

Stormwater Utilities in New Jersey – Frequently Asked Questions

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What Is Stormwater?

Stormwater is any form of water that begins as precipitation. This includes rain, sleet, snow, and the water from melting snow, even if the melting occurs long after the snowstorm had passed (Figure 1).

There are a few general outcomes for precipitation:

- **It can be absorbed into the ground.** A large proportion of rain that falls on vegetated areas such as natural forests, farm fields, or home lawns is likely to percolate into the ground. Likewise, snow that melts on vegetated areas is likely to percolate into the ground if the soil beneath it is not frozen. The plants in these vegetated areas can take up a portion of the water for growth. Some non-vegetated areas are able to absorb precipitation. These include areas landscaped with rock or covered with permeable pavement. A portion of this water is captured by plant roots and eventually is released to the atmosphere, a process called transpiration. Most of the rest becomes groundwater.
- **It can run off.** Stormwater that is not absorbed into the ground becomes stormwater runoff. If precipitation or snowmelt occurs on impermeable surfaces like roads, parking lots, rooftops, frozen soil, or highly compacted soil, or during very heavy rains when the soil's ability to absorb water is exceeded, a large proportion of that water is likely to run off these surfaces. Developed or urbanized areas, such as residential neighborhoods, shopping malls, and urban centers are likely to generate more of this runoff than natural or lightly landscaped areas.
- **It can fall directly on a body of water.** Precipitation falling directly on waterbodies such as lakes, rivers, or streams can pose few additional stormwater management challenges except during times of flooding rains or severe storm events.
- **It can evaporate back to the atmosphere.** Some of the water that lands on an impervious surface or a waterbody may turn into water vapor and re-enter the atmosphere.



Figure 1. Snowmelt is also stormwater. As temperatures rise, the melting snow carries leaves, road salt, and sand to the storm drain in Jackson, NJ.

Why Is It Important to Manage Stormwater?

- **Stormwater runoff can play a large role in local water pollution.** As the runoff flows across surfaces, it can pick up soil particles, sediment, and pollutants and carry them to local waterways. The types of pollutants are likely to vary by the surfaces in which the water is in contact. For example, runoff from parking lots or driveways may carry motor oil or

other automotive fluids. Runoff from lawn areas with compacted soils may carry fertilizers, pesticides, or pet wastes. Roadways may have accumulations of trash, leaves, road salt, sand, or other debris.

- **Soils act as filters to remove pollutants.** If stormwater is absorbed into the ground, soils naturally act to filter out many types of common pollutants. Chemicals may be immobilized or broken down by soil organisms.
- **Stormwater can cause flooding and increased erosion within streams.** Stormwater runoff may reach local streams quickly, causing the water levels of streams and rivers to rise and flow more rapidly during and after precipitation. This can cause flooding downstream, which may include threats to people and property (Figure 2). The increased flow of water (speed and volume) can also cause the scouring of stream banks, with the potential of undercutting banks, exposing roots, and potentially toppling streamside trees. That scouring increases sediments in the streams, harming aquatic systems.
- **Stormwater runoff degrades soils and water quality.** Especially when vegetation is sparse in an area, stormwater runoff can erode the soil and carry it away. This is a loss of topsoil at that site. The eroded soil may be deposited in a local waterbody where it could degrade the bottom habitat for fish and other wildlife. This sedimentation can also cause lakes and ponds to fill in, making them less usable for swimming or boating.



Figure 2. Unmanaged stormwater can lead to localized flooding and hazardous driving conditions, as seen on this road in Paterson, NJ.

How Is Stormwater Managed in New Jersey?

Direct Discharge and Detention Basins

In some cases, such as where there are urban areas or properties adjacent to a waterbody, stormwater runoff may flow more or less directly into the waterbody (Figure 3). Other communities may have a system of storm drains along streets and parking lots that deliver runoff almost directly to a local waterbody by a series of underground pipes (Figure 4; Figure 5). Stormwater runoff is usually not treated in this case, except where there may be a filter to prevent debris and trash from entering the drainage system or the waterbody itself.

Stormwater runoff may be piped to a detention basin for temporary storage before discharge to a waterbody, as can be seen in many residential developments and shopping centers. Detention basins are typically designed to hold water temporarily, so that it drains to a local waterbody more slowly. The goal is to decrease the likelihood of downstream flooding and slow the water level rise in the receiving waterbody. Detention basins are often maintained as areas of turfgrass or other vegetation, to allow some water to percolate into the soil as well (Figure 6). Other related options include retention basins (with a permanent pool of water) and infiltration basins, which allow percolation of stormwater into the ground.



Figure 3. Some urban areas are built along rivers so that stormwater runoff flows directly to the river without intervening detention basins or green infrastructure. Here, outfall pipes for stormwater can be seen in the flood walls. The Cohansey River in downtown Bridgeton, NJ.

Combined Sewage and Stormwater Systems

Sewage from households and businesses is typically handled in completely separate pipes from stormwater runoff. Sewage is sent to a wastewater treatment plant where it undergoes several steps of treatment before eventually being discharged.

In some of the state's oldest cities, however, the stormwater and sanitary sewer systems are combined in a single pipe, a

technology dating from the late 1800s and early 1900s. When there is no rain, household and commercial waste flows to the sewage treatment plant and is treated before being released into the receiving waterbody. When it is raining, the wastewater treatment plant is tasked with treating the combined volume of stormwater and wastewater. Under conditions of limited stormwater runoff, this results in stormwater being treated before it is discharged. However, in cases of larger storms, the treatment system can be overwhelmed and so the excess flow is discharged without treatment to a local receiving waterbody. Reducing the incoming stormwater volume can decrease the frequency and volume of combined sewer overflows in these systems.

Green Infrastructure

Stormwater can also be managed on-site before it becomes runoff through use of best management practices, such as green infrastructure. Green infrastructure reduces the volume of stormwater runoff from the site by capturing and holding, reusing, or infiltrating stormwater back into the soil. Green infrastructure practices include pervious pavement, rain gardens, vegetated swales, and rain barrels. Green infrastructure is often considered a good approach for managing stormwater because it reduces the amount of stormwater runoff at the source, decreasing the negative effects of large stormwater flows and reducing the amount of infrastructure needed for transport or treatment.

Who Manages Stormwater in New Jersey?

Nearly all municipalities have some amount of stormwater systems or combined sewers. Highway agencies and public works departments at the county and state levels also manage stormwater. Stormwater infrastructure is typically funded through property taxes. Some landowners such as business parks, residential developments operated by homeowner associations, and some educational institutions often have privately-owned stormwater systems.

What Is the 'Clean Stormwater and Flood Reduction Act'?

The Act authorizes municipalities, counties, or groups of municipalities to establish and operate local fee-based stormwater utilities. These utilities can also be established and operated by sewerage authorities and improvement authorities. Stormwater utilities are allowed to collect fees to finance the operation of the utility and the improvement of stormwater infrastructure. Municipalities, counties, and authorities would be allowed to contract with private firms for the operation or improvement of stormwater utilities.

The stated goals of the Act include:

- Improving stormwater infrastructure and management
- Reducing water pollution
- Reducing flooding



Figure 4. A storm drain in a residential neighborhood in Upper Deerfield, NJ. Stormwater runoff from the road and residences is collected by the storm drain. In this case, the runoff then flows by underground pipe to a nearby detention basin.



Figure 5. In some urban and suburban settings, stormwater runoff from building roofs is collected by downspouts and piped below the lawn and sidewalks to the street. Here, the outlet to the street is the round hole in the yellow curb to the left of the storm drain on the road. In these cases, stormwater from the roof passes to the municipal stormwater system without being detained or absorbed by the lawn. Rutgers Cousteau Center in Bridgeton, NJ.

- Establishing dedicated funding for stormwater infrastructure maintenance
- Protecting public health

In addition, the Act requires that the New Jersey Department of Environmental Protection (NJDEP) create a Guidance Manual that would provide rate structure information, including the means and method of computing rates for stormwater utilities; technical assistance for establishing a stormwater utility; and providing direction for public education efforts.

Under this Act, NJDEP would receive up to 5% of fees collected from stormwater utilities. These funds would be used for planning, implementation, and coordination activities related to the stormwater utilities program, as well as to conduct water quality monitoring, undertake public education, and implement stormwater reduction projects.



Figure 6. A stormwater detention basin in a residential neighborhood in East Windsor, NJ. An overflow structure is located in the background center. Improperly functioning detention basins can have standing water that can lead to further flooding and mosquito breeding areas. The bottom and sides of the basin are maintained as mowed turf.

What Is a Stormwater Utility?

A stormwater utility is a funding mechanism to pay for the costs of stormwater-related services and improvements provided to a community. The key point is that the necessary work of managing stormwater is funded by stormwater fees instead of property taxes. It does not need to be a new agency, department, board, or group of people.

Similar to an entity handling a community's need and usage of electricity, gas, and water, a stormwater utility would collect fees for the implementation of stormwater planning and control programs. Specifically, a stormwater utility would be tasked with acquiring, constructing, maintaining, and operating a stormwater management system.

Who Would Be Charged a Stormwater Utility Fee?

Fees can be assessed on owners and occupants of land, including homeowners, renters, and business owners. According to the Act, fees are to be proportionate to the contribution of stormwater runoff from a property.

Properties that use best management practices for their stormwater management may receive a discount as an incentive to install green infrastructure. These practices should reduce, retain, or treat stormwater onsite.

Properties that are farmland assessed will not be charged stormwater utility fees.

When Does the Act Take Effect?

The Governor of New Jersey signed the bill into law on March 18, 2019, and much of the law will take effect 6 months after the date of enactment, September 18, 2019. The New Jersey Department of Environmental Protection may take actions prior to this 6-month deadline, as needed, to initially and fully implement this act.

Will I Be Charged a Stormwater Fee?

The law authorizes but does not require creation of a stormwater utility. Only if municipalities, counties, and authorities create a stormwater utility would property owners be charged a fee based on the amount of runoff generated from their property. There are many steps required before a fee would be charged, including a community determining whether a stormwater utility makes sense for that area, creating that utility, and then implementing the fee structure.

Where Can I Go to Get More Information on Stormwater

Management?

- Clean Stormwater and Flood Reduction Act
- National Pollutant Discharge Elimination System Stormwater Program (from EPA)
- Green Infrastructure (from EPA)
- Stormwater in New Jersey (from NJDEP)
- Green Infrastructure in New Jersey (from NJDEP)
- Rutgers Cooperative Extension Water Resources Program
- New Jersey Agricultural Experiment Station Publications on Stormwater

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