

June 2010 NJDEP Flood Update – Delaware River

The following represents a summary of the status of some of the initiatives of the Report on Delaware River Flood Mitigation undertaken by the NJDEP.

1. Updated Flood Hazard Area Control Act Rule

On November 5, 2007, the NJ Department of Environmental Protection adopted new Flood Hazard Area Control Act rules (N.J.A.C. 7:13), which incorporate more stringent standards for development in flood hazard areas and riparian zones adjacent to surface waters throughout the State. The Department has adopted these new rules in order to better protect the public from the hazards of flooding, preserve the quality of surface waters, and protect the wildlife and vegetation that exist within and depend upon such areas for sustenance and habitat.

In order to minimize the impacts of development on flooding, a 0% net-fill requirement (which was previously implemented only in the Highlands Preservation Area and Central Passaic Basin) will now apply to all non-tidal flood hazard areas of the State. The new rules also expand the preservation of near-stream vegetation (previously protected within 25 or 50 feet of streams) by implementing new riparian zones that are 50, 150 or 300 feet in width along each side of surface waters throughout the State. The riparian zone width depends on the environmental resources being protected, with the most protective 300-ft riparian zone applicable to waters designated as Category One and certain upstream tributaries. Certain waters supporting trout, or habitats of threatened or endangered species critically dependant on the watercourse to survive, or watercourses which flow through areas that contain acid-producing soil deposits, receive a 150-ft riparian zone.

Some of the other highlights of the new rule include allowing the use of Federal flood mapping in communities where no State flood mapping is available, and providing a simplified method to approximate flood depths in communities where no State or Federal flood mapping is available; requiring floor elevations and roadway surfaces to be set at least one foot above the State's flood hazard area design flood elevation in order to provide increased flood protection for buildings and public roadways; creating 46 permits-by-rule and 16 general permits to both facilitate and encourage projects that have no adverse impact on flooding and the environment, including a permit-by-rule for elevating homes, which requires no prior NJDEP approval, and a free, expedited general permit for the reconstruction and elevation of homes damaged by flooding; and Amending the Coastal Permit Program rules (N.J.A.C. 7:7) and Coastal Zone Management rules (N.J.A.C. 7:7E) to incorporate equivalent flood protection and stream buffers to all waters and flood hazard areas Statewide.

2. Updated Floodplain Study & Mapping Delineation

The August 2006 “Report on Delaware River Flood Mitigation” prepared by the NJ Flood Mitigation Task Force had recommended that new floodplain delineations of the main stem of the Delaware River be prepared. In addition, NJ Flood Mitigation Task Force report had recommended that the floodway limit along the Delaware River should be mapped using the same NJ floodway standard that is used for the rest of the state’s flood hazard area mapping, or the 0.2-foot floodway rise standard.

To address these recommendations, the NJDEP set aside \$1,000,000 for the preparation of new floodplain delineations and associated mapping for the main stem of the Delaware River. On May 16, 2006, the NJDEP executed a Collaborative Technical Partnership (CTP) agreement with the Federal Emergency Management Agency (FEMA) in order to leverage NJDEP funding with the current federal Flood Map Modernization Program resources. FEMA also contributed an additional \$2,500,000 dollars towards completion of this effort.

The NJDEP also coordinated with USGS and FEMA on the development of updated hydrologic information for the main stem of the Delaware River. On May 2007, the USGS recommended flood magnitude and frequencies for the 8 gaging stations along the main stem Delaware River in New Jersey, New York, and Pennsylvania. These figures were developed by Bob Schopp, USGS NJ Water Science Center and Gary Firda, USGS NY Water Science Center. These figures were developed in consultation with the U.S Army Corps of Engineers Philadelphia District, FEMA Regions II and III, NJDEP-State NFIP Coordinator’s Office and DRBC. The full USGS open-file report entitled “Flood Magnitude and Frequency of the Delaware River in New Jersey, New York, and Pennsylvania” can be downloaded at: <http://pubs.er.usgs.gov/usgspubs/ofr/ofr20081203>.

Medina Consultants, the flood mapping contractor, performed field surveys of wet river cross-sections along a 126 miles reach of the main stem of the Delaware River. In addition, various stages of topographic information including LiDAR acquisitions have been obtained for the four counties along the Delaware River. The surveyed river cross-sections, the LiDAR information and the updated hydrology will be incorporated into updated hydraulic modeling for preparation of the new mapping.

Hydraulic HEC-RAS Modeling was performed for multiple profile runs including the 10-, 50-, 100-, NJFHADF and 500-year flood storm events. Also, surcharge encroachment runs for various floodways including a 1.0-foot rise, 0.2-foot rise and a 0.1-foot rise of the 100-year flow were performed. The final maps will include the 0.2-foot floodway rise. Preliminary FEMA DFIRM maps for Warren and Sussex Counties were released on August 31, 2009; and are scheduled for release for Mercer and Hunterdon Counties in 2010. These will be the first FEMA maps that will include the NJFHADF.

This state of the art new mapping will be a valuable resource during times of emergency and for the regulation of land use along the floodplain area. The goal of this mapping effort is to more accurately define the limits of the flood hazard area and associated base flood elevation.

3. Flood Mitigation Feasibility Study

The NJDEP has committed funding to be cost shared with the US Army Corps of Engineers (USACE) for the preparation of a feasibility study to evaluate possible flood mitigation options, including flood-proofing and removing or relocating structures within the floodplain of the Mid-Delaware River Basin. The Feasibility Cost Share Agreement between NJDEP and the USACE was signed on July 27, 2006. The NJDEP and USACE have met with Delaware River town residents and local officials to perform visual inspections and gather information on the 2004, 2005 and 2006 flooding. NJ continues to provide cost-share funding and the USACE continues to move forward on the study.

4. Upgrades to USGS Streamgaging Program

The NJDEP has committed funding for the upgrade, replacement, and addition of streamgages along the Delaware River. On June 9, 2006, the NJDEP signed a joint funding agreement with the United States Geological Survey (USGS) to provide various upgrades to streamgaging programs in NJ. Along the Delaware River, the scope of work includes the addition of high-data rate satellite transmitters to provide better aerial data coverage on a real-time basis and to develop flood data for use in design of flood control measures, major gage repairs in order to improve streamflow data accuracy, and the addition of raingages to aid the National Weather Service (NWS) in flood-forecasting and refinement of their radar estimates of precipitation.

To date, major gage repairs and upgrades have been accomplished to the existing gages at the Delaware River at Montague, Riegelsville, and Trenton. In addition, a radar stage gage has been installed and a tipping-bucket rain gage has been re-installed at the Delaware River at Stockton and a radar stage and rain gage has been installed at the Delaware River at Lambertville.

5. Multi-Jurisdictional Flood Mitigation Plan

NJOEM, NJDEP, and DRBC worked with 43 participating local municipalities on the preparation of the FMA plan which was approved by FEMA in November 2008. This plan provided the four counties with a valuable asset that could be incorporated into the future All-Hazards Plan, of which the four counties have received a Pre-Disaster Mitigation (PDM) Grant from FEMA in FY2009 to prepare.

FEMA awarded the Delaware River Basin Commission (DRBC) a grant under the Flood Mitigation Assistance program for the preparation of a multi-jurisdictional Flood Mitigation Plan (FMP) for municipalities located within Sussex, Warren, Hunterdon and Mercer Counties that have boundaries either partially or entirely within the Delaware River drainage basin. NJDEP provided cost share funding for the FEMA grant. *NJOEM, NJDEP, and the DRBC will lead this effort to develop the FMP, which will be part of future All-Hazard Mitigation Plans.* NJOEM, NJDEP, and DRBC held kick-off, planning, and technical assistance meetings with county and

municipal representatives in order to engage local community participation. Local involvement in the planning process was crucial for the identification of critical facilities, flood-prone areas, community goals and desired local mitigation actions for the successful development of a FMP.

6. Updated State Hazard Mitigation Plan

Representatives from a number of NJDEP programs, including the State NFIP Coordinator's Office, actively participate in NJOEM planning and technical meetings under the State Hazard Mitigation Team. We have implemented new processes and partnerships to address issues that FEMA raises regarding the current state plan. NJDEP participated in a core work group to support NJOEM with their FEMA required three year update, which was approved by FEMA in April 2008. NJDEP also supports future effort that would earn the state an enhanced classification and increase the mitigation grant funding that is available for hazard mitigation projects from 7.5% to 20%. In 2011, the plan will need to be updated.

7. Develop a Flood Analysis Modeling Tool

The NJDEP had committed funding to the DRBC for development of a basin-wide flood analysis model. The results of the flood analysis model were released by DRBC in December 2009. The model evaluated the impacts of various void scenarios in the upper reservoirs during the 2004, 2005, and 2006 flood events upon downstream flooding. Development of the model was a multi-agency project team effort which included participation of the National Weather Service (NWS), the USACE, and USGS. Additional information and a downloadable version of the model are available at:

http://www.state.nj.us/drbc/Flood_Website/FloodAnalysisModel/index.htm

8. Blue Acres Program for New Jersey

Governor Corzine signed into law the "Green Acres, Farmland, Blue Acres, and Historic Preservation Bond Act of 2007" which was presented to the voters and approved at the November 2007 election. The bond act provided \$12,000,000 in Blue Acres funding for the state to acquire, for recreation and conservation purposes, lands in the floodway of the Delaware River, Passaic River, and Raritan River, and their respective tributaries, that have been damaged by, or may be prone to incurring damage caused by storm-related flooding or that may buffer or protect lands from such damage. The "Green Acres, Water Supply and Floodplain Protection, and Farmland and Historic Preservation Bond Act of 2009" which was presented to the voters and approved at the November 2009 election will provide an additional \$24,000,000 in Blue Acres funding.

last updated June 15, 2010