



# Watershed Management and Protection in Glenville, NY

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## Introduction

- The purpose of this project is to prepare an updated watershed management and protection proposal for the Town of Glenville in New York State.
- My proposal suggests 4 policies and related actions that the town can enact to better protect their watersheds.
- These suggestions can help strengthen not only Glenville's watershed conditions, but also the town's biodiversity, public education, and standing in the Environmental Protection Agency's Municipal Separate Storm Sewer System (MS4) program.

## Stormwater Management BMPs

- Due to Glenville's participation in the Environmental Protection Agency's MS4 program, the town can directly discharge their stormwater into the Mohawk River. Because of this, it is extremely important for the stormwater to be monitored and protected so that it does not pollute nearby watersheds.
  - Glenville does this by implementing BMPs, or Best Management Practices (Town of Glenville, 2019a). By keeping stormwater clean, Glenville ensures that watersheds are not being polluted by contaminated stormwater.

### BMP Recommendations:

1. Riparian Buffer Installation
2. Cyclical Monitoring and Assessment
3. Distribution of Public Education Materials

- Although no small task, Glenville can apply for grants to cover costs of these new BMP suggestions.
- Through obtaining federal and state grants to help with funding, Glenville should be able to implement these extra measures to protect nearby water bodies. The water will be cleaner, fish healthier, and their residents will thank them for it.

## Riparian Buffer Installation

- Riparian buffers are a simple, yet effective way to prevent watershed pollution. They consist of vegetation, like grasses, shrubs, and trees, and act as a natural barrier against run-off. Riparian buffers can increase water quality by absorbing and filtering nutrients and pollutants (NYSDEC, 1/21/2021b).
- In order to create a riparian buffer that is low maintenance, the Town of Glenville should consider planting native species, which can lower water and pesticide usage, provide support to local pollinators, and lower cost related to maintenance (NYSDEC, 1/21/2021b). They also increase biodiversity, which promotes soil health and increases ecosystem productivity.
  - A few common native species in the New York capital region include sugar maples, black oak trees, elderberry shrubs, winterberry shrubs, goldenrod, and coneflowers (Adamson, 1/21/2021)
- Riparian buffers would be especially beneficial in rural areas of Glenville, where tributaries may be polluted by agricultural runoff, consisting of fertilizers and pesticides that can decrease water quality and harm aquatic life.
  - The Town of Glenville could incorporate the creation of riparian buffers into their Stormwater Management Plan, which already cites them as "Green Infrastructure" (Town of Glenville, 2019a).
  - Riparian buffers could successfully protect the Town of Glenville's watersheds from pollution, strengthen their MS4 program, provide habitat for several plant and animal species, prevent erosion, and increase biodiversity.

### Benefits of Riparian Buffers:

- Block run-off from entering watershed
- Increase water quality
- Erosion control
- Flood control
- Habitat provision for wildlife

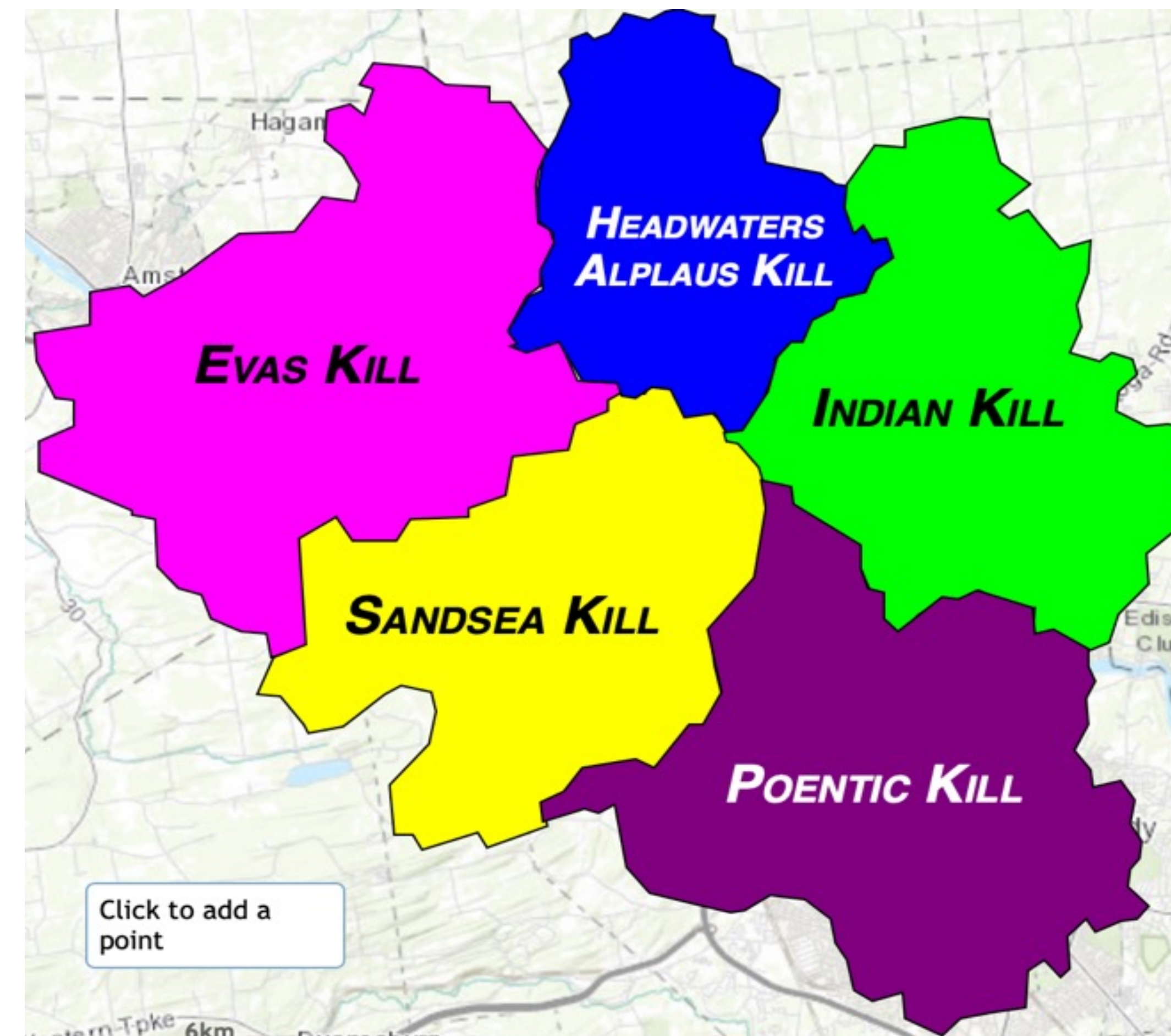


Fig. 1. Map of watersheds partially contained within Glenville (Schenectady GIS Mapping Tool).



Fig. 2. Before and after the installment of a riparian buffer (USDA, 2013).

## Cyclical Monitoring and Assessment

- In order to properly protect and manage watersheds, it is crucial to understand their current condition via regular testing and analysis.
- These results can then be evaluated using established models, such as the Mohawk River Watershed Management Plan (MRWMP)'s watershed assessment (MRWC, 2015).
  - The assessment uses three main indicators: Water Quality, Land Use Assessment, and Habitat Assessment. Final assessment scores are calculated by totaling scores from the three categories and reveal whether watershed conditions are healthy, unhealthy, or a mix.
  - The Town of Glenville should consider performing the complete assessment every 10 years, so that they can track their progress and take a deeper look into their watersheds.
  - This, alongside annual water quality testing, will give the town a better idea of watershed health and long-term treatment options.
- The Town of Glenville should also consider testing their water for Contaminants of Emerging Concern (CECs), such as per- and polyfluoroalkyl substances (PFAS) that have been linked to cancer, thyroid disease, birth defects, and other health issues (Fletcher et al., 2012).
  - These chemicals have infiltrated many parts of New York, including the nearby city of Hoosick Falls.
- One limitation of the MRWMP assessment strategy, and even in testing for PFAS and other contaminants, is that some tributaries, even many, can be located on private property.
- One solution could be to offer home water quality testing kits for residents.
- The NYS Department of Health has a "Free Lead Testing Pilot Program," which sends interested residents an at-home sampling kit that can then be sent to a lab for analysis (NYSDOH, 2019).

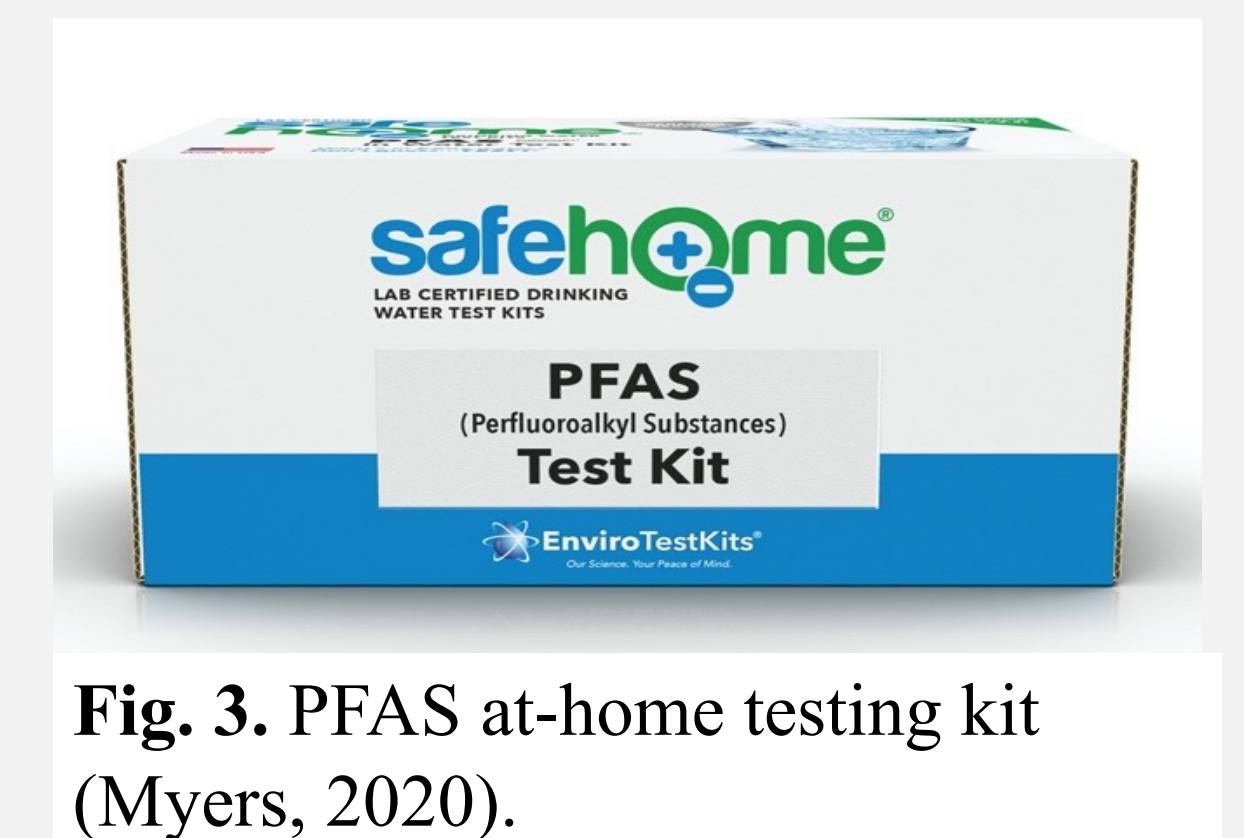


Fig. 3. PFAS at-home testing kit (Myers, 2020).

## Distribution of Public Education Materials

- Glenville has already been working to release educational materials to their residents regarding water issues, providing residents with background information and actionable steps.
- The creation of the educational materials is not the final destination, however. Equally as important is the distribution of those materials.
- While Glenville has uploaded their materials to their website, they should also consider posting them in a town newsletter (if applicable), displaying copies at local public spaces like libraries and government offices, and placing materials in mailboxes.
- This distribution is especially relevant in order to communicate to residents that live in areas susceptible to watershed pollution.

## References

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