

MANAGEMENT AND IMPLEMENTATION FOR NESHAMINY(CREEK) OPTIMAL WATERSHED (MINOW)



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Overview

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- Existing Regulations
- Proposed Solutions



Mission Statement

To reduce Neshaminy Creek flow for a 2-year design storm by 10% before January 2020, thus improving water quality, preventing erosion, and preventing habitat loss.

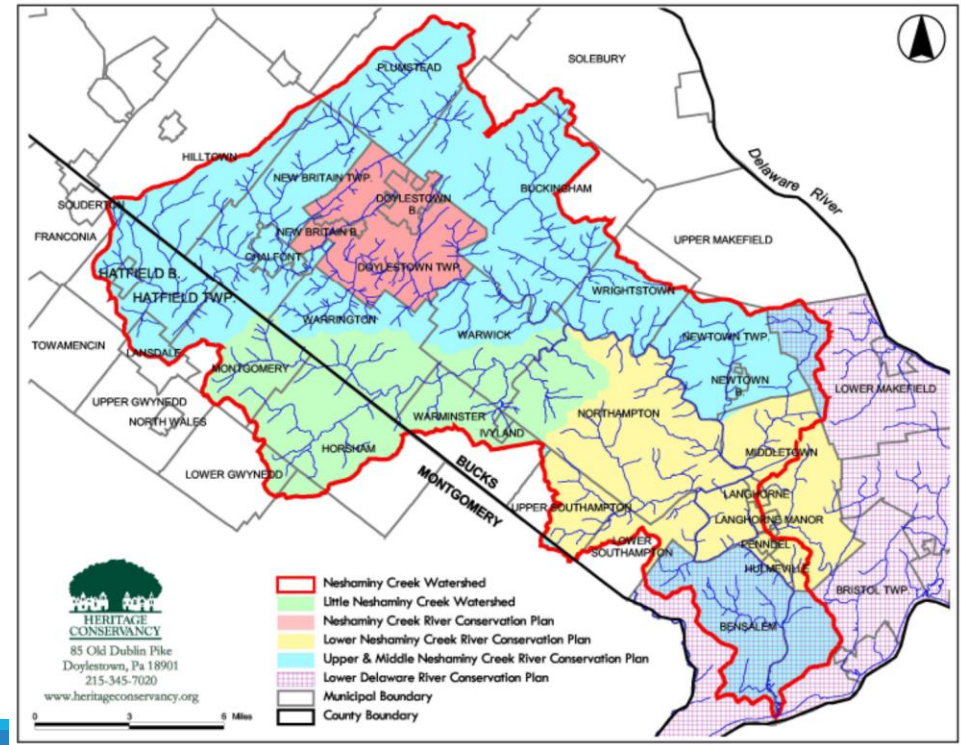
Characteristics

Length: 41 Miles

Watershed Area: 233 square miles

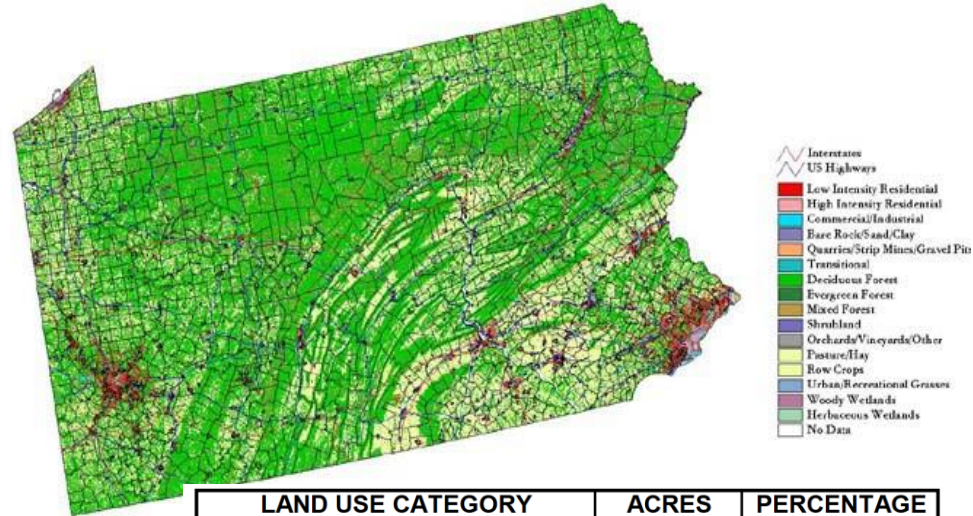
Population in 2000: 333,297

Projected Population in 2040: 368,000



Land Use

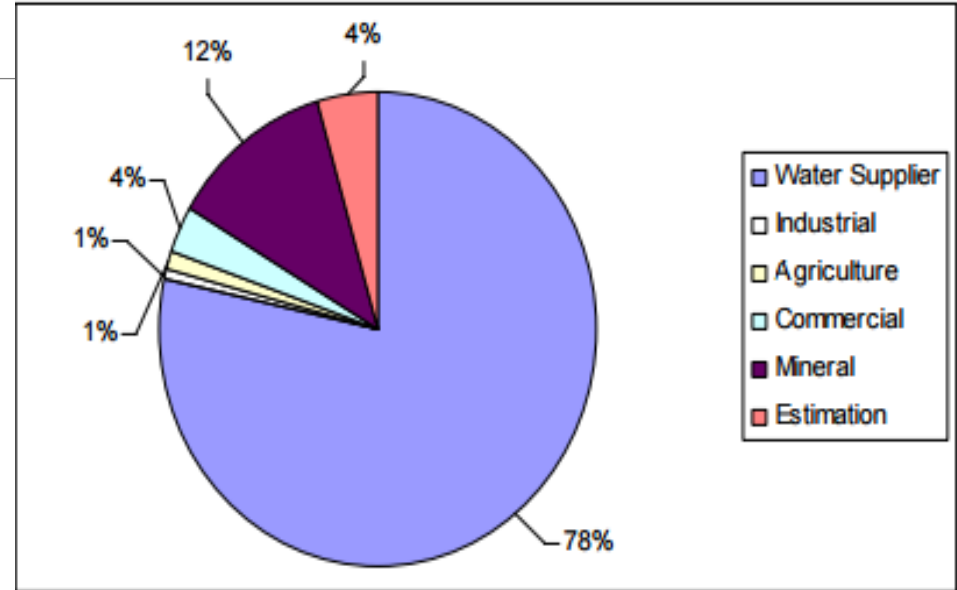
- The land use for Pennsylvania is mostly forested with regions of low and high intensity residential surrounding major city.
- The major land uses for the Neshaminy Creek watershed are agriculture, low density residential, and forest.



LAND USE CATEGORY	ACRES	PERCENTAGE
Agriculture	28,290	33.9%
Community Service	850	1.0%
Commercial	1,689	2.0%
Wooded	17,899	21.5%
Industrial	1,300	1.6%
Mining	628	0.8%
Low Density Residential	23,003	27.6%
Medium Density Residential	576	0.7%
High Density Residential	1,188	1.4%
Recreation	1,345	1.6%
Transportation	1,491	1.8%
Utility	743	0.9%
Vacant	3,506	4.2%
Water	900	1.1%
Total	83,408	100.0%

Water Use

- Most of the withdrawn water is taken from surface water.
- 78% of the water is withdrawn is used for Public Drinking Water
- 2nd highest uses are Mineral and Agricultural uses
- “Estimated” use includes unregistered withdrawals and other unmeasurable quantities such as evaporation.



Environmental Problems

Problem	Cause	Result
Flooding	Increased Development	Damage to infrastructure and a hazard to human health
Streambank Erosion	Flooding from increased runoff	Steep, unstable banks, increased sediments into creek, loss of habitat.
Loss of Habitat	Streambank erosion, urbanization	Decrease in diversity and total population of aquatic, and other creek wildlife.
Increased Sediment, Nitrogen, and Phosphorous concentration	From increased runoff and erosion	large algal blooms and high levels of phytoplankton biomass which decreases the dissolved oxygen concentration and increases the toxic ammonia nitrogen

Existing Organizations

North Branch Watershed Association: The NBWA works to improve the quality of the North Branch of the Neshaminy Creek through environmental education, promoting sound land use practices and conservation efforts.

Bucks County Conservation District: A unit of the state government dedicated to the conservation of the soil, water and other natural resources in Bucks County, where the mouth of the Neshaminy is located.

Water Resource Education Network: A project of the League of Women Voters of Pennsylvania dedicated to protect and improve water as a natural resource.

Existing Regulations

NPDES Phase II: The National Pollution Discharge Elimination System Phase II stormwater plan and permit requirements for Municipal Separate Storm Sewer Systems will influence all municipalities in the Neshaminy Creek. If the municipality population is over a certain threshold population density, the municipality must be permitted under this program.

River Conservation Plan: The River Conservation Plan is a critical tool in creating new partnerships within the watershed to promote inter-municipal cooperation and planning. The goal of this plan is to use it as a way to implement environmental change as if the groups were doing business.

Act 167 Stormwater Management Plan: The Act 167 plan looks to reduce future stormwater impacts from new development, such as model ordinances and stormwater BMP information.

Neshaminy Creek Watershed Work Plan Number 5: This work plan is to implement nonstructural alternatives opposed to flood control dams to provide the most protection from flood damage.

Proposed Solutions

Problem	Goal	Solution
Flooding	G1: To minimize flood events and protect from property damage	Impervious surfaces Riparian Buffers Individual Stormwater Management Programs
Streambank Erosion	G2: To minimize major erosion of stream banks	Riparian Buffers Stormwater Best management practices
Loss of Habitat	G3: To secure floodplain land as habitat for wildlife	Riparian Buffers-continuous greenway
Increased Sediment, Nitrogen, and phosphorous concentration	G4: To ensure fishable and drinkable water by improving water quality in the Neshaminy Creek.	Reduce runoff and erosion by riparian buffers and better stormwater management Filtration of stormwater before it enters the natural system