

STORMWATER MANAGEMENT



Congamond Lakes Restoration Project, Southwick

What are the objectives of Stormwater Management?

To regulate land activities which generate runoff by requiring on-site management of stormwater runoff, to protect public health and water quality by reducing pollution, flooding, siltation and drainage problems, and to help prevent increases in stormwater runoff, protect groundwater recharge, control erosion and sedimentation, reduce pollutants in runoff, and protect waterways.

Why do we need Stormwater Management?

As urbanization occurs, large areas of impervious surfaces are created by roads, buildings and parking lots. In turn these paved areas generate higher volumes of stormwater runoff at greater velocities and pollutant loads. Without controls, each new development incrementally increases the pollution of waterways. Pollution from urban runoff is now recognized as a significant source of water quality degradation that is virtually impossible to deal with without adequate stormwater controls.

How does a Stormwater Management bylaw work?

A stormwater management bylaw/ordinance can require all new development to provide a Stormwater Pollution Prevention Plan (SWPPP) and design that incorporates Best Management Practices (BMPs) to reduce runoff impacts. The plan's overall goal is to prevent post-development increases or decreases in the total volume or rate of stormwater discharges from the site, as compared with pre-development conditions. This goal could be achieved using stormwater controls or BMPs, such as vegetated swales, retention or detention basins, oil and grease separators, infiltration basins, constructed wetlands or other measures. The stormwater plan includes a description of existing site characteristics including topography, soils, hydrology and floodplains. Calculations for pre- and post-development stormwater volume and rates of runoff are needed to size appropriate BMPs. The bylaw/ordinance contains specific design criteria for handling post development peak discharge for a particular storm event. For example, the bylaw/ordinance might require that the plan contain adequate control measures for a 24-hour storm event that occurs every 2, 10 or 25 years. The bylaw/ordinance also includes requirements for inspection and maintenance of BMPs during and after construction, with a performance bond to ensure maintenance.

DID YOU KNOW...

Stormwater runoff is our most common cause of water pollution. Rainwater and snowmelt run off streets, lawns, farms, and construction and industrial sites and pick up fertilizers, dirt, pesticides, oil and grease, and many other pollutants on the way to our rivers, lakes, and coastal waters. (US EPA)

EXAMPLES FROM THE PIONEER VALLEY

Stormwater Bylaws

In 1999, the U.S. Environmental Protection Agency promulgated the Storm Water Phase II Final Rule of the National Pollutant Discharge Elimination System (NPDES). The program is intended to preserve, protect, and improve the Nation's water resources from polluted storm water runoff. Three of the NPDES Phase II "Six Minimum Control Measures" required regulated municipalities to adopt and enforce regulatory mechanisms for controlling illicit discharges, construction site runoff, and post-construction runoff.

PVPC researched model bylaws from around the country and crafted a two model bylaws that addressed all of the NPDES Phase II review and control requirements for construction and post-construction runoff. These bylaws are known respectively as Illicit Connections and Discharges to the Municipal Storm Drain System and, Erosion and Sediment Control. Since development of the two bylaws, PVPC has worked with the communities of Chicopee, Northampton, Southampton, Westfield, and Southwick in tailoring the bylaw to address their specific needs. To date, the cities of Chicopee, Northampton and Westfield and the Town of Southampton have fully adopted both bylaws.

CASE STUDIES FROM OUTSIDE THE PIONEER VALLEY REGION

Additional case studies on Stormwater Management, can be found at the [US Environmental Protection website](#) on stormwater protection.

[MODEL EROSION AND SEDIMENT CONTROL BYLAW](#)

[MODEL ILLICIT CONNECTIONS AND DISCHARGES BYLAW](#)