

📍 MUNICIPAL CASE STUDY

Montgomery Township, Pennsylvania

Montgomery Township experienced rapid suburbanization over the last decades. To better manage runoff, the township initiated a stormwater basin naturalization program to maintain its 66 stormwater basins. In addition, a fee in lieu of installing new stormwater facilities for small land disturbances collects funds to support future water quality improvements.



**BRANDYWINE
CONSERVANCY**

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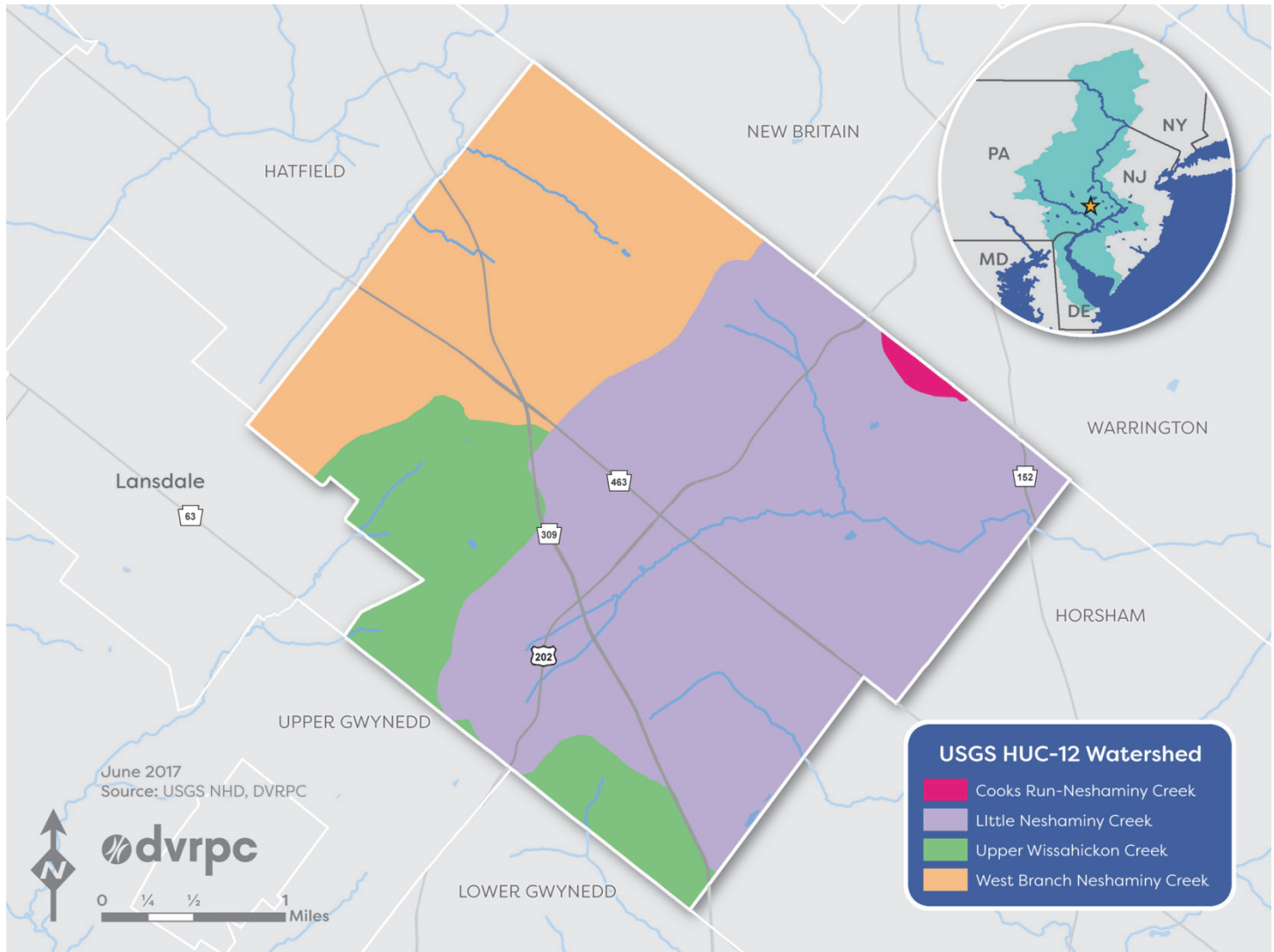
Background

Montgomery Township is located in Montgomery County, Pennsylvania, 25 miles north of Philadelphia. The township's land use characteristics and recent population changes offer several constraints in its water quality protection efforts.

The township has a total land area of approximately 11 square miles, 95 percent of which is developed. Much of this development, though not all, is impermeable, leading to flooding and water quality degradation in the township. According to its 2008 comprehensive plan, the majority of Montgomery Township's land is residential (47 percent), followed by parks/open space (15 percent) and commercial/office (11 percent). Roads, a notable source of impervious surface in communities, make up almost 10 percent of the township's land use. Less than 1 percent of the township is water.

Township officials had the foresight in the 1970s to strategically preserve local open space, riparian corridors, and greenways. Three contiguous open space parcels totaling approximately 270 acres now create an interconnected active and passive recreation area in the township. Township officials see their open space and natural resources as an important community benefit (Supervisor Michael J. Fox 2016).

Map: Montgomery Township Watershed



Population

With a population of 25,640 people (2015 Five-Year American Community Survey), Montgomery Township is large by county and state standards: the ninth largest municipality in Montgomery County and the 59th largest municipality in Pennsylvania. The township has experienced fluctuating rates of population growth over the past four decades. According to the 2008 Montgomery Township Comprehensive Plan Update, the township is expected to add about 200 residents per year between 2008 and 2020, at which time its population will be approximately 27,000.

According to the 2015 five-year American Community Survey, 16.8 percent of the township’s residents reported being foreign born, and 22.3 percent of residents reported speaking a language other than English at home. This diversity in origin and spoken language is relatively new for the township and is a factor with regard to effective public outreach and education strategies for community stormwater management.

Waterways and Watersheds

Montgomery Township lies entirely in the Delaware River Watershed. Eighty-five percent of the municipality drains to the Little Neshaminy Creek and 15 percent flows to the Wissahickon Creek. Despite the township's efforts to protect its natural resources, all 32 miles of streams within Montgomery Township have been designated by the Pennsylvania Department of Environmental Protection (PA DEP) as "impaired." PA DEP's 2014 Integrated Report cites land development and urban runoff as the primary sources of stream impairment in the township.

Water Quality Solutions

Naturalized Stormwater Basin Program

As part of complying with stormwater regulations, the township took ownership of and is maintaining the 66 stormwater basins in its jurisdiction. Starting in 2009, the township initiated a stormwater basin retrofit program that "naturalizes" existing stormwater basins.

In this "naturalization" program, vegetation is left to grow naturally on the inside of the basin and is maintained as directed by the township's landscape architect, Judy Goldstein. Ms. Goldstein is a consultant to the township and has been working on the naturalized basin program since its beginning. According to township's website, naturalizing basins "[transforms] a conventional basin into a natural ecosystem capable of providing habitat, improving the water quality, and providing aesthetic value" ("Montgomery Township, Pennsylvania"). Montgomery Township has developed this naturalized basin program for several reasons. Using the basins, the township can comply with state and federal water quality regulations, improve water quality by reducing the amount of pollutants entering waterways (including through uptake by native plants), and improve rates of groundwater recharge. Furthermore, naturalized basins can decrease the amount of air pollution produced through frequent mowing of conventional basins and improve the safety of township Public Works employees by minimizing their time spent maintaining stormwater basins.

Furthermore, the Montgomery Township's Shade Tree Commission identified that naturalization of conventional stormwater basins reduces their maintenance costs. The Shade Tree Commission also lists additional ecological benefits of naturalized basins. More wildlife will frequent a naturalized basin than a conventionally mowed one due to habitat and food provided by the native plant material. For example, naturalized basins allow for the re-colonization of insects that can help reduce the mosquito and tick population. Canada geese may be deterred by naturalized basins, which is positive because their droppings can further pollute waterways with excess nitrogen.

The township now has 47 naturalized stormwater basins and plans to continue naturalizing the remaining conventional basins over time.

People interviewed for this case study all spoke positively regarding the success of the township's basin naturalization program. Township Supervisor Michael J. Fox, who is also a clean water "champion" for the township, explained that with confidence in the quality and supply of their water source, compliance with the state Municipal Separate Storm Sewer System (MS4) permit became a top priority. Bruce Shoupe, the township's Planning and Zoning (P&Z) Director, echoed Supervisor Fox's comments regarding the township's focus on MS4 permitting requirements. Supervisor Fox also said that the township would like to undertake more water quality improvement projects, but the township's elected officials and staff must spend their time on

compliance with MS4 permitting requirements and have chosen to focus on the basin naturalization program as the primary means for compliance.

Supervisor Fox shared that the basin naturalization program began in the most remote parts of the township to avoid any unintended consequences and allow the Public Works Department to grow more comfortable with inspecting and maintaining the basins under the direction of Judy Goldstein. Ms. Goldstein explained the program's development and implementation in the following steps:

- Visit sites (all of which are on township-owned properties) and collect detailed information about basins.
- Inspect basins (all maintenance is done by the township).
- Allow plant material to grow in to help filter stormwater.
- Train Public Works staff to maintain the naturalized basins.

Both Supervisor Fox and Ms. Goldstein agreed that the basin naturalization program is successful due to the upfront public outreach at various township events, newsletters, signage on the basins explaining the change in maintenance, and the continued educational efforts via the township website and other publications. Ms. Goldstein continues to advise the township on ongoing maintenance concerns and naturalization of the 19 remaining basins.

Arbor Day Tree Giveaway Program

According to Supervisor Fox, the township has been providing free native trees and shrubs to township residents for the past 15 years in celebration of Arbor Day. Generally, between 200 and 400 plants are offered per year on a one-per-household, first-come, first-serve basis.

The township purchases the trees and shrubs and places no restrictions on where residents plant the stock. Ms. Goldstein, township staff, and volunteers provide tree selection, care, and maintenance advice to residents during this free event. Supervisor Fox shared that the Arbor Day program is an effective outreach and education tool that has helped add many trees on the township's residentially developed lands. The township also hosts a Shredding Day and a Community Day, which offer prime opportunities for the dissemination of information to residents and businesses. P&Z Director Shoupe echoed Supervisor Fox's opinions about the effectiveness of township events like Arbor Day on reaching citizens. He said that getting citizens, township staff, and township supervisors on the same page helps insure consistent administration and messaging. Additionally, township events like Earth Day and a summer camp serve to reinforce a community ethic of protecting the environment.

Partnerships

Montgomery Township also takes a leadership role in multi-municipal water quality protection programs. The township participates in the Pennsylvania Stormwater Coalition, which was formed in 2010 and is spearheaded by Montgomery Township Manager Lawrence Gregan and Supervisor Fox. The Coalition consists of 57 municipalities in Montgomery, Bucks, Chester, Delaware and Berks counties. It has worked with local, state, and federal officials to recognize and address the difficulties municipalities face when trying to meet PA DEP's March 2013 stormwater permit requirements. The Coalition continues to be involved with regional stormwater management issues and reflects a commitment by member municipalities to their "cooperative and firm support for a MS4 and TMDL [Total maximum Daily Loads] program that is reasonable, responsible and attainable" ("Montgomery Township, Pennsylvania").

In addition, P&Z Director Shoupe mentioned the township's partnership with the Wissahickon Valley Watershed Association (WVWA) on education initiatives and with the Wissahickon Clean Water Partnership. The WVWA is a non-profit land trust founded in 1957 with a mission to protect the quality and beauty of the Wissahickon Creek and to enhance all life in the Wissahickon Watershed. The partnership was formed to address excessive sediment and phosphorus impairments to the Wissahickon Creek. PA DEP has permitted the municipalities within the Wissahickon Watershed to develop their own alternative TMDL plan to address the water quality issues in the creek. The township has signed an intergovernmental agreement with 16 other municipalities and four wastewater treatment plants. This agreement commits Montgomery Township to work collaboratively on a plan to improve drinking water, mitigate damaging flooding, reduce streambank erosion, protect fish and wildlife, and restore valuable recreation areas throughout the watershed.

Aside from these two partnership efforts, Supervisor Fox believes that the township would be willing to collaborate with other municipalities more fully to address stormwater, but he finds that the state and federal regulations offer little incentive for collaborative municipal efforts. Both Supervisor Fox and P&Z Director Shoupe mentioned that adding to and strengthening Montgomery Township's partnerships could lead to increased coordination and efficacy on water quality efforts on a watershed or regional level.

Challenges and Needs

The three interviewees from Montgomery Township identified four major challenges to protecting water quality in their municipality.

Understanding and Meeting PA DEP's New Municipal Stormwater Regulations

Both P&Z Director Shoupe and Supervisor Fox discussed concerns with the state's new MS4 permit requirements. Supervisor Fox felt that previous regulations were rigid. With new regulations in place, P&Z Director Shoupe expressed the challenge of learning and meeting additional requirements. The new MS4 permit regulations require municipalities to develop TMDL plans and/or pollution reduction plans for impaired waters. Through development of these plans, municipalities need to identify best management practices to meet pollution reductions during a five-year permit period and describe how they will be implemented.

Funding Stormwater Management Program

Funding water quality protection is a major issue with municipalities in Pennsylvania, including Montgomery Township. While the Shade Tree Commission funded the township's naturalized basin program, dedicated funding for other stormwater management initiatives to meet PA DEP's regulations may be an issue in the near future.

Key Partners

Pennsylvania Stormwater Coalition: Spearheaded by Montgomery Township Manager Lawrence Gregan and Supervisor Michael J. Fox, this partnership of 57 municipalities in Montgomery, Bucks, Chester, Delaware and Berks counties works together and with government officials to address the state MS4 and TMDL program requirements.

Wissahickon Clean Water Partnership: A multi-municipal partnership that addresses excessive sediment and phosphorus entering the Wissahickon Creek. PA DEP has permitted the municipalities within the Wissahickon Watershed to develop their own TMDL alternative plan to address the water quality issues in the creek.

Wissahickon Valley Watershed Association: A non-profit land trust founded in 1957 to serve as a steward of the Wissahickon Creek.

One promising means of funding stormwater projects is the township's fee in lieu initiative. In 2016, one year after adopting a new stormwater management ordinance, the township established a fee in lieu of stormwater facilities for "small projects" as defined in the ordinance: residential projects with less than or equal to 5,000 square feet of impervious surface and less than one acre of earth disturbance (§206-24). In this program, a fee of \$ 0.50 per square foot is applied after the first 1,000 square feet of land disturbance. The fee creates a dedicated funding source for stormwater management in the township.

From January 1, 2016, to February 1, 2017, the township collected \$4,606 on permit applications for residential additions, patios, driveways, and in-ground swimming pools with decking (Gregan, personal communication, February 3, 2017). The township has yet to allocate the funds for any other stormwater projects.

Communicating Water Quality Initiatives to Immigrant Populations

As discussed earlier in this case study, the percentage of residents who were born outside of the U.S. or who speak a language other than English at home is increasing. This demographic shift can present challenges to effectively communicate the township's water quality problems, goals, and solutions. According to P&Z Director Shoupe, this challenge can be overcome by working with community members who are better able to communicate with the township residents who have a language barrier. P&Z Director Shoupe indicated that community members in churches and other capacities are already working to fill in those gaps but acknowledges that the township may need to devote more resources toward this special outreach and education effort.

Technical Assistance and Training Needs

While Supervisor Fox could not identify any additional training needs or concerns, he underscored the importance of training the township's Public Works Department staff with naturalized stormwater basin maintenance. Ms. Goldstein shared that she works with the Public Works Department on ongoing training and also attends all township Shade Tree Commission meetings. She noted that Greg Rice of the Shade Tree Commission was a crucial player in the basin naturalization process and the "boots on the ground" implementer of many of the aforementioned initiatives.

Conclusion

Montgomery Township has taken significant steps to protect its natural resources and water quality. This municipality has had particular success with preserving open space and parkland; retrofitting conventional stormwater basins to better mimic natural systems; and offering a township-wide, no-cost tree planting program. The township is able to emphasize water quality and other conservation benefits to its residents and businesses through township-sponsored events such as Arbor Day. The commitment to the basin naturalization program and training by the township's elected officials, consultants, and staff extends to the township's investment in greener stormwater management facilities and their maintenance.

Motivating Factors

Fast Growth: Rapid growth in residential development created many stormwater basins that may not have been kept functional without municipal ownership, maintenance, and naturalization.

Regulatory: PA DEP regulations for MS4s led local officials to form the Pennsylvania Stormwater Coalition to recognize and address the difficulties that municipalities face when trying to meet PA DEP's March 2013 stormwater permit requirements.

Local Partners: Pennsylvania Stormwater Coalition, Wissahickon Clean Water Partnership, and the WVWA have helped the township make progress in its own water quality protection.

Unifying Issues: Compliance with PA DEP regulation and a need to cost effectively manage stormwater in a suburbanized landscape.

Montgomery Township has continued efforts despite challenges it faces in trying to comply with complex stormwater regulations and permitting requirements. As one of the pioneering municipalities in the Delaware River Watershed, township officials have adopted a new fee in lieu of installing stormwater facilities to fund future water quality improvement projects. In addition, the township has taken the initiative to be involved regionally by forming the Pennsylvania Stormwater Coalition and is participating in the Wissahickon Clean Water Partnership. The township will no doubt continue to actively tackle the problems of stormwater management and water quality improvement through progressive programs and policies.

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