Emerging Stormwater Management Options in New York: Overview of the City of Ithaca Stormwater User Fee Case Study

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Executive Summary

The cost of constructing, maintaining and operating municipal infrastructure for managing stormwater runoff and drainage is a significant portion of many municipal budgets in New York State. In recent decades, several trends have increased the overall cost of meeting municipal stormwater management responsibilities, including the implementation of the Phase II stormwater management regulations [1] based on the Federal Clean Water Act, which created new requirements for municipalities with stormwater conveyance infrastructure that are designated as municipal separate storm sewer systems, or MS4s. Another trend that is adding to the burden on stormwater infrastructure is the increasing incidence of larger rainstorms in recent decades, a trend that is very evident in weather records going back to the 1950s and 1960s (and this shift is larger in the northeast U.S. [2] than in any other part of the nation). The recent focus on the benefits of green infrastructure for reducing runoff and managing stormwater to protect water quality and reduce risks from runoff and flooding is an important evolution that is driving interest in new financing approaches and other options to improve the cost-effectiveness and efficacy of stormwater infrastructure. Finally, revising the way stormwater costs are allocated to specific properties based on benefits each property receives from municipal infrastructure is yet another driver for improving stormwater policies and programs. This article provides an introduction to one approach for revamping a local municipality's financing mechanism for stormwater costs, based on the City of Ithaca's experience after they implemented a stormwater user fee model through a local law adopted by the city in August 2014. [3]

Introduction

The Clean Water Act, which was adopted into U.S. law in 1972, created a framework for protecting and restoring water quality through regulations and infrastructure improvements that initially focused mainly on municipal and industrial wastewater treatment and other measures to address point source pollution. Over time, it became evident that nonpoint source pollution carried in stormwater runoff is another major cause of water quality impacts and Federal and state programs began to focus on addressing this through education, demonstration projects, research and regulations. Best management practices for managing stormwater, including retention ponds, were included in many development projects, and more recently, practices known as green infrastructure have emerged as the more effective way to protect water quality in many situations. Green infrastructure (GI) -- including smaller rain gardens and larger bioretention areas, vegetated swales, porous pavement, street trees, rainwater harvesting, and

[1] Stormwater Phase 2 Final Rule – An Overview, Dec. 2005, available at https://www3.epa.gov/npdes/pubs/fact1-0.pdf, accessed Jan. 30 2018.

[2] See map in Figure 2.18, *Observed Change in Very Heavy Precipitation*, at this website about the National Climate Assessment – this map illustrates the 71% increase in storm events defined as the heaviest 1% of all events in the northeast U.S. from 1958 to 2012. Available at https://nca2014.globalchange.gov/report/our-changing-climate/heavy-downpours-increasing. Accessed Jan. 30 2018.

[3] This Ithaca law is Chapter 283: Stormwater Utility, adopted by the Common Council of the City of Ithaca in August 2014 as L.L. No. 3-2014, and it's available at https://ecode360.com/29575854. Accessed Jan. 30 2018.

green roofs, among others – is a design approach that focuses on managing runoff on the site where it originates, starting with reducing the impervious surfaces (paved surfaces, buildings and other areas that don't absorb rainwater) that produce runoff in the first place. Many GI practices also use vegetation as a key part of the treatment process, and in the growing season, trees and plants help retain and evaporate large amounts of water, thereby reducing runoff. The plants in vegetated landscapes and GI systems, including soils, play a critical role in filtering pollutants and restoring water quality.

In new development projects, it is easier to incorporate green infrastructure practices into site plans and designs. Finding space in areas that are largely built-out, including denser urban areas, is more challenging, and when it's not financed as part of a new development, finding funding sources to implement GI retrofits to restore urban water quality is another barrier. A significant portion of the total pollutant loading reaching waterbodies in areas like the Hudson Valley region in New York originates from older, developed areas with a lot of impervious surfaces. Innovative ways are needed to address these legacy pollution sources, and improved financing mechanisms for long-term municipal operations and maintenance costs are one important avenue for addressing these challenges.

In recent years, a lot of research has focused on developing financing and regulatory strategies that can incentivize the implementation of GI practices to reduce runoff from private properties. Another key priority that's directly relevant for understanding the stormwater user fee approach and rationale involves the importance of equity and fairness in allocating the costs of stormwater infrastructure appropriately, so that property owners are paying enough to cover the cost of their fair share of the cost for municipal stormwater systems. The stormwater user fee is a regulatory and financing mechanism that enables a more equitable allocation of these costs, by linking the cost assessed to each property more directly to the amount of runoff that property generates each year, using the amount of impervious surface as the indicator for runoff quantities. An additional benefit of this approach, which is incorporated into the Ithaca law and in user fee models in other states, is that it creates a direct incentive for property owners to implement green infrastructure retrofits to reduce runoff, and to thereby reduce their annual cost for stormwater charges.

For municipal leaders and other stakeholders in New York who are interested in implementing a user fee model for allocating and assessing stormwater costs, a key question is whether this approach is authorized under state law. As it turns out, based on the legal analysis and viewpoints available, the answer to this question is complicated and not clear. A draft white paper that was written for the NY State Department of Environmental Conservation (NYS DEC) in 2007, *Municipal Separate Storm Sewer System (MS4) Funding Document*, provides a detailed analysis of many relevant state laws. [4] In this paper and in several educational presentations sponsored by the Hudson Valley Regional Council in the last several years, Bob Feller, the white paper's author, suggested that the user fee approach is the better approach for addressing the financing, equitable allocation and water quality restoration goals outlined above. But in his legal analysis, Feller concluded that while there is no prohibition in state law that clearly states municipalities are not authorized to implement user fees for stormwater costs, there is also no law that clearly enables this approach. After reaching the same conclusion, but some apparent confidence that a carefully-structured law could potentially withstand any legal challenges, the

[4] Available at www.dec.ny.gov/docs/water_pdf/funddocdraft(1).pdf, accessed Jan. 29, 2018.

City of Ithaca decided to implement a user fee for assessing stormwater costs. After completing a lot of research and planning, this law, *Chapter 283: Stormwater Utility* [5] was adopted in 2014, and it's believe to be the first one of its kind in NY State. As this article is being finalized in late January 2018, there have not been any legal challenges to the Ithaca law and the implementation process has reportedly been fairly straightforward.

Overview of City of Ithaca Stormwater User Fee

The City of Ithaca is a designated MS4 municipality, and as such, it is subject to stormwater management requirements of the NYS DEC for MS4s, which is important for understanding the context for the user fee law's implementation and its long-term implications. At the same time, drainage and simply managing runoff from a quantity perspective is a fundamental priority for municipal stormwater managers. The Ithaca stormwater program is addressing both quantity and quality issues, and runoff reduction is, in general, an important proxy for achieving water quality goals.

As a starting point for developing the new stormwater law, Ithaca officials and staff were faced with one major task, among others: they had to identify all the costs and budget lines related to stormwater management in the existing municipal budget framework. In the past, these costs were incorporated in budgets for a number of departments and staff, and identifying and quantifying these costs was a time-consuming process requiring a lot of staff time. Another step that required a lot of time was the use of GIS (geographic information systems) to analyze aerial imagery to calculate the extent of impervious surface on each tax parcel. This analysis determined that for 1, 2 and 3 unit residential properties, the average extent of impervious surfaces on these parcels is 2,300 square feet. Ithaca used this number to establish an Equivalent Dwelling Unit annual flat stormwater user fee for these properties that was set at $48/year. For larger properties, including commercial, institutional and industrial sites, the annual stormwater fee is based on the same ERU, with fees assessed in increments of 0.25 ERUs at $12 each. Owners who reduce impervious surfaces or mitigate runoff in other ways can apply for credits based on the amount of the reductions, and once these credits are approved, their annual fee is lowered. A lot of information relevant for property owners is available at the city's website. [6]

In this framework, larger residential properties and non-residential uses have the option to reduce impervious surfaces or to mitigate stormwater runoff on site in other ways, and after the City verifies these retrofits have been implemented, the annual stormwater fee will be reduced accordingly. Ithaca decided that the administration costs for this program would outweigh the stormwater user fees received if they included a variable-fee structure for 1-3 unit residential parcels. The law therefore specifies $48/year as the flat fee for these parcels.

Some key points regarding the advantages of this approach for Ithaca include the fact that this user fee now enables collection of about $130,000/year from Cornell University, whose

[5] Chapter 283: Stormwater Utility, Adopted by Common Council of the City of Ithaca 8-6-2014 by L.L. No. 3-2014. Available at https://ecode360.com/29575854, accessed Jan. 30 2018.

[6] FAQs about the stormwater user fee are available at https://www.cityofithaca.org/520/Stormwater-User-Fee-FAQs, and basic information about stormwater management and requirements for MS4 municipalities is at https://www.cityofithaca.org/316/Stormwater-Management, accessed Jan. 30 2018.

properties comprise a large part of the city that generate a lot of runoff, while under the old approach (which depended on property taxes for stormwater costs), the university paid nothing because it is exempt from property taxes. While most municipalities would not realize such a substantial boon (unless they had a similarly large percentage of tax-exempt properties), some additional revenue would be gained by assessing fees on tax-exempt properties in most places. Also, as noted above, by allocating existing costs more equitably, this approach can be presented to property owners and others in the community as a fairer, more transparent way of assessing costs based on each owner paying their fair share. In Ithaca, the city calculated that the average homeowner had previously been paying about $100/year, and during the adoption process for the stormwater user fee, they explained to the public that the new law would result in cutting their annual cost by half. All non-profit organizations that are tax-exempt are subject to the Ithaca user fee. Another key aspect of this approach is that municipal stormwater costs are shifted away from being collected via property taxes – and therefore, they are apparently not subject to the local government tax cap in NY State that has been a major challenge for many local governments. [7] [8]

Ithaca's implementation of this stormwater user fee law entailed a large investment of staff time, as noted, for research, analysis, program development, public outreach, and initial implementation. After the first three months of implementation, however, they found that the amount of staff time required for administration of the program returned to roughly where it had previously been before they began this process, and they did not hire any new staff for this program.

With the stormwater user fee in place for several years now, the City of Ithaca's stormwater program has recently used some the funds collected for modeling and analysis of streams, with a focus on identifying flood risk mitigation options. In this context, one key, outstanding question regarding the legality of how these funds can be used involves costs for construction of stormwater infrastructure, and costs for illicit discharge detection and elimination, public education and participation, reporting to NYS DEC, and other steps required for MS4 municipalities as part of their annual stormwater management programs. In Feller's 2007 analysis for NYS DEC, he wrote: "When available, user fees can only be employed to fund the operation and maintenance portion of the costs." [9] The City of Ithaca, however, is apparently using some of the revenue collected for costs that might be deemed to be outside the realm of "operation and maintenance". For preparation of this article, available resources did not permit a more detailed analysis of how the existing statutory laws and precedents in case law might view this question.

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[7] Aaron Lavine, City Attorney for the City of Ithaca, at May 9, 2017 workshop, Emerging Stormwater Management Options for Protecting Streams & Water Quality, presented in Orangetown, NY. Videos of presentations at this workshop are available for viewing at https://vimeo.com/channels/1248904 and Aaron Lavine's slides from this workshop, entitled *Implementing Stormwater User Fees in New York: the Ithaca Experience*, are being posted online at the website of the Hudson Valley Regional Council in conjunction with publication of this article – visit http://hudsonvalleyregionalcouncil.org/ for more information.

[8] Bob Feller's 2007 white paper for NYS DEC also seems to support this conclusion. See p. 38, where this paper states: "User fees are not governed by the real property tax law. Instead, they are considered to be payment for the provision of services." See www.dec.ny.gov/docs/water_pdf/funddocdraft(1).pdf

[9] See p. 5. Accessed Jan. 30 2018.

Conclusion

As described in the beginning of this article, water quality protection and restoration are the primary goals of the 1972 Clean Water Act, which is one of the key drivers for local government stormwater management requirements and programs in New York. Meanwhile, basic drainage and flood risk mitigation have been critical priorities in communities across the globe for millennia. In the modern era, green infrastructure – which relies on engineered systems relying heavily on environmental elements including soils, plants and trees, has emerged as the preferred approach for capturing and reducing runoff and filtering out pollutants. We are therefore seeing an integration of multiple goals, some newer and some older, and technologies and management strategies for achieving these goals are steadily evolving. At the same time, minimizing costs for municipalities and property owners, and allocating costs fairly, are also key priorities. As stormwater management and water quality programs mature in New York and other states, newer policy and financing tools are needed to facilitate more effective implementation of the best management practices that we know are protective of water quality. While there is a great deal more to be learned, the Ithaca stormwater user fee law and associated programs provide a valuable model for a coordinated approach that can potentially improve the ability of municipalities to incentivize water quality restoration as well as continuing to fund basic drainage needs.

Resources

City of Ithaca user fee law creating a user fee structure for stormwater management costs: Chapter 283: *Stormwater Utility*, Adopted by Common Council of the City of Ithaca 8-6-2014 by L.L. No. 3-2014: https://ecode360.com/29575854

Link to videos of May 9, 2017 workshop entitled "Emerging Stormwater Management Options for Protecting Streams & Water Quality: An Educational Workshop for Municipal Officials, Watershed Organizations and Other Stakeholders", presented by the Hudson Valley Regional Council and partner organizations: https://vimeo.com/channels/1248904

Stormwater Phase 2 Final Rule – An Overview. US EPA Fact Sheet, Dec. 2005 https://www3.epa.gov/npdes/pubs/fact1-0.pdf

US EPA introduction to nonpoint source pollution issues: https://www.epa.gov/nps/what-nonpoint-source

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