

# What is the Stormwater Improvement Plan?

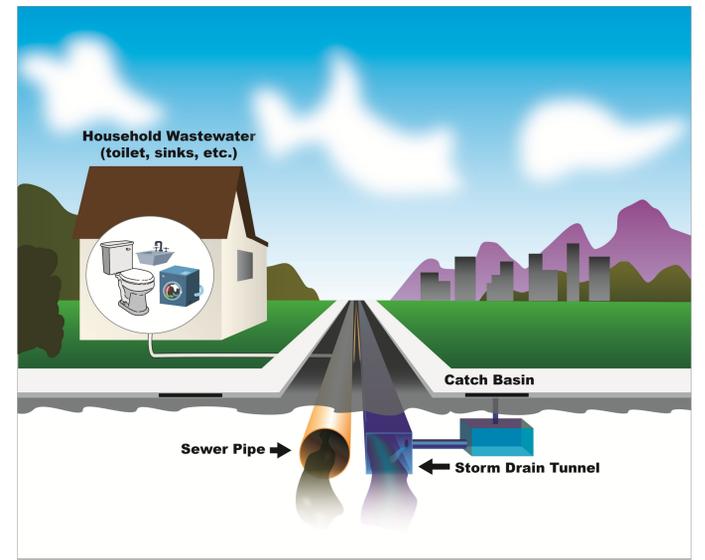


The Stormwater Improvement Plan (SWIP) will be a long-range, visionary plan to reduce pollution. The plan will assist the City in meeting regulatory water quality requirements for the Chesapeake Bay and local waterways like Blacks Run.

The Stormwater Improvement Plan will prioritize which water quality projects and programs are most beneficial in the City. Some projects may be new stormwater treatment facilities, retrofits to existing stormwater treatment facilities, or stream restorations. The final, prioritized list of projects will be funded primarily from the Stormwater Utility Fee.



An example of a stormwater treatment facility.



Harrisonburg has a Municipal Separate Storm Sewer System (MS4), which means anything that enters a storm drain, curb line, or ditch flows directly into local waterways. This, along with increased development, are primary reasons why poor water quality is a local concern.

## Stormwater Improvement Plan Goals:

- A prioritized list of stormwater improvement needs (projects and programs) that collectively meet requirements of the Chesapeake Bay TMDL.
- A cost effective approach that uses cost per pound (\$/lb TN) to determine the efficiency of proposed water quality projects and programs.
- A set of High Priority Project concept plans to prepare City staff for future grant applications and project implementation.
- A plan that considers drainage problems and flood prone areas as a secondary objective.

## Pollution Basics: Nitrogen (TN), Phosphorous (TP), Sediment (TSS)

Nitrogen and phosphorus occur naturally in aquatic ecosystems and are beneficial nutrients in small amounts. Sediments are also present in streams and rivers from natural erosion. Problems occur when too many nutrients and sediments are introduced into waterways.

In excess, nutrients can cause algae to grow too quickly, can reduce dissolved oxygen, and can make waterways toxic to aquatic life. Excess sediments can cloud water and cause further problems for aquatic life.



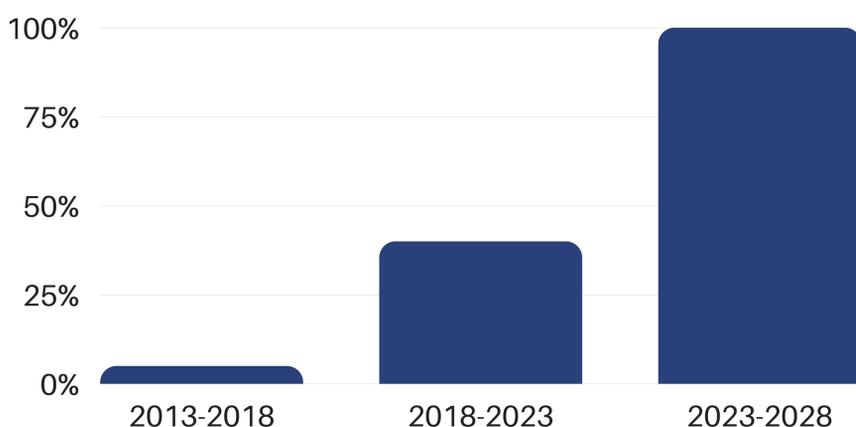
Sources of Pollution	
Nitrogen & Phosphorous	Pet and animal waste, agricultural and yard fertilizer, wastewater, some soaps and detergents
Sediment	Construction activities, excessive streambank erosion

Blacks Run is the main stream flowing through Harrisonburg. It does not meet state water quality standards due to excess amounts of bacteria and sediment.



## Pollutant Reduction Goals

The Chesapeake Bay TMDL sets incremental goals for pollutant reduction. By 2018, 5% of the total goal must be met. By 2023, 40% of the goal, and by 2028, 100% of the reduction requirement must be met.



Targeted Pollutants	Reduction Requirement (By 2028)
Nitrogen (TN)	6,711 lbs/yr
Phosphorus (TP)	885 lbs/yr
Sediment (TSS)	759,697 lbs/yr