



# STORMWATER REGIONALIZATION IN PITTSBURGH

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## **Background**

The Pittsburgh region faces significant challenges in the management of stormwater as the aging and inadequately sized combined sewer system is unable to handle the high volume of stormwater that flows into the system during severe wet weather events. The system has been designed to overflow when capacity is exceeded, resulting in over nine billion gallons of combined stormwater and wastewater overflow into the regions' waterways every year (RAND, 2017). This overflow violates the U.S. Clean Water Act as well as state and county health laws as it pours polluted wastewater directly into waterways before it reaches the designated treatment facility (RAND, 2017). As such, sewer authorities in Pittsburgh are under a consent decree requiring them to meet water quality requirements via substantial improvements (Blackhurst, 2015). In addition to these overflow challenges, Pittsburgh is experiencing an increase in the number and severity of wet weather events due to changes in the built environment as well as climate change. These factors combined mean that Pittsburgh is facing unprecedented challenges in managing and mitigating stormwater in the region. Tackling this 21<sup>st</sup> century challenge will require new resources as well as coordination amongst the Pittsburgh metropolitan region as a whole. Previous reports have suggested a number of regionalization strategies as well as methods for defining the region. Regardless of what approach is taken to regionalize, there must be a willingness on the part of the participating municipalities to cede some control for the greater good. Convening municipalities and other stakeholders for a conversation on tackling this issue must be a policy priority in the next decade.

## **Barriers to Regionalization**

*Finding 1: Stormwater is a new public policy issue*

Pittsburgh and the surrounding region have always struggled with flooding. The numerous rivers and runs that cut through the geography and steep hills flood regularly; however, there are a number of factors that make today's stormwater management a new public policy issue. On one hand, as the construction of the region continues, the land's capacity to absorb runoff and rainwater decreases. Impervious surfaces constructed as part of new development, such as roads, parking lots, rooftops and sidewalks, prevent rain from infiltrating back into the ground. During rain storms and other precipitation events, these surfaces carry polluted stormwater to storm drains, instead of allowing the water to percolate through soil (USGS, 2016). Thus, development often results in a lower water table because groundwater recharge is reduced, and also contributes flooding (WEF, 1998; ASCE, 1998).

On the other hand, as extreme wet weather events happen with increasing frequency. Many northeastern cities, including Pittsburgh, have already experienced a 55% increase in heavy rain events in recent decades, and are projected to face at least a 40 percent further increase by the end of the century (Michon Scott, 2019). To make matters worse, areas in the City of Pittsburgh experienced 11 significant flash flooding events between 2007 and 2013, including the 2011 Washington Boulevard floods that took the lives of 4 people (Resilient Pittsburgh, 2016). Thus, the region will face larger combined sewer overflows and excessive flooding if steps to regionally manage stormwater are not taken.

*Finding 2: Many players makes coordination difficult.*

There are 130 municipalities and 83 sewer systems in Allegheny County. Those 130 municipalities are also members of separate Intergovernmental Organizations, councils of governments or maintain their own stormwater authorities. Forty-three of these municipalities are members of CONNECT, representing over 800,000 people in the Pittsburgh metropolitan

region (see Appendix 1). However, there is no single overall authority responsible for stormwater management. This is partially a result from the idea of “home rule”, where authority is devolved from the state to county or local level (David Y Miller et al, 2014). Although this allows municipalities to have autonomy, it also makes greater regional collaboration complicated.

All of these sewer systems rely on the Allegheny County Sanitary Authority (ALCOSAN) for water treatment services. The structure of these systems varies: older parts of the region consist of combined sewer systems, while the other municipalities rely on separate pipe networks for stormwater and sewage, which are the preferred modern design. However, many of the outlying regions with separated sewer systems flow into the combined sewers before reaching the ALCOSAN treatment plant (RAND, 2017). Hence, municipalities with different interests as well as disparate stormwater management standards share the same system. Coordination between sewer systems that are structurally as well as administratively different is naturally difficult.

*Finding 3: There is no institution in Pittsburgh that oversees stormwater for the region.*

Stormwater is a dynamic issue with many different aspects, from road, commercial or residential development runoff to water quality and flood control. Accordingly, oversight and management of it can vary by municipality or authority. Within the City of Pittsburgh and surrounding municipalities, stormwater can fall under sustainability or city planning departments. Some municipalities have an independent stormwater authority. According to the 2007 PennDOT Stormwater report, stormwater maintenance responsibilities for state-owned highways in Pennsylvania’s municipalities differ widely because of the time period and context in which related laws were written (Pennsylvania State Transportation Advisory Committee,

2007). The Storm Water Management Act of 1978 (Act 167) charged the Department of Environmental Protection (DEP) with the oversight of stormwater facilities. However, the statute does not make DEP responsible for storm water on state highways. Meanwhile, the Pittsburgh Water and Sewer Authority (PWSA) has jurisdiction over 1,200 miles of sewers and 25,000 catch basins within the City of Pittsburgh, but has no jurisdiction in the surrounding municipalities (“Sewer Conveyance”). So there is an overlapping system where responsibilities and jurisdictions are unclear at best.

Within Pittsburgh, ALCOSAN has significant interest in reducing stormwater and thus the amount of water that comes to its treatment facility; however, ALCOSAN has no legal or infrastructural jurisdiction over stormwater or flood control (ALCOSAN, 2019). ALCOSAN only owns 90 of 4,100 miles of pipes in the system and it must rely heavily on regional partners for the actual implementation of source control projects because ALCOSAN does not own significant property on which to implement its own source control projects (RAND, 2017). In addition, as a regional conveyance and treatment authority, ALCOSAN has no direct ability to mandate or implement source control projects on public or private properties.

*Finding 4: There is no consensus on what a regional solution to stormwater looks like.*

Past reports have made several different suggestions on how to best coordinate, or regionalize, efforts to tackle the issue of stormwater management. These reports suggest three main strategies for regionalization and two possible ways to define regionalization boundaries.

The first suggested strategy is to regionalize by organization or to centralize stormwater management with the creation of a specific stormwater organization. The Sewer Regionalization Implementation Committee (SRIC) report suggests implementing this strategy by way of voluntary membership in a regional sewage collection system and the transfer of ownership of

over 200 miles of trunk sewers and wet weather control facilities to ALCOSAN (SRIC, 2015). ALCOSAN has suggested a multifaceted approach to stormwater regionalization where informal organization would take place through partnerships between government entities, foundations, non-profits, trade schools, etc. to provide services such as workforce development and training on green stormwater infrastructure (GSI) maintenance and to support implementation of source controls (ALCOSAN, 2019). The Water Center of the University of Pennsylvania has also suggested regionalization based on organization with recommendations to create a “Three Rivers Watershed Action Network” and to develop a “Three Rivers Watershed Leadership Incubator” (The Water Center, 2019). While creating a singular authority to oversee stormwater may help simplify certain aspects of administration, it also creates an additional layer of government that must be navigated.

It is also possible to regionalize through the creation of a stormwater fee that everyone pays, which then gets redistributed throughout the region to be put to its highest and best use. ALCOSAN has recommended that municipalities secure stormwater management funding through grants, loans, or stormwater fees (ALCOSAN, 2019). They also have recommended incentivizing source controls on public and private property through stormwater fee credits (ALCOSAN, 2019). Some local municipalities have already instituted a stormwater fee to help fund stormwater management initiatives. The Wyoming Valley Sanitary Authority (WVSA), for example has implemented a regional stormwater fee across multiple watersheds with great success (see Finding 7 for more information).

Lastly, an advisory committee could be created in order to administer a set of stormwater management standards for the region. This committee would make recommendations on what can be done to meet these standards and assist municipalities in meeting these goals. ALCOSAN

has proposed regionalizing around standards by improving ordinances, codes, and programs to remove barriers and facilitate green stormwater infrastructure (GSI) throughout the region (ALCOSAN,2019). PWSA has also recommended regionalizing through a set of common standards to evaluate and implement effective GSI (PWSA, 2016). Since the region shares the same treatment system, unified standards could be helpful to plan and implement a regional stormwater management project.

Previous reports also disagree as to how to define the boundaries of regionalization in the Pittsburgh region. The SRIC report does suggest regional boundaries, while the University of Pennsylvania report posits that boundaries will emerge naturally when leaders and organizations self-identify into collaborative models of water management allowing an opportunistic approach to defining boundaries (SRIC, 2015 & The Water Center, 2019). It would, however, be possible to regionalize around physical watershed boundaries, and this has already been attempted by municipalities in the North and South Hills of the city. The ALCOSAN and PWSA reports recognize there is no authority that can force individual municipalities to adopt a regional plan, hence a voluntary commitment from each leadership will be needed (ALCOSAN, 2019 & PWSA, 2016).. While both the ALCOSAN and PWSA reports focus on collaboration between municipalities in the region, these subdivisions could be defined as municipal boundaries, councils of governments (COGS), county lines, CONNECT members, or something else.

*Finding 5: Stormwater regionalization will require new resources beyond present capacity, including financial resources.*

Whether municipalities have a separate stormwater system or a combined one, managing stormwater will be very expensive. Currently, the most prevalent source of stormwater management funding by local governments is the appropriation of general tax revenues.

However, this dependency puts a strain on an already overburdened tax base and takes resources from other necessary municipal services. Additionally, there are many nonprofit and religious entities that do not pay taxes, but still contribute to stormwater runoff. Relying on a restricted tax base to fund stormwater is not a sustainable solution.

Regionalization of finances may help distribute resources equitably to municipalities with greater need; however, a large barrier to this regionalization is that municipality residents may not want to see their tax dollars spent in a neighboring community if they feel they are not getting tangible benefits from the arrangement. It is important to note that the long-term cost-savings from installing regional stormwater management systems, while not fully quantified for the Pittsburgh region, could be several millions of dollars based on projected cost savings of similar proposals implemented elsewhere.

*Finding 6: There are existing project level stormwater efforts, but a regional effort is still lacking.*

Recent efforts to address the challenge of stormwater management have been made by a limited number of municipalities and coalitions. In Allegheny County, the Saw Mill Run Watershed Association works with the 12 municipalities and 14 City of Pittsburgh neighborhoods through which Saw Mill Run flows to create an Integrated Watershed Management Plan that will guide stormwater efforts and creates a sense of shared responsibility across the affected communities (“Saw Mill Run”). In the North Hills of Pittsburgh, Etna and Shaler banded together to implement flood mitigation strategies in the downstream portion of Little Pine Creek. With a \$65,000 grant from the Pennsylvania Department of Environmental Protection and an additional \$65,000 from Allegheny County through a special flood protection grant, the two municipalities split the cost of building a “trash rack” in the Shaler portion of

Little Pine Creek. This structure consists of half a dozen 18-inch steel pipes that are drilled into the stream bed and catch large items like cars, tree, and dumpsters, that would previously flow downstream, get caught under the bridges in Etna, and cause flooding there. Although the cost savings of the trash rack have not been quantified, there have been visible results: in the summer of 2019, the trash rack stopped two dumpsters and a trailer from getting stuck under a bridge in Etna.

Although the Etna-Shaler project has not resulted in any additional formal cooperative agreements for stormwater management in the Little Pine Creek watershed or North Hills COG, it has demonstrated the utility of two municipalities working together to implement a project that has positive overall effect for the watershed. It has also resulted in the creation of the Stormwater Management Program (SWIM) that is embedded within the North Hills COG organization. SWIM applies for DEP grants for multiple watersheds touched by the COG's geographic reach and developed the North Hills COG Stormwater plan in 2010. The COG has also worked with an engineering firm to bid out the maintenance of stormwater detention facilities within member communities.

In neighboring Westmoreland and Fayette Counties, Jacob's Creek Watershed Association (JCWA) has come to an understanding of shared ownership of the watershed that multiple municipalities sit upon. While JCWA does not own any of the sewers in the area, the organization has brought together municipalities and facilitated discussions around joint ownership of responsibility for the impact of development on the watershed ("History," 2019). Proposed plans for managing Jacobs Creek focus on reducing sediment and pollutants across the watershed as a whole, working within both Westmoreland and Fayette Counties ("History," 2019). These watershed organizations demonstrate the importance of coalescing around

comprehensive stormwater management, as one-off projects will not be enough alone. Managing the built environment and stormwater on a regional level will be much more effective.

*Finding 7: There are existing efforts to define regionalization.*

Pennsylvania's Wyoming Valley has addressed the issue of stormwater regionalization through the creation of a stormwater authority that resides under WVSA. This stormwater authority serves the WVSA service area and collaborates with regional stakeholders such as the Dallas Area Municipal Authority (DAMA) and the Luzerne County Flood Prevention Authority (FPA) to leverage cost savings across the region (Herbert et al, 2018). The region is slowly shifting towards a model whereby in 2023, WVSA will issue all MS4 permits, acting as a lessee and co-permittee with the towns it serves (Herbert et al, 2018). The eventual goal is for WVSA to own the entirety of the stormwater system while still co-permitting with townships.

Although initially the authority ran into townships unwilling to undertake feasibility studies or to cede control for the greater good – not unlike the multijurisdictional system we see here in western Pennsylvania – the authority was able to overcome these initial hesitations by making the case to municipalities for cost-savings and shared technical expertise (Herbert et al, 2018). Additionally, submitting one pollution reduction plan and collaborating on stormwater management will result in \$57 million in cost savings over five years and less paperwork. Already, participating municipalities have seen a decrease in paperwork: as opposed to 64 BMP plans submitted (one for each municipality), only seven – one per watershed – were necessary (Herbert et al, 2018). So far, WVSA signed formal watershed management agreements with 32 municipalities in the Chesapeake Bay watershed area (Herbert et al, 2018).

In order to create a fund that would be used for regional stormwater infrastructure, WVSA instituted stormwater fees across the region. Rather than basing these on property size or

amount of taxes, the fees are based on impervious area across a property. Property owners can also collect credits to reduce their fee by implementing measures that either reduce the amount of run-off or improve the quality of any water leaving the property (Herbert et al, 2018). These create an equitable and sustainable funding stream, because those properties with the most impervious area – and thus, that create the most run-off – pay the most. This prevents properties that are traditionally tax-exempt from avoiding paying stormwater fees.

### **A Path Forward**

*Recommendation 1: CONNECT should act as a catalyst to bring all parties together to move the stormwater conversation forward.*

Certainly, there exists space within Pittsburgh for stormwater discussions to happen at multiple levels of government. No jurisdiction or organization can successfully address stormwater management by acting alone. There needs to be a concerted, coordinated effort to organize individual conversations around stormwater management into one regional conversation without creating additional levels of government to the hundreds that already exist in the area. CONNECT can play a role as a catalyst and facilitator of the regional stormwater discussion including stakeholders similar to those that were a part of the previous Cohen Commission. The charge of this organized discussion will be to come to a consensus on what stormwater regionalization looks like and how to pay for it. The findings presented above can focus the conversation by analyzing the strategies for regionalization suggested by previous reports and implemented elsewhere in Pennsylvania to decide what strategy, or combination of strategies, is best suited for the Pittsburgh region. The biggest adjustment for Pittsburgh area municipalities will be the attitude shift in making stormwater regionalization a critical component of how they serve their communities.

*Recommendation 2: Coordination with CONNECT and non-CONNECT members is essential.*

As the discussion of stormwater regionalization grows, CONNECT should continue to be a steward for the conversation both within and outside of the current CONNECT communities. When the boundaries of regionalization are agreed upon, it is likely that non-CONNECT communities will fall within those bounds. Appendix 1 outlines the distribution of CONNECT and non-CONNECT members across Pittsburgh region watersheds, demonstrating the importance of engaging all stakeholders. Stormwater is a widespread issue that knows no political boundaries, hence, being a partner to the COGs to engage communities who are not CONNECT members, but who still are affected by stormwater in the region, will be necessary for regional plans to be successfully implemented.

## Appendix

*Table 1 – Council of Government and CONNECT Membership*

Council of Government	COG & CONNECT Members	COG but not CONNECT Members
North Hills	Ross Township, Reserve Township, Millvale Borough, Shaler Township, Etna Township, Sharpsburg Township, O’Hara Township, West View Borough	Bradford Woods, Fox Chapel, Franklin Park, Hampton, Indiana, Marshall, Town of McCandless, Ohio Township, Pine Township, West Deer Township
South Hills Area Council of Governments (SHACOG)	West Mifflin Borough, Baldwin Borough, Whitehall Borough, Brentwood Borough, Castle Shannon Borough, Dormont Borough, Greentree Borough, Mount Lebanon Municipality, Scott Township	Baldwin Township, Mount Oliver Borough, Bethel Park, Townships of Elizabeth, Findlay, Heidelberg, Moon, Upper St. Clair, and Robinson, Boroughs of Jefferson and Pleasant Hills, Peters Township, South Fayette, South Park,
Char-West	Crafton, McKees Rocks, Ingram, Rosslyn Farms, and Carnegie Boroughs, Robinson, Kennedy, and Stowe Townships	
Quaker Valley	Bellevue Borough	Aleppo Township, Avalon and Bell Acres Boroughs, Ben Avon, Edgeworth, Emsworth, Glen Osborne, Glenfield, Haysville, Kilbuck, Leet, Leetsdale Borough, Sewickley Heights
Rivers of Steel	Munhall, West Homestead, and Homestead Boroughs, City of Clairton	Braddock Hills, Dravosburg, City of Duquesne, Elizabeth, Forward, Glassport, Liberty, Lincoln, McKeesport, Port Vue, South Versailles, Versailles, West Elizabeth, Whitaker, and White Oak
Turtle Creek	Penn Hills Municipality, Wilkinsburg, Churchill, Forest Hills, Edgewood, and Swissvale Boroughs	Braddock, Chalfant, East McKeesport, East Pittsburgh, Monroeville, North Braddock, North Versailles, Pitcairn, Plum, Rankin, Turtle Creek, Wall, Wilkins, Wilmerding
Allegheny Valley North	Aspinwall	Brackenridge, Cheswick, East Deer, Fawn, Frazer, Harmar, Harrison, Oakmont, Springdale, Tarentum, Verona

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