany and Rockaway Rivers, and along the Rockaway River from Denville through Dover.

The Federal Emergency Management Agency (FEMA) website provides access to flood maps developed under the Flood Insurance Program (www.FEMA.gov/ then follow the links through the “FEMA Flood Map Store”). More detailed flood delineation maps may be obtained from NJDEP.