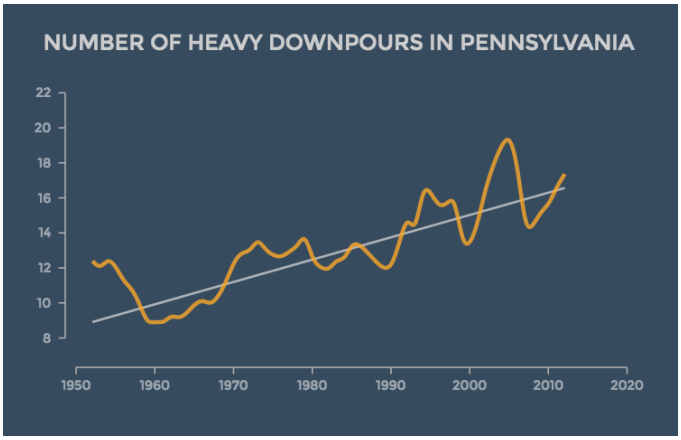
MUNICIPAL CLIMATE ACTION OPPORTUNITY

ADAPTING TO CLIMATE-INDUCED HEAVY PRECIPITATION EVENTS THROUGH GREEN INFRASTRUCTURE

Heavy precipitation events in Pennsylvania have been increasing in frequency over the last fifty years. Climate change is expected to dramatically increase the number, frequency, and duration of heavy rainfall events, making it likely that this area will see increased flooding, run-off, and erosion problems in the years ahead. Practices that slow the rate of run-off will be important in limiting the severity of these impacts in our communities. Many effective solutions are small-scale and relatively easy to install, allowing a municipality to take small, manageable steps in this area of climate adaptation. Information on these options is widely available and funding resources exist, since these measures also reduce non-point source pollution and mitigate flood risk.



Source: Climate Central

Three widely applicable measures for managing stormwater run-off are:

Rain gardens – gardens designed to collect and manage run-off from roofs, driveways, parking lots and other impervious man-made surfaces, by increasing infiltration in to the ground. A rain garden may increase the absorption of rainfall by 30% compared to lawn grasses. Rain gardens are becoming increasingly prevalent on school and office campuses, in parks, and on the grounds of municipal buildings. It is frequently possible to engage volunteers in the installation of rain gardens; local watershed groups may know of available grants that will defray some or all of the front-end costs.

Source: Schuylkill Action Network

Swales and stormwater planters – modified approaches to rain gardens which also collect run-off and gradually release it into the soil. Swales are longer, linear areas adjacent to roads, while stormwater planters are fairly small in size, recessed below the pavement, and curbed. Both are often found in medians or between roads and sidewalks.

Stormwater planter *Source: Philadelphia Water Department*

Swale *Source: Green Infrastructure program, EPA*

Porous pavement, or pervious pavement, has a permeable top layer over an underlying reservoir of crushed stone. Plazas and sidewalks as well as driveways and parking areas may be fitted with pervious pavements as there are both asphalt and concrete products available on the market.

Porous pavement *Philadelphia Water Dept.*

Where to get more information

Community Solutions for Stormwater Management provides guidance on managing stormwater and using green infrastructure. https://www.epa.gov/sites/production/files/2016-10/documents/draftlongtermstormwaterguide_508.pdf

Funding Green Infrastructure in Pennsylvania by American Rivers lists several sources of grant funds for stormwater management projects using green infrastructure. http://www.conservationfund.org/images/cln_events-resources/2015_WQM_Workshop/WQM-Resources/5_Stormwater/1_-_funding-green-infrastructure-pa.pdf

Georgetown Climate Center also provides information on public and private funding resources for green infrastructure. http://www.georgetownclimate.org/adaptation/toolkits/green-infrastructure-toolkit/how-to-pay-for-green-infrastructure-funding-and-financing.html ardens.pdf

Green Streets Design Manual provides information on stormwater management approaches including design details for stormwater planters, permeable pavement, green gutters, and stormwater trees. http://www.phillywatersheds.org/img/GSDM/GSDM_FINAL_20140211.pdf

City Green: Innovative Green Infrastructure Solutions for Downtowns and Infill Locations is written for local governments interested in redevelopment opportunities using green

infrastructure. https://www.epa.gov/smartgrowth/city-green-innovative-green-infrastructure-solutions-downtowns-and-infill-locations

East Hanover Township in Dauphin county has implemented a stormwater and flood reduction ordinance which includes design standards for several green infrastructure options. http://easthanovertwpdcpa.org/uploads/Stormwater_Managment_and_Flood_Reduction_Ordinances_2008-001,_2009-06,_2010-06.pdf