Floodplain Management Planning

In 2005 the NJSEA (formerly the NJMC) prepared the Hackensack Meadowlands Floodplain Management Plan, where site specific drainage issues were inspected and assessed by staff engineers based on flooding incidents reported by the general public. The Floodplain Management Plan created a baseline that is still relevant today, by assessing and identifying flood hazards in the District. This baseline evolved into multi-step, coordinated initiatives that have been undertaken by the NJSEA since 2005 to address flooding in the District. This approach has been successful, as evidenced by the low number of repetitive losses in the District. Prior to 2012, there were fewer than 10 repetitive loss properties in the District. After Hurricane Sandy, October 2012, the number of repetitive loss properties increased to 119, when Hurricane Sandy's sea surge inundated the District after water levels exceeded top of bank and flood control berms throughout the area by several feet. It should be noted that other Communities suffered severe and extreme losses in comparison to the Hackensack Meadowlands District due to Hurricane Sandy, which can be attributed to the Agency's zoning regulations, 2005 Floodplain Management Plan and subsequent NJSEA coordinated initiatives.

The following is a summary of activities implemented to mitigate flood impacts in the District:

1. **Collection and Assessment of Flooding Incidents**
   The NJSEA continues to actively collect, log and assess flooding complaints on individual properties, including inspecting the District for flood impacts following severe storms. NJSEA staff engineers are available to meet with property owners for on-site inspections and to discuss drainage options.
2. **Drainage System Maintenance (Tide Gates, Pump Stations, Waterways)**
   The NJSEA evaluates the functionality of all tide gates and pump stations within the District. Since the District is tidally impacted, routine inspection of tide gates and pump stations is important to identify issues that could impact flood protection for upstream areas. The NJSEA inspects tide gates at various tide conditions in order to accurately identify problems or determine maintenance that may be required. Pump stations are inspected with the respective municipality's Department of Public Works (DPW) to ensure the system is operating properly. Additionally, waterways and ditches are inspected throughout the District to ensure adequate stormwater conveyance capacity. The Agency coordinates with the DPW's to remove stream debris. These inspections and maintenance activities have helped to lessen the effect of several major storms.
3. **Municipal Equipment Pool**
   The District recognizes that maintenance of storm sewer systems is critical to ensure adequate stormwater carrying capacity. The NJSEA provides and maintains equipment to assist municipalities in the District with maintenance issues that, if neglected, could create flooding issues. A jet vac-truck, root cutter, portable automatic self-priming pump systems, and trailer mounted light tower are available to municipalities free of charge to encourage maintenance of storm sewer systems.

4. **Monitoring Water Levels in the District**

   The NJSEA continues to maintain, update and upgrade equipment that monitors water levels. This ensures that timely warning can be provided to first-responders and residents when water levels rise during tidal events, or heavy rains and storms. The state-of-the art data collection instruments are stationed at tide gates, in the marshes and in the Hackensack River and relay information to the NJSEA via satellite. The information gathered is relayed to out-of-state servers to ensure that data is available to the public even during power outages in the Meadowlands area. The active monitoring of water levels allows the NJSEA to alert the municipalities and general public regarding potential flooding events. The Agency maintains twelve (12) water level sensors that can be accessed by the public in real time.

5. **Flood Warning Systems**

   The general public can subscribe to receive email and text-based early warning flood alerts, which are available 24/7. These alerts are provided when water levels reach 5.5 feet above sea level and continue to be relayed as the levels rise. The NJSEA also provides detailed flood maps for Meadowlands municipalities, showing exactly which streets and properties would be flooded by a two-foot, four-foot, six-foot or eight-foot tidal surge. The system includes an automated warning to all emergency responders in the District in the advent of a major, six-foot flood.

6. **Palmer Terrace Tide Gate and Asia Place Ditch Cleanout (2007)**

   This flood control project included the restoration of several drainage systems in Carlstadt and Moonachie between Washington Avenue and Gotham Parkway. NJSEA engineers designed the improvements, including a new tide gate on Palmer Terrace in Carlstadt and 4,500 linear feet of ditch cleanout (Asia Place ditch system). This $340,000 project serves to better manage tidal impacts on industrial and commercial properties west of Washington Avenue.

7. **Route 17 Project (2009- 2010)**

   This flood control project, which was undertaken to relieve flooding on Route 17 in East Rutherford and Rutherford, was a joint effort involving the NJSEA, County of Bergen, and the New Jersey Department of Transportation (NJDOT). The first phase of the project included the installation of a dozen culverts, and the installation of new tide gates (Rutherford and East Rutherford tide gates) to better control flow to and from the Hackensack River. The project also included the clearing of a drainage ditch that conveys runoff from Route 17 and adjacent properties to the new tide gates. Another phase of the project included the NJDOT installation of drainage pipes at the Route 17 low point and upgrading the existing roadway stormwater system. These collective improvements, at a cost of $5.5 million, help to minimize tidal flooding and storm surges from flowing upstream to the highway and from impacting commuters, businesses, and residents in the area.

8. **Moonachie and Bashes Creek Tide Gates (2010)**

   This flood control project included the installation of two new tide gates in Carlstadt located near the Hackensack River at the Bashes Creek and Moonachie Creek culverts that cross under the New Jersey Turnpike's Western Spur. These improvements, at a cost of $414,000, help to address tidal surges from impacting the industrial area located east of Washington Avenue. The tide gates were outfitted with solar-powered sensors that allow NJSEA scientists to remotely monitor the gates' operations.

9. **West Riser Tide Gate (2014)**

   This flood control project, located along the West Riser Ditch on the border of Moonachie and Wood-Ridge, included the installation of a new tide gate structure with a trash rack system to replace the original 1977 structure. The $1,249,800 project was partially funded by a $551,800 grant from the Port Authority of New York and New Jersey (PANYNJ), with the NJSEA funding the remaining balance. This project helps to better protect residential, commercial, and industrial properties in Moonachie, Carlstadt, Wood-Ridge and Teterboro, including the Teterboro Airport, from daily tidal flooding from the Hackensack River.

10. **Wetland Acquisition**

    In order to maintain natural buffer areas between the river and the developed areas, the Agency continues to acquire critical tracts of wetlands. To date the agency has acquired 2,500 acres of wetlands to help dissipate storm events and tidal flows. The Agency has expended tens of millions of dollars acquiring and maintaining these properties.

The above initiatives and projects have been implemented in keeping with the District's goal of planning and managing to effectively reduce the impact of flooding in the region.

The Hackensack Meadowlands Floodplain Management Plan, dated October 24, 2005, is located on the NJSEA website at www.NJSEA.com or a hard copy can be provided upon request.