

February 25, 2020

Testimony of the New York State Department of Environmental Conservation

before

The NYS Senate Committee on Rural Resources

Hon. Rachel May, Chair

Good morning Chairwoman May and honorable members of the Senate Committee on Rural Resources. My name is Jim Tierney. I serve as Deputy Commissioner for Water Resources at the New York State Department of Environmental Conservation ("DEC"). I respectfully submit testimony on behalf of DEC concerning flood mitigation – an increasing concern in the context of extreme weather events that are being worsened by climate change.

In recognition of flood risks to our communities and the fact that climate change has arrived, Governor Cuomo has directed an enormous and unprecedented response.

The Governor's budget for SFY 2020 includes the proposed Restore Mother Nature Bond Act ("RMN") – the largest bond act ever. This \$3 billion initiative was one of the highlights of the State of the State Address. RMN funds would be targeted toward proactive measures to make New York the national leader in efforts to adapt to the unavoidable impacts of climate change. With these funds, New York would implement numerous projects that provide co-benefits with respect to flood resilience, water quality, the recreational economy, and aquatic habitat. Much of the RMN work would benefit rural communities.

Similarly, DEC is a proud participant in Governor Cuomo's \$300 million Resiliency and Economic Development Initiative ("REDI") to rapidly address the adverse impacts of record flooding in 2019 that inundated communities along Lake Ontario and the St. Lawrence River. Well over a hundred major municipal projects, developed through a community-intensive "from the ground-up" process, are in design. Some projects are already being implemented. In addition, small grant programs to help individual homeowners and small businesses are also key components of the overall REDI initiative.

Funds provided under the Clean Water Infrastructure Acts (CWIA's) – water infrastructure funding programs with an announced total goal of \$5 billion – have been deployed to provide municipal grants for green infrastructure projects that slow and hold storm water on the landscape – working to mitigate flooding. DEC's "Water Quality Improvement Project" grant fund and the Environmental Facilities Corporation's "Green Innovation Grant Program" together provide tens of millions in CWIA monies to green infrastructure grants to municipalities.

The annual \$300 million Environmental Protection Fund ("EPF") serves numerous essential purposes, with significant funds distributed to flood abatement practices and programs. Funds are set aside to assist county Soil and Water Conservation Districts, organizations that are a mainstay of New York's efforts to mitigate flooding. EPF funds for agricultural and "non-point" polluted runoff abatement projects generally have a direct co-benefit of abating floods. And, the EPF-funded watershed basin programs for the Great Lakes, Hudson River and Mohawk River watershed all have flood abatement as a core mission.

In addition to these funding programs, DEC is an active participant in efforts to address and abate flooding across New York. DEC's Rangers and Environmental Conservation Officers serve on the front-lines of emergency response and rescue during floods. DEC is in the field the "day after" to guide flood recovery efforts in a manner that encourages best technical practices and deters unwise reactions that can be surprisingly counter-productive to future flood mitigation. Efforts to manage debris, address oil spills, and respond to chemical release risks – all DEC responsibilities – are dramatically heightened by major flood events.

DEC engineering experts inspect and regulate dams to ensure that dams classified as "high" or "medium" hazard structures do not become deteriorated due to poor maintenance or pose risks due to inadequate designs. Post-flood dam integrity inspections are a part of DEC's regular business. DEC serves as the liaison between the Federal Emergency Management Agency (FEMA) and local communities concerning FEMA flood plain maps, map amendments, and the associated flood plain management program – a program that is required as a predicate to community participation in the federal flood insurance program. We at DEC also manage the Coastal Erosion Hazard Area program that seeks to limit the placement of homes and businesses in very high-risk coastal environments along the Atlantic Ocean and Great Lakes, while also protecting the integrity of "natural infrastructure," such as dunes, that help protect coastal communities against storm inundation.

State law designates DEC as lead coordinator of all Army Corps flood hazard projects that involve State government. In this regard, DEC owns, operates and maintains some 100 miles of levees, pumps and flood gates that comprise the 106 Army-Corps-constructed inland (or riverine) flood projects in New York. DEC also manages the development and implementation of numerous Army Corp coastal storm protection projects that are currently completed or underway in the aftermath of Superstorm Sandy. These projects extend from Staten Island to Coney Island and the Rockaways, to Long Beach and the entire 83-mile ocean coast of Suffolk County, and out to the Montauk Point Lighthouse.

I note the obvious: water is heavy. A cubic foot of water weighs slightly over 62 pounds. When a wall of water is moving down a valley or across a landscape, it can move big things: homes, barns, boulders, and main street businesses. It also can diminish our precious farm top-soils at a rate that is striking.

Surfaces that shunt water – impervious surfaces – can dramatically increase peak flood flows and intensity. For example, an engineering rule of thumb is that one acre of asphalt, left unmitigated, will jettison 13 times the stormwater of one acre of forest or natural meadow. Older bridges and culverts are often undersized relative to high storm flows, causing these structures to act like dams during storms – sometimes causing creeks to backup, jump their banks, and head off on destructive pathways through communities.

According to the National Academies of Science, New York has lost roughly 60% of its original wetlands. Even modest wetlands store massive amounts of storm waters. To similar effect, many streams have been channelized by berms that disconnect these water bodies from flow-calming flood plains – intensifying peak flood water elevations and associated flood destruction.

Then there is climate change, with the well-documented forecast of increasingly severe weather: the remarkably frequent 100-year storms, the intensifying hurricane winds, and super-cell storms that drop previously unthinkable amounts of water in a concentrated area. One example often cited is that Hurricane Harvey dropped a remarkable 45 inches of water on significant parts of Greater Houston in just one storm.

When you add together the loss of wetlands, the flood impacts of human development, constricted streams that channelize flows, and intensifying precipitation from global warming, it amounts to a clear risk to rural New York communities.

In the rural environment, a key concept for effective flood mitigation action is often summarized by the catch-phrase for managing runoff: “slow it down, spread it out and soak it in” – and sometimes, frankly, “get out of the way.” These projects involve engineering and landscape architecture practices that have been termed “green infrastructure.” Think of constructed or reconnected wetlands, stormwater detention ponds, and stream-side berm removals to reconnect waterways to their flood plains. Similarly, protecting existing wetlands from being filled helps to prevent the loss of their flood mitigation benefits. Retrofitting roads, road-side ditches and parking lots so that they hold, rather than rapidly jettison water is another important tactic. Old bridges and road culverts can be right-sized to pass the anticipated flood flows to avoid damaging backups and blow-outs during major floods. Stream buffers and riparian plantings can help to capture inflows, stabilize banks, and abate soil erosion.

I'd like to close with one example of an approach that pulls flood abatement concepts together: Governor Cuomo's “Resilient NY Streams Program.” DEC is in the phased process of developing 61 state-of-the-art flood mitigation and habitat restoration studies (including ice jam abatement) throughout New York. Advanced modeling and hydrologic analyses are deployed by experts on a watershed basis. The result is a very specific set of study recommendations on a list of specific projects at specific locations resulting in specific flood/ice-jam abatement benefits. The goal is a plan to eliminate

flooding during the 100-year level storm, accounting for the increased precipitation associated with global warming. In my experience, Town Supervisors and County Officials greatly appreciate getting this expert advice on exactly what projects to undertake and in what priority order.

These stream studies are already drawing project implementation grants from some of the funding programs described previously. If approved, the Restore Mother Nature Bond Act would provide the resources to dramatically accelerate the implementation of projects identified by the Resilient NY Stream Program as well as by other flood abatement programs.

Thank you for your time. I would be glad to answer any questions.