

PennPraxis**Project Name: Developing PWSA's Strategic Plan for Stormwater****Project No.: 2020-025-OPS****ACTION 5: Communications Framework Recommendations****June 10, 2022****Introduction**

One of the key elements of the PWSA Stormwater Strategic Plan (SWSP) for the city of Pittsburgh is developing a communications framework which aims to increase transparency, expand understanding of the strategic plan, and communicate the value proposition of the stormwater fee program. Intrinsic to a best-in-class communications framework is a commitment to equity and transparency and strategies for engaging community stakeholders in the shared work of stormwater management.

When forming this task action, PWSA and the planning team described the following:

Key Challenges this Addresses:

- Providing opportunities for engagement in the Strategic Plan.
- Increasing support for new Stormwater Fee and understanding of LOS concepts.
- Managing expectations, including with climate change, among Pittsburgh residents and ratepayers.

In order to fully undertake this work both within the SWSP process itself and into the future, PWSA and the planning team outlined a number of goals:

- To develop a public communication framework to include key, simple messages and clear communication of the possibilities and expectations around stormwater.
- To solidify public support for investment and ensure the public understands why the stormwater service fee is both essential and must be leveraged with other sources of investment and strategies to deliver improved levels of service.
- To employ deep community engagement and empowerment in the SWSP process as a means to model its effectiveness as a long-term strategy.
- To effectively keep all ratepayers informed through a comprehensive messaging effort related to the SWSP involving key milestones that highlight the strategic plan's development
- To communicate key issues (stormwater fee, LOS) an accessible way that centers equity associated with a stormwater fee in a combined sewer community

Key Recommendations for Future Engagement Strategy

Prior to considering the proper communication framework around stormwater work, it is important to define the public engagement foundation upon which it is built. As PWSA embarks on additional stormwater planning and strategic plan implementation, the lessons learned from best practices established in Pittsburgh's community engagement, public input throughout this SWSP process, and extensive case studies in peer cities, we recommend the following:

1. Principles for Engagement: Equitable outcomes rely on inclusive, accessible, and transparent communications and engagement at all times, not only when there is an active planning process or project underway. The goals outlined by PWSA for the Stormwater Strategic Plan (SWSP) can be applied in the future and achieved and replicated by devoting ample time and resources to community engagement.
2. Community Engagement at the Watershed Scale: The team heard from many stakeholders at many points in the planning process, and found examples in most peer cities we studied, that a formal and sustainably-funded structure for community involvement at the *watershed* scale is a successful model. This can continue to take the form of watershed task forces, ambassadors, and can and should be supported with staff community engagement positions within PWSA. An idealized structure can be found illustrated in Figure 3.
3. Dedicated Funding to Community Engagement: Ongoing financial support from PWSA will signal a long-term commitment to engagement by the authority. Leveraging support from outside partners such as the Pittsburgh Parks Conservancy, Grounded Strategies, community development organizations, universities, and philanthropy ensures that existing watershed task forces can flourish and achieve both a local and city-wide role. Partner resources can and should be leveraged into this work but developing and expanding staff expertise together with allocating dollars to supporting existing stormwater-focused community groups is also necessary.
4. Supporting Long-Term Involvement: A community engagement structure involving both ambassadors and watershed task forces that align with the SWSP-defined Pittsburgh watersheds will complement the intergovernmental/interagency stakeholder structure of the joint task force. Ambassadors are individuals willing to commit to training and neighbor-to-neighbor communications and education and receive compensation for their time and growing expertise. Watershed task forces are a diverse mix of stakeholders within a particular watershed and include members from public agencies. Creating meaningful representation between the watershed task forces and the joint task force will add transparency and equity in ongoing decision-making regarding strategic stormwater projects. These structures will provide both continuity and resilience.
5. Employing Effective and Dynamic Tools: As described in this task memo, PWSA should seek to satisfy the fundamental goals of equitable communications and authentic engagement. Neighbor-to-neighbor communications via ambassadors and task force members helps to minimize the "distrust in government" that can and does pervade. Tools that are widely employed are dynamic, visual, local, interactive, and up-to-date.

Story mapping offers a pliable platform to achieve those aims. Considering ways to link and embed this information within partners' communications is also important; the PWSA website is encompassing but not always intuitive. Community members should have access to information through many channels. Through community feedback in the planning process (see Appendix D), the majority of respondents report that their primary sources of information about PWSA work is via bill inserts/mail or email.

Guiding Principles for Equitable Communications and Engagement

A great deal of prior work both within and beyond PWSA related to equitable and engaged communications and participation inform the SWSP and future work. The critical foundations lie in a principle of "Do No Harm" in exchanging information and partnering with community stakeholders. This fundamental principle involves beginning all efforts by acknowledging and taking time to understand that poverty, class, racism, trauma, and other social inequities are real and have ongoing effects. These experiences apply to stormwater management as much as any other community needs. It is incumbent upon PWSA and all partners in this work to therefore recognize this and consistently work to address it. This can be achieved, in part, by ensuring that opportunities for authentic participation exist and that decisions can in actuality be shaped, in part, through that participation. It extends to data-gathering and sharing, which should be as inclusive as possible. And it means that people who have been historically neglected or are most challenging to reach and involve in processes are involved throughout. These ideas are present in many of the frameworks PWSA already works within, but cannot be taken for granted.

The City of Pittsburgh's Department of City Planning undertook an extensive process through 2018-19 to collaboratively establish its [Pittsburgh's Guide to Public Engagement](#). This process encompasses all City departments and authorities, including PWSA, and offers many valuable principles for engagement and communication. The definition of equity helps to embody the goals for any public participation process in Pittsburgh: "Everyone has access to the opportunities necessary to satisfy their essential needs, advance their well-being, and achieve their full potential."

In order to meet these goals, therefore, public engagement must be:

- Values-based, decision-oriented, and goal-driven;
- Designed to arrive at insights into the experiences of the under-served and under-represented;
- Done in partnership with the community, allowing for members to feel, hear, and to have a sense of ownership;
- Structure to ensure that participation will increase as clarity and communications improve, belief systems are respected, and accessibility is maximized; and
- Contemplated to inform, consult, involve, collaborate, and empower, representing a full spectrum of participation opportunities.

Pittsburgh created a Water Equity Learning Team and Taskforce in partnership with the U.S. Water Alliance; PWSA and a number of community stakeholders co-created recommendations aimed at achieving water equity in all aspects (a “one water” perspective) of water use, management, and quality. “[An Equitable Water Future: Pittsburgh](#)” is a roadmap for achieving these ideas. The team recommends that:

- PWSA will involve communities from the earliest stages of planning and developing stormwater projects, and other agencies should too. A collaborative approach that incorporates feedback from a variety of stakeholders is critical to producing equitable outcomes;
- PWSA improve transparency and cultivate an engaged, educated customer base; and
- PWSA community engagement activities will seek to empower customers with information regarding services and PWSA's structure, policies, and regulatory obligations.

Those Pittsburgh-specific recommendations draw heavily from the U.S. Water Alliance's water equity [national briefing paper](#). There, a number of do-no-harm principles help to shape how all water-related work should be approached. “Rebuilding trust is possible through education and restorative justice—stakeholders must come together, identify the harm and repercussions, and take steps to repair trust.” Through their work and many partnerships across the country, One Water perspectives are also playing out. PWSA teamed with a number of partners to create the “[One Water: Pittsburgh's Guide to Action](#)” resource. Here again, the guide endorses an inclusive practice: “Informed citizens play an essential role in advocating and planning for equitable water infrastructure. If we work with community organizations, professionals, and agency staff, together we can develop an integrated system that protects water, people, and public green space. We need many voices to express how green infrastructure can benefit our families and communities.” It encourages ongoing, active involvement by neighbors throughout Pittsburgh in understanding and staying involved in an ongoing water system improvement process.

Another important guardrail for both the SWSP and all communications moving forward is that they embody and reflect efforts to create a just and sustainable future for Pittsburgh and the region, best articulated in the [p4 Pittsburgh framework for resilience](#) and sustainability. Adhering to this new model for growth means that work is done in a manner that is inclusive for all citizens. It also means that each of the p4 principles (people, planet, place, and performance) are intentionally considered and valued in the way communities are involved and informed.

Links for this section:

<https://drive.google.com/file/d/1Wb097h8Lf454BT3baNfqj8aQy1ZSVKLU/view>

http://www.uswateralliance.org/sites/uswateralliance.org/files/publications/Pittsburgh%20Equity%20Roadmap_0.pdf

http://uswateralliance.org/sites/uswateralliance.org/files/publications/uswa_waterequity_FINAL.pdf

<https://www.pgh2o.com/sites/default/files/2019-11/One%20Water%20Guide.pdf>

<http://www.p4pittsburgh.org/>

Communications and Community Engagement Case Studies

The team drew from national precedents for communications and engagement both in our work during the planning process and to make recommendations to PWSA for its future work. Below is a table summarizing outstanding examples of work drawn from across the country, as well as from within Pittsburgh. The columns represent **five key activities within the SWSP process**; rows represent **best practices and principles** drawn from the sources described in the previous section. Within each cell of the table are one or more examples and a hyperlink to the source material; an appendix to this memo (Appendix A) includes a more detailed summary of precedents drawn from these cities and references for each.

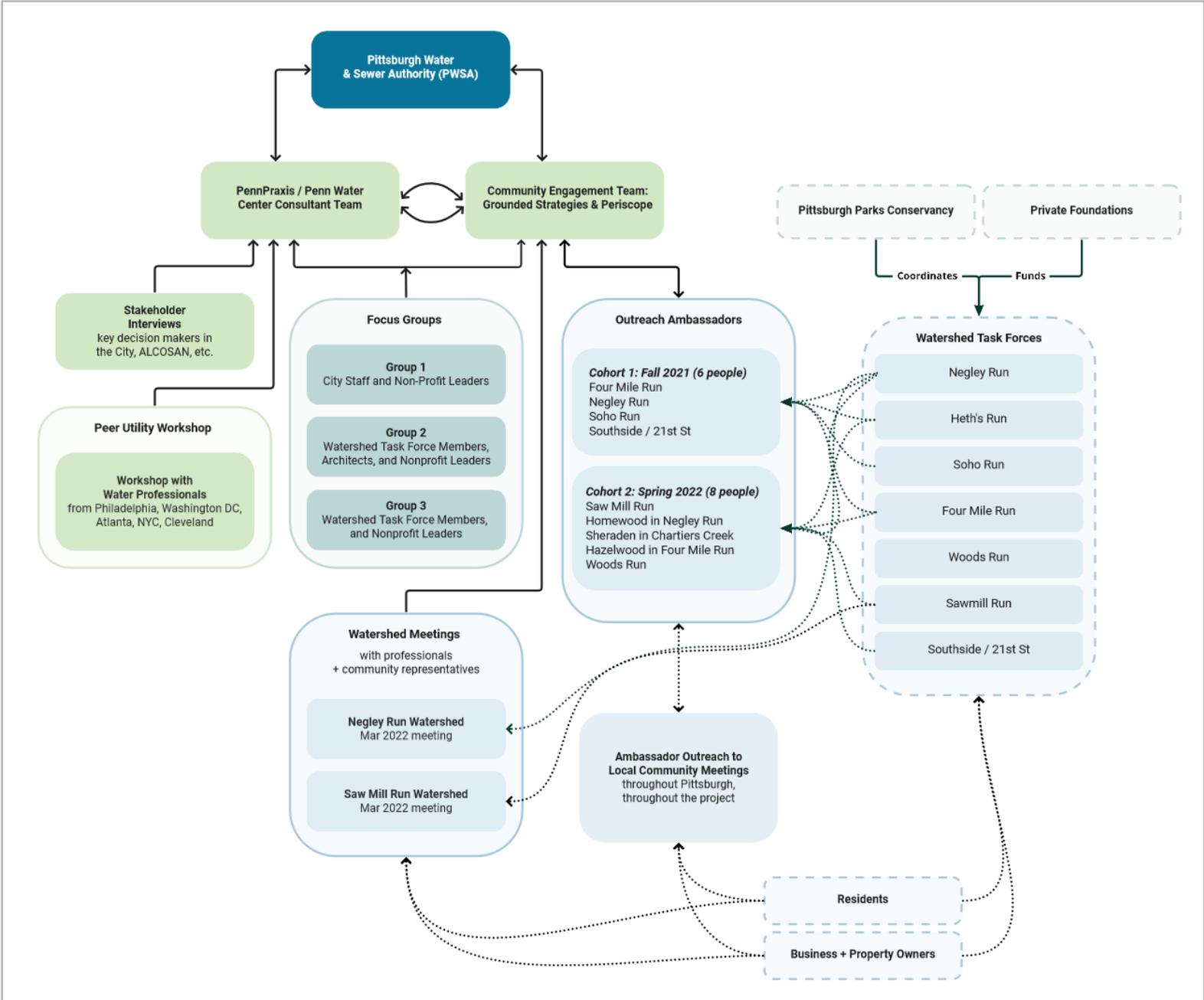
<p>FocusPlan →</p> <p>Best Practices & Principles</p> <p>↓</p>	<p><i>Prioritize, define, and illustrate opportunities for catalytic investment</i></p>	<p><i>Leverage the impact of the stormwater fee</i></p>	<p><i>Guiding principles for level of service delivery and localized flooding reduction</i></p>	<p><i>Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate</i></p>	<p><i>Inclusive governance structure for integrated investments</i></p>
<p>Ensure authentic community voice in creation of plans, programs, policies, and projects</p>	<p>Member Community Infrastructure Program (Cleveland)</p> <p>SWMP/Stormwater Advisory Group (NYC)</p> <p>Negley Run Watershed Task Force model, and others (Pittsburgh)</p>	<p>Community Cost Share Program: 25% of fee for community projects (Cleveland)</p> <p>RiverSmart (DC)</p>	<p>One Water/One Vision - Watershed Improvement Plans - (Atlanta)</p>	<p>Cloudburst Masterplan Pilot Project (NYC)</p>	<p>Watershed Advisory Committees (WAC) and Watershed Team Leaders, (Cleveland)</p> <p>The Stormwater Controls Working Group and the inter-agency Cloudburst Task Force (NYC)</p>
<p>Practice civic engagement and shared leadership that reflects the communities served</p>	<p>Green City, Clean Waters Community Advisory Committee & Watershed partnerships (Philadelphia)</p> <p>Watershed Advisory Committees (Cleveland)</p>	<p>Community Benefits Program - Reduce Flooding Risk (Louisville, KY)</p>	<p>SMART Stormwater Management and Resource Training Initiative (Camden)</p>	<p>Stormwater Plan (DC)</p>	<p>Green Infrastructure Task Force: (Atlanta)</p> <p>Rain Check 2.0 - (Buffalo)</p>
<p>Measure return on investments metrics that community stakeholders value</p>	<p>Bridging the Gap - (Kansas City)</p> <p>Green Infrastructure (Atlanta)</p>	<p>Minimum Control Measures MCMs (Cleveland)</p>	<p>Smart Sewer System and LOS/Fees (Kansas City)</p>	<p>Camden Collaborative Initiative (Camden)</p>	<p>Green City, Clean Waters Task Force-reps from 10 City agencies (Philadelphia)</p>
<p>Support ongoing participation through increased clarity and</p>	<p>Public Mtgs stormwater management implementation, (NYC)</p>	<p>Community Cost Share Program: 25% of fee for community projects</p>	<p>One Water/One Vision - Watershed Improvement Plans</p>	<p>Community Engagement Outreach Specialist (Philadelphia)</p>	<p>Watershed Team Leaders. (Cleveland)</p>

<p>FocusPlan →</p> <p>Best Practices & Principles</p> <p>↓</p>	<p><i>Prioritize, define, and illustrate opportunities for catalytic investment</i></p>	<p><i>Leverage the impact of the stormwater fee</i></p>	<p><i>Guiding principles for level of service delivery and localized flooding reduction</i></p>	<p><i>Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate</i></p>	<p><i>Inclusive governance structure for integrated investments</i></p>
<p>by maximizing accessibility</p>		<p>(Cleveland)</p>	<p>(Atlanta)</p>	<p>Watershed Stewardship Center, (Cleveland)</p> <p>Watershed Learning Network (Atlanta)</p>	
<p>Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower</p>	<p>Green First Plan (Pittsburgh)</p>	<p>Fresh Coast Guardians Resource Center (Milwaukee)</p> <p>RiverSmart (DC)</p> <p>Soak It Up Adoption "Adopt a Feature" grant program and Rain Check program (Philadelphia)</p>	<p>Environmental Impact Bond - (Atlanta)</p> <p>Environmental Impact Bond - (DC)</p>	<p>Green Infrastructure Work / Action Plan (Atlanta)</p> <p>Fairmount Water Works Interpretive Center (Philadelphia)</p>	<p>Watershed Champions Program / Future Water Champions Program (Cleveland)</p> <p>Proctor Creek (Atlanta)</p>

Community Engagement and Communications Structure

During the SWSP process, the team was intentional in ensuring that community stakeholders played an active and ongoing role in the process. The structure employed is illustrated below (Figure 1).

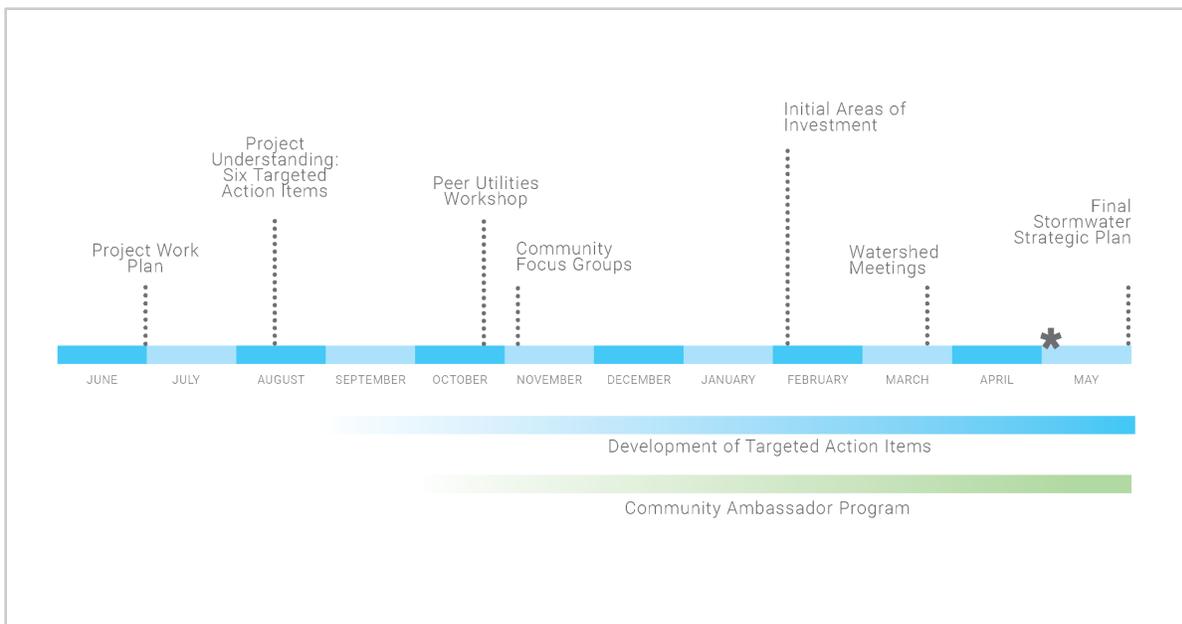
Figure 1: Community & Stakeholder Engagement in Stormwater Strategic Plan Process



Engagement Opportunities During the Stormwater Strategic Plan Development

Figure 2: Stormwater Strategic Plan community input

The team strived to optimize the principles of equitable communications and engagement in structuring opportunities for information sharing and gathering input for the plan itself. More detailed information about the existing Watershed Task Forces can be found in Appendix C.



More detailed information about the Stormwater Plan Ambassadors can be found in Appendix D. Early in the planning timeline (Figure 2), the team sought input from key stakeholders (ex. City departments, ALCOSAN) through interviews; from peer utility representatives through a focused joint meeting (Philadelphia, Washington D.C., Atlanta, New York City, and Cleveland); and in [three focus group sessions](#) (conducted in October and November 2021) including non-profit, business, public sector, and community representation). These sessions helped to shape the six priority actions for the plan, as well as to add depth and clarity to the approaches the team would take to satisfy activities within those priorities. In all cases, stakeholders emphasized the importance of community involvement.

In November 2021, Grounded Strategies together with nonprofit partners Pittsburgh Parks Conservancy and Pittsburgh United recruited six Stormwater Plan Ambassadors (Cohort 1) from areas that had long been known to have chronic stormwater management challenges, and that generally aligned with existing Watershed Task Forces. These Ambassadors were charged with focusing their efforts around communications needs. An additional eight Stormwater Plan Ambassadors (Cohort 2) were recruited from areas that aligned with the additional priority investment areas identified through SWSP analysis (summarized in the Task 3 deliverables). These Ambassadors were charged with continuing broad public information sharing and input gathering as well as focusing on more site-specific input and feedback related to catalytic and highest priority stormwater management investment areas. Throughout, existing Watershed

Task Force members were engaged and offered additional breadth and reach to communication and engagement activities.

Links for this section:

<https://qtechcloud.egnyte.com/fl/304adArcAU>

Messaging Recommendations

As emphasized throughout the task memo, good communications and engagement relies on an equity-driven, sustainable structure that centers and responds to the needs of community stakeholders. *What* is said is often less important than *how* it's said, and clear and consistent information flows are not uni-directional (i.e. from PWSA to stakeholders), but indeed multi-directional and dynamic.

There are several fundamental **information challenges** inherent to the actions recommended in the SWSP and to PWSA's stormwater management work into the future. These include:

- 1) Problems experienced throughout Pittsburgh resulting from stormwater management issues are complex, persistent, and affected by factors within and beyond PWSA's control.
- 2) Improving the quality of stormwater management services is best approached through ongoing collaboration and leveraging resources, and cannot be solved by a stormwater fee alone.
- 3) Historic, current, and future stormwater management issues affect different people and places throughout Pittsburgh differently, and strategies to address those issues are not one-size-fits-all.
- 4) The stormwater management system functions through shared management of existing and future infrastructure; the public expects PWSA and other agencies and City departments to coordinate well on operations, maintenance, and communications.
- 5) Climate change will create new challenges over time.

The SWSP prioritizes certain areas for stormwater management investment over others, but deploys approaches for improvements across the system (Task Memo 2). Communicating about this means being straightforward about the approach, in an effort to help stakeholders understand that strategies:

- Focus where there is a convergence of multiple challenges and the best opportunities for co-benefits.
- Create the biggest return on investment where activities are sustainable and equitable.
- Significantly reduce the biggest burdens to the system of stormwater management and help improve the system as a whole.
- Rely on individual ratepayers of all types joining the effort to manage stormwater.

When considering how the recommended community engagement structure helps to support and reinforce these messages, we see the following:

- A joint task force/shared governance model underlines that stormwater challenges are not the responsibility of one agency (PWSA) alone, but a shared, citywide challenge among all sectors. Ensuring that this citywide task force connects well with the local planning units, via watershed task forces and community ambassadors, is important—and that this governance structure improves operations, maintenance, and communications— not only project development.

- EXAMPLE: The Washington D.C. Mayor's Flooding Task Force was convened by the District of Columbia mayor to address combined sewer overflow flooding, and was co-chaired by the DC Water General Manager and the City Administrator, and included representatives government agencies, environmental partners, and community organizations. The group used a consensus approach to provide recommendations to the mayor on plans to reduce flooding in the short, medium and long term on an ambitious and public timetable. While the structure and public nature of the task force, combined with clear milestones, helped to ensure that implementation was achieved, one of the weaknesses of the DC task force, as discussed in the SWSP Peer Utilities Focus Group (October 2021), was that a great deal of challenging work happened before and after public meetings. This task force also disbanded after the second phase of implementation. Starting with the approaches modeled in D.C., Philadelphia, and New York— which all created some form of this type of joint task force for governance— and linking those to community-focused efforts (akin to the NEORS/D/Cleveland Watershed Advisory Committees) will extend this model into equitable community engagement, and will ensure that PWSA fulfills the vision advanced in Pittsburgh's Water Equity Task Force.
- Using the stormwater fee as a baseline revenue stream, partners have opportunities to leverage that base source to help increase investments, co-benefits, and impacts. Catalytic site investments will help to build enthusiasm and demonstrate what collaborative, community effort and shared investments can do.
 - EXAMPLE: Kansas City, MO was the first city in the country to approach compliance for combined sewer overflow reductions through green infrastructure. In 2016, they received the Institute for Sustainable Infrastructure's Envision Award for their Middle Blue River Green Infrastructure Project in the Marlborough neighborhood of south Kansas City. This was the first Envision Award given in the United States, recognition that is awarded internationally for third-party verified civil infrastructure that meets rigorous sustainability and resilience metrics. Kansas City's approach targeted several areas where CSO overflows and related challenges were most severe, and then deployed intensive efforts to layer in many investment sources, partners, holistic community co-benefits, with ongoing community engagement and buy-in regarding prioritization throughout. The stormwater fee serves as the basis for stormwater planning and maintenance in Kansas City, but is not used for stormwater system expansion.
- Watershed-specific personnel, localized task forces, and community ambassadors work together to clarify information that is hyper-local and to engage and empower shared investments.
 - EXAMPLE: Cleveland's Watershed Advisory Committees are established in each of the Northeast Ohio Regional Sewer Districts watershed areas, composed of community representatives from throughout the watershed (see Appendix A). Additionally, the sewer district employs Watershed Team Leaders who interface

with the public and the committee in each area. Watershed-specific master plans help to guide the types of stormwater infrastructure strategies that are deployed, but each committee makes its own decisions about local projects to prioritize from year to year, using a set aside from the stormwater fee specifically for that area, while NEORSD simultaneously focuses on system-wide needs.

- These governance, communication, and community engagement structures offer a long-term, sustainable and equitable framework that is adaptive.
 - EXAMPLE: Interagency collaboration is a critical component for the implementation of NYC's Stormwater Management Plan (SWMP). NYC Dept of Environmental Protection (NYCDEP) formed The Stormwater Controls Working Group, an inter-agency team with representatives from 13 NYC agencies with obligations under the MS4 Permit to collaborate and continue implementation. This team meets frequently and remains actively involved with the negotiations of the impending permit, annual reporting, and programming. Every year since the SWMP adoption in 2016, DEP staff publish and present an Annual Progress report related to implementation, to inform the public and solicit community feedback. The DEP has also maintained a publicly accessible, interactive web-map showing all green infrastructure practices at advanced design, in construction, or constructed statuses. While this is a good example of interagency cooperation that has proven to be effective, and it also exemplifies sustainable goals, this example is also a bit top-down. New York is a well-resourced city that dwarfs Pittsburgh in size and scale, but is offered as a chance to see how inter-agency governance and cooperation is achievable.
 - EXAMPLE: The p4 resilience priorities developed in Pittsburgh offer one of the best examples of a long-term, sustainable and equitable framework that may adapt over time to shifting conditions. Aligning across departments and agencies with the p4 framework at the core will help to ensure that multiple shared goals have exponential benefits.
- Ongoing education and community empowerment helps to build a shared understanding of system performance, limitations, and needs.
 - EXAMPLE: In Philadelphia, the PWD communicates to the public what the average number of breaks per year is because the system is aging. They publicly have committed to improve by replacing a certain percentage of that infrastructure per year to reduce the number of breaks, and ensure that reliability improves over time. When a water main break does happen, they communicate that repairs are made, on average, within a certain number of hours. At the same time, PWD presents a "What Can You Do?" message to ratepayers, sharing information and incentives for the public to get involved in improving local system performance together with PWD.

Community Engagement Structure for the Long-Term

As described, long-term funding and a commitment to facilitating and supporting equitable community and stakeholder engagement will ensure that the goals and principles that PWSA has committed to in its work are more fully realized. An idealized structure, informed by both experiences through the planning process, best practices found in peer cities, and through existing partnerships is seen in Figure 3.

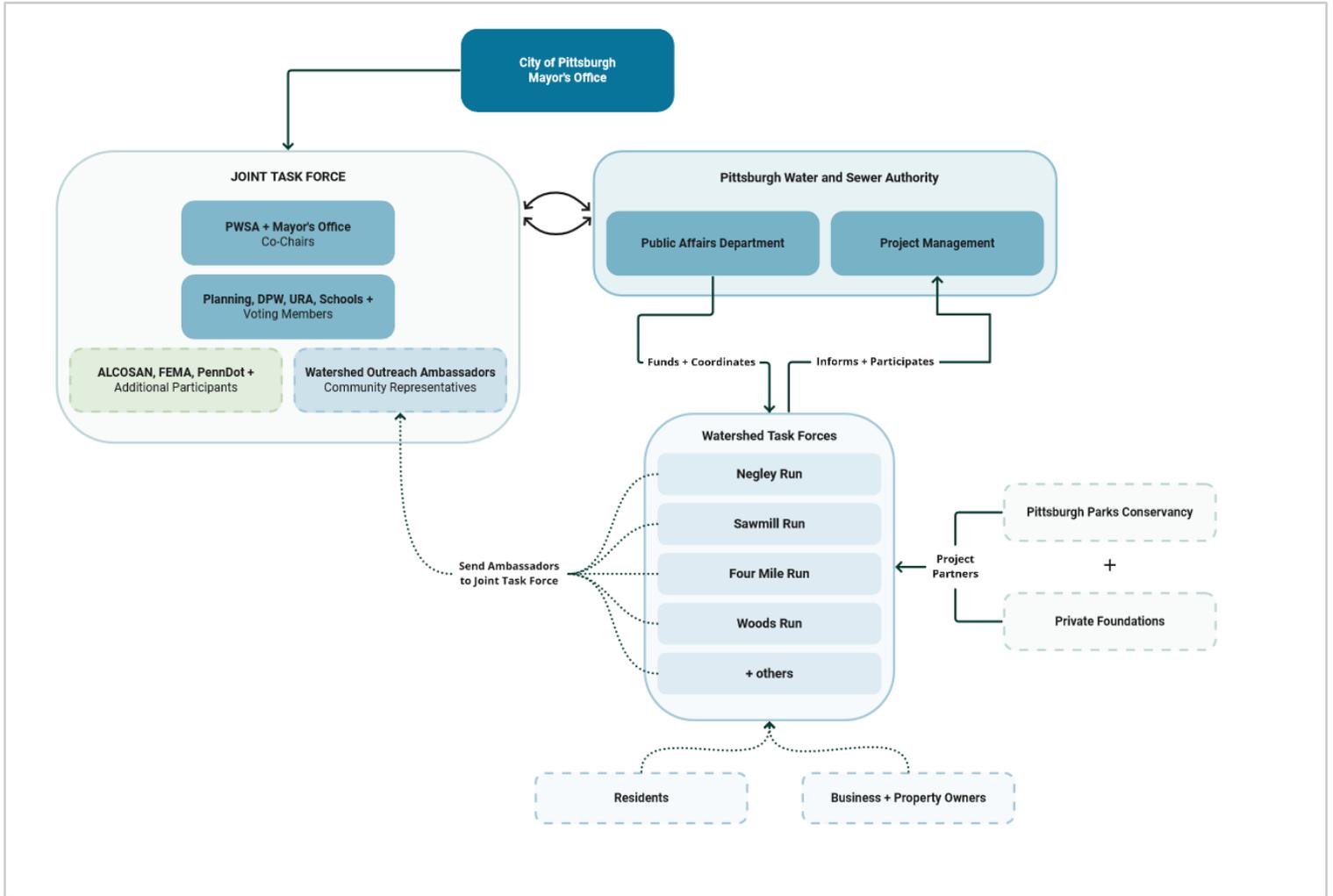


Figure 3: Recommended Ongoing Community Engagement Structure

Appendix A: Communication and Community Engagement Case Studies

This appendix offers a detailed summary of best practices found in various cities cited in the communications and community engagement case studies matrix. Examples were drawn from peer utilities who participated in SWSP focus groups, and other examples drawn from cities addressing similar challenges with a track record of success. Case studies were gathered through a combination of interviews and online research. Appendix B presents examples of effective and compelling visual communications tools employed in connecting stormwater management needs and activities with communities.

Each city is included because it has one or more good case studies illustrating how the SWSP planned focus areas have been undertaken in a manner that is consistent with one or more of the communications and engagement principles and best practices recommended. The summaries below are done by city; the plan focus and principles in action are listed, and an overall summary and a thumbnail sketch from the representative activity are provided. Links (active as of May 2022) are included for further research and to access each example.

Atlanta

[Prioritize, define, and illustrate opportunities for catalytic investment](#)

Measure return on investments metrics that community stakeholders value

[Guiding principles for level of service delivery and localized flooding reduction](#)

Support ongoing participation through increased clarity and by maximizing accessibility

Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower

[Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate](#)

Support ongoing participation through increased clarity and by maximizing accessibility

[Inclusive governance structure for integrated investments](#)

Practice civic engagement and shared leadership that reflects the communities served

Atlanta has a vibrant network of stakeholders and leaders that have prioritized stormwater management as an urgent environmental and social issue. The Green Infrastructure Task Force is a key force that convenes both public and private entities and spearheads partnerships. Over the years, Atlanta has continued to prioritize building a network of community leaders that will help establish processes for equitable decision-making—specifically, engaging and responding to community members for input on prioritization criteria of capital projects with direct community improvement impacts. In Atlanta, an Environmental Impact Bond (EIB) has provided an estimated \$14 million to implement green infrastructure and resilience projects in the city's West Side watershed. The Proctor Creek case study pilot demonstrates how more co-benefits are realized when community residents and organizations take part in a project throughout its life cycle, from design to implementation to maintenance. In addition, the Watershed Learning

Network works to increase capacity for engagement, focusing on parks and green infrastructure as community assets.

One Water Vision Strategic Plan 2022; Watershed Improvement Plans; Green Infrastructure Task Force:

- The Atlanta Department of Watershed Management (DWM) convenes staff from several City departments and external partners to plan opportunities to optimize both public and private infrastructure investments by incorporating green infrastructure for stormwater management.

<https://www.atlantawatershed.org/greeninfrastructure/>

<https://www.atlantawatershed.org/sp2022/>

<https://www.atlantawatershed.org/watershedimprovementplans/>

Environmental Impact Bond (EIB):

- The second EIB in the U.S. (after Washington, D.C.), and the first to be offered in the public bond market, the EIB program will finance green stormwater infrastructure in an area of Atlanta that has been severely impacted by polluted stormwater runoff and flooding. This innovative financing mechanism gives DWM access to \$14 million in funding for green infrastructure that will reduce stormwater runoff, increase flood storage, and enhance the quality of life of Westside neighborhoods. EIB-funded projects were derived from existing plans, citizen concerns, and Green Infrastructure Task Force partnerships, and include a mix of urban ecosystem restoration and green stormwater management practices in both the combined and separate sewer areas of upper Proctor Creek watershed. The projects aim to alleviate local flooding and improve water quality and stream health, while also providing access to greenspace, improved air quality, public environmental education, restored native habitat, and green jobs. Collectively, the projects are projected to reduce stormwater runoff by 55 million gallons annually. Construction began in 2021, and all projects aim to be completed by 2024. The Atlanta EIB issuance was supported by a grant from The Rockefeller Foundation's Innovative Financing program.

<https://www.atlantawatershed.org/environmental-impact-bond/>

Atlanta Watershed Learning Network (AWLN):

- Developed by Environmental Community Action Inc. (ECO-Action) and delivered in collaboration with American Rivers, West Atlanta Watershed Alliance, The Conservation Fund, Park Pride, Community Improvement Association, and the Metro Atlanta Urban Watershed Institute, AWLN increases the community capacity for engagement with parks and green infrastructure as community assets. This proven leadership development program has educated and activated dozens of residents from many locally challenged watersheds, including Intrenchment and Proctor Creeks. These AWLN graduates are now serving as watershed stewards and teachers themselves. AWLN exemplifies the values of equity, resiliency, and environmental justice in the planning and implementation of parks and green infrastructure.

<https://urbanwaterslearningnetwork.org/resources/atlanta-watershed-learning-network-educating-empowering-communities-advocate-for-equity-environmental-protections-july2018/>

<http://wln.ecology.uga.edu/>

Intrenchment Creek One Water Management Task Force:

- The Task Force compiled a synthesis of all known plans and relevant data layers accessible to the public. They prioritized community leadership and engagement in the assessment throughout every step of the planning process.
- The Task Force conducted meetings and interviews with community leaders and partners to share data collected and solicit additional information, as available. They presented the synthesis to community members and invited stakeholders who had not yet been involved. They sought community input into the solutions and criteria to select the preferred option, then shared plans for how the information will be used and what is possible in terms of next steps. They developed recommendations based on the synthesis of information and input from stakeholders.

https://www.americanrivers.org/wp-content/uploads/2020/12/20201015_IC_OneWater_TaskForce_Report.pdf

Case Study example of Proctor Creek neighborhood:

- The Proctor Creek Watershed in Atlanta is an example of a successful effort to rebuild trust, and promote environmental education and awareness with neighborhood groups in historically low-income African-American communities.
- Consent decrees from the 2000s reduced sewer spills into a historically polluted waterway, but did not regain public trust - illegal trash dumping and pollution continued.
- Outreach to the neighborhood through pre-existing community group structures rather than standard-practice, large utility town halls resulted in more community buy-in and successful land acquisition projects using Environmental Impact Bond funds.
- For many years, the West Atlanta Watershed Alliance (WAWA) has been instrumental in fighting to eliminate environmental stressors, and enhance quality of life for Northwest and Southwest portions of Atlanta. They recently formed a Proctor Creek Stewardship Council to lead efforts around stormwater stewardship, with the goal of having equal voices at decision-making tables. They work to train and educate residents on the greenway process, so they can become involved in coalitions.

http://uswateralliance.org/sites/uswateralliance.org/files/publications/1FINALuswa_equityinsights_070721_a.pdf

<https://www.wawa-online.org/>

Buffalo, NY

Inclusive governance structure for integrated investments

Practice civic engagement and shared leadership that reflects the communities served

Buffalo implements green stormwater infrastructure throughout the city to tackle their stormwater challenges, ensure climate resiliency, and advance social and environmental justice. The “Rain Check” program offers civic engagement and increases opportunities for partnerships with and between public entities. Buffalo will be launching a grant program in 2022 to fund green infrastructure retrofit projects on private property throughout the priority basins.

Rain Check 2.0:

- Launched in 2018, Rain Check 2.0 represents the next generation of Buffalo Sewer's green infrastructure program. This phase of the program will focus green infrastructure investments in six sewer basins. Unlike Rain Check 1.0, which focused investments in the public domain, Rain Check 2.0 will be broader—expanding public partnerships and exploring more private partnerships. The effort will involve partnering with large and small property owners, local colleges and schools, religious institutions, nonprofit agencies, housing authorities, and even residents.

<https://raincheckbuffalo.org/opportunityreport/>

<https://raincheckbuffalo.org/grants/>

http://uswateralliance.org/sites/uswateralliance.org/files/publications/uswa_equity_buffalo_040219_a.pdf

Camden

Guiding principles for level of service delivery and localized flooding reduction

Practice civic engagement and shared leadership that reflects the communities served

Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate

Measure return on investments metrics that community stakeholders value

In Camden, local stakeholders work to improve water systems by prioritizing the installation of green infrastructure to address a plethora of environmental concerns. Camden has a strong public-private partnership effort that continues to grow, with ongoing collaboration between government entities and community-based organizations and groups. The Camden Collaborative Initiative Water Working Group helps to develop strategies, and prioritize transparency and keeping the public informed. The public is encouraged to participate in development from start to finish. Education and outreach campaigns help city residents understand the problems and to co-design solutions to a challenged infrastructure system. Advocates work toward policy change and offer training programs related to green infrastructure. Camden SMART has successfully installed more than fifty green infrastructure projects throughout Camden's neighborhoods, including schoolyard rain gardens, public parks, and environmental remediation projects.

Camden Collaborative Initiative:

- This solutions-oriented partnership exists between governmental, non-profit, private, and community-based agencies, and was formed to plan and implement innovative strategies to improve the environment, health, and quality of life for residents.
- Within the initiative, there is a Water Working Group, formed to support sustainable management of Camden's water resources and water infrastructure, including stormwater, drinking water, and access to surrounding waterways, facilitate stormwater management, facilitate the construction of green and gray infrastructures, extend the focus to drinking water safety, and reinforce the sustainability ordinance.

http://www.camdencollaborative.com/uploads/6/2/8/5/6285355/2022_cci_work_plan_water_final.pdf

<http://www.camdencollaborative.com/>

http://uswateralliance.org/sites/uswateralliance.org/files/Water%20Equity%20Roadmap_Camden_Final%20pdf.pdf

SMART Camden:

- Camden SMART (Stormwater Management and Resource Training) Initiative is a community-driven movement to protect human health, improve conditions for economic development, improve water quality, and enhance the quality of life for Camden City, its residents, and the Delaware River watershed through the broad use of green and gray infrastructure techniques for stormwater management. It has developed a citywide network of green infrastructure projects to reduce runoff and remediate environmental justice communities.

<http://www.camdensmart.com/about-us.html>

Cleveland

Prioritize, define, and illustrate opportunities for catalytic investment

Leverage the impact of the stormwater fee

Measure return on investments metrics that community stakeholders value

Practice civic engagement and shared leadership that reflects the communities served

Inclusive governance structure for integrated investments

Ensure authentic community voice in creation of plans, programs, policies, and projects

Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower

Cleveland (within the Northeast Ohio Regional Sewer District, “NEORS”) has a vigorous regional network of watershed stakeholders that invest in water resources and infrastructure. NEORS has a priority to focus on equitable and inclusive water management and utilizes strong community engagement in defining the city’s water future. The district utilizes a Cost Share Program where 25% of the stormwater utility fee goes directly back to local communities—a way to ensure that local groups have control to improve their contributions, and reductions, to the larger system. In an interview with Keith McClintock, Manager of Watershed Programs at NEORS, he cited that Watershed Task Forces and the staff that serve as stormwater point people within each watershed as the backbone of the successful water work. Advisory committees can help identify project prioritization from existing watershed Master Plans while ensuring that communities are fully educated, aware, and involved with the process from start to finish. This type of stakeholder network has helped to ensure broader public support. People who are actively engaged with the decision-making process are less likely to challenge the project, and can provide knowledge that is beneficial to the development, implementation and enforcement of the program.

Cleveland Metroparks created a Watershed Stewardship Center that provides that education and research, in close partnership with NEORS. Peter Frank, a naturalist from the center, cites that awareness and outreach efforts have been key components of successful community building around stormwater management plans long term. For example, a very popular native plant sale event also doubles as a way to directly recruit and engage community members who want to be involved with a larger network. Cleveland is looking forward to expanding their “Watershed Ambassador” program to become a “Water Champions” program. This new

program will build a network of advocates with a greater capacity to be in touch with vulnerable communities around all water investments, and water management issues.

Community Cost Share Program

- The Community Cost Share Program provides funding to Member Communities for community-specific stormwater management projects. To implement the Community Cost Share Program, NEORS D has formed a set aside account for the aggregation and dissemination of funds derived from the Stormwater Fee collected in each member community.
- 25% of the total annual Stormwater Fee collected in each member community is allocated to the Community Cost Share Account for that community. The Community Cost Share Account is under the control of the District, with disbursement of funds to member communities through a grant application and reimbursement process.

<https://www.neorsd.org/community/community-cost-share-program/>

Member Community Infrastructure Program

- NEORS D offers a Member Community Infrastructure Program (MCIP) to assist member communities in addressing water quality and quantity issues associated with sewer infrastructure that adversely impact human health and the environment through cost-effective sewer infrastructure projects.
- The District provides funding for up to 75% of project costs. The MCIP funds will be provided by the District on a reimbursement basis directly to the community based on MCIP project costs. The District has an application process, and reviews and pre-approves design and/or construction of the project. The District then determines the appropriate funding mechanism, grant, or community operating lease, during project evaluation.

<https://www.neorsd.org/community/member-community-infrastructure-program-mcip/>

Minimum Control Measures:

- Municipal Separate Storm Sewer Systems (MS4) permittees, such as Cleveland, must develop, implement, and enforce a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants to the maximum extent practicable to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act.
- Cleveland's SWMP explains how the program is run, describes best management practices (BMPs) and measurable goals that are used to address the Six Minimum Control Measures (MCMs) in the permit.
- One of the MCMs is a commitment to Public Education & Outreach through the Public Involvement/Public Education (PIPE) Program. This outreach program informs and educates residents on the impacts of stormwater discharge. The PIPE program operates on the premise that awareness is key to helping the public understand how behavioral changes can help reduce pollutants in urban runoff by practicing stormwater management best practices and other water-pollution-prevention practices. PIPE

functions on the premise that behaviors can be changed through education, and that “awareness is key.”

- Another MCM, Public Participation and Involvement, has a strong focus on community engagement and a commitment to having the public participate in cleanup efforts in a meaningful way. These events help the public entity connect and interact with residents on-the-ground.

<https://www.clevelandwpc.com/stormwater-management>

Watershed Advisory Committees:

- Watershed Advisory Committees (WACs) give leadership, direction, and focused capacity to move stormwater work forward in the region. Engaged steering committees help to activate networks within each watershed.
- This model demonstrates strong and successful public/private partnerships within each watershed. Agreements are made between NEORS and a range of community-based nonprofit groups, each which then are eligible for a range of grant opportunities described above. This partnership results in implementation of a shared vision that activates many interested parties.
- The WACs represent a formal mechanism for regular contact between member communities and the District. WACs are not, however, intended to be the only mechanism of communication between Member Communities and the District. District staff, specifically Watershed Team Leaders, are available to member communities at any time to discuss issues related to the Regional Stormwater Management Program.

<https://www.clevelandwpc.com/stormwater-management>

https://www.neorsd.org/Library.php?SOURCE=library/RR%20WAC%20March%202020%20MASTER.pdf&a=download_file&LIBRARY_RECORD_ID=7548

Watershed Champion Program and Water Champions:

- The Cuyahoga Watershed Champion Program is an example of a community engagement campaign to educate residents on their local watersheds, and then move them to action on what they can do in their own backyards. This campaign requires residents to complete a pledge to complete a stormwater management project on their property or on a local waterway
- Water Champions are community members who conduct outreach and education in vulnerable communities. They share information on water investments and programs and listen to community perspectives on water management decisions. Water Champions receive training in water systems and utility programs so they can help the community understand water systems and answer residents' questions about utility bills, water quality, cost savings programs, and more.
- The champions undergo equal training in advocacy and consensus-building so they can voice community concerns back to the utilities. This enables them to enhance the utilities' understanding of community needs. The program is designed so that water champions co-create additional programming with NEORS to deepen community engagement.

- **Public Engagement:** To build water equity, it is essential to expand public awareness and engagement while deepening the understanding of community concerns. Building community capacity to engage with water management is critical. Residents of vulnerable communities have deep local knowledge and experience, incorporating their perspectives can lead to better, more sustainable processes and outcomes. Public engagement done right strengthens existing partnerships and creates new ones, among trusted community organizations, utilities, philanthropy, and other stakeholders.

<https://cuyahogawcd.org/programs/watershed-champion-program>

<https://www.clewaterequity.com/water-champions>

https://www.google.com/url?q=http://uswateralliance.org/sites/uswateralliance.org/files/publications/1FINALuswa_equityinsights_070721_a.pdf&sa=D&source=docs&ust=1651251039373205&usq=AOvVaw1CYJlcpHWBsza8E-246rjB

Watershed Stewardship Center:

- Watershed Stewardship Center, located in the West Creek Reservation, is the first facility in Cleveland Metroparks dedicated to scientific research and promoting sustainable action. Science-based programs invite teachers, students, professionals and the public to learn about replicable stormwater management methods. The center is staffed by natural resource and education professionals, land protection specialists, volunteers, and visiting scientists.
- The Watershed Stewardship Center’s mission of enhancing and protecting our urban watersheds is pursued through innovative community programming, encouraging regional participation in watershed issues, and promoting scientific discovery. Its key partners include the NEORSD and West Creek Conservancy.

<https://www.clevelandmetroparks.com/parks/visit/parks/west-creek-reservation/watershed-stewardship-center>

Kansas City, MO

Prioritize, define, and illustrate opportunities for catalytic investment

Guiding principles for level of service delivery and localized flooding reduction

Measure return on investments metrics that community stakeholders value

Kansas City is a national leader in stormwater management. The city has innovatively combined green infrastructure to soak up excess rainfall with digital technology to monitor its flow. Their Smart Sewer System monitors water depth and flow sensors, conveying real-time data from underground infrastructure and allowing the city to better measure and understand stormwater movement. Kansas City has a vision to turn passive stormwater infrastructure into active ones that can be managed in real time to alleviate flooding. Thus far, this data-driven strategy has proven to be successful. Kansas City’s green infrastructure projects have brought the community together to care for new green spaces. The city established a workforce development program for green infrastructure maintenance, providing work opportunities for people from under-resourced communities. Under this program, community members receive certificates in green infrastructure maintenance after one year on the job. The “Smart Sewer” program promotes, maintains, and evaluates the utilization of green infrastructure solutions to support this green-collar jobs program.

Smart Sewer System:

- The Kansas City Department of Water's (KC Water) Smart Sewer program is a multi-decade infrastructure investment to make sure sewer systems continue to work reliably and effectively. The program addresses the system-wide overflow control challenges facing the sewer system in a way that protects the community and restores sewer and stormwater infrastructure.
- The program is committed to capturing 85% of the combined sewer flows and eliminating wet weather separate sewer overflows for up to a 2-year, 24-hour storm event for the sanitary sewer system north of the Missouri River and up to a 5-year, 24 hour storm event for the sanitary sewer system south of the Missouri River. Over the past 10 years through fiscal year 2021, 40 projects were completed on time and on budget, and in the current fiscal year 2022, KC Water is implementing 51 projects to comply with their federal consent decree.
- Stormwater Credits: Many communities give stormwater fee credits to households that demonstrate efforts to reduce stormwater runoff by using best management practices because they reduce stress on the stormwater system. Kansas City Water Services offers two types of stormwater fee credits for property owners that use best management practices on their property. The first is a ratio credit for properties that have a large pervious area to help absorb stormwater and prevent it from entering storm drains. Property owners can receive a credit if the ratio of the total property area to the runoff surface area is at least 30:1. Properties that qualify are granted a 50 percent stormwater fee credit. The second type of stormwater fee credit is a detention credit for the installation of stormwater detention structures on the property. Stormwater detention structures are installed and maintained to hold stormwater during the heaviest parts of a storm, thereby reducing flooding and erosion downstream. With these two stormwater credit options, ratepayers get clear signals about how they are receiving a return on their property investments, and in turn, the overall level of service by KC Water improves system-wide.

<https://www.kcsmartsewer.us/home-smartsewer>

<https://www.kcsmartsewer.us/projects>

<https://kcws.maps.arcgis.com/apps/Cascade/index.html?appid=8be27e83d420431e9679ca283f249655&folderid=33103bf3deef48bd899be072950d9a32>

Bridging the Gap:

- Bridging The Gap (BTG) works to make the Kansas City region sustainable by "connecting environment, economy and community," and is the premier organization in the area providing environmental education and volunteer action through more than 1,800 volunteers annually.
- The Green Stewards program is a local workforce development program designed to support the City of Kansas City, Missouri in day-to-day maintenance and monitoring of 230 constructed green infrastructure installations in the areas of the city served by the combined sewer system. Bridging The Gap is contracted to manage the program, and works with area nonprofits to develop a pool of skilled maintenance workers to hire from at-risk communities in Kansas City. In addition to providing maintenance for designated green stormwater infrastructure sites, the program focuses on the development of the

Stewards' skills in green infrastructure and landscape maintenance to develop qualifications for long-term employment in those fields. The Stewards are provided a supportive and collegial working atmosphere with diverse training opportunities.

<https://bridgingthegap.org/green-infrastructure-management/>

<https://www.kcwater.us/wp-content/uploads/2019/01/KCMO-Resident-Stormwater-Booklet.pdf>

Milwaukee

[Leverage the impact of the stormwater fee](#)

Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower

The Milwaukee Metropolitan Sewer District has set ambitious goals to model sustainable and resilient practices in its operations and throughout its footprint. One mechanism they've established to help the impact of their stormwater fee go farther through empowering residents to do more is the creation of a center to offer free technical assistance.

Fresh Coast Guardians Resource Center:

- The Milwaukee Fresh Coast Guardians Resource Center has a professional staff focused on providing residents with the tools and resources to manage stormwater effectively. The center provides up-to-date information about grants and other financial support available, helps to do basic designs and cost estimates for green stormwater installations for property owners, helps to identify native plants, shrubs, and trees and offer tips for planting and care, and provides green infrastructure training and certification opportunities to increase workforce development in the area.

https://www.google.com/url?q=https://www.freshcoastguardians.com/resources/services&sa=D&source=docs&ust=1651596639204854&usq=AOvVaw2zoees1h_FpSFze1Y6F1Je

<https://www.freshcoastguardians.com/about-us/freshcoast-guardians-goal>

New York City

[Prioritize, define, and illustrate opportunities for catalytic investment](#)

Ensure authentic community voice in creation of plans, programs, policies, and projects
Support ongoing participation through increased clarity and by maximizing accessibility

[Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate](#)

Ensure authentic community voice in creation of plans, programs, policies, and projects

While NYC is quite different in terms of scale and resources, the city nonetheless presents good models for governance, communication, and engagement structures that are sustainable over the long-term, especially where a multitude of agencies need to coordinate shared responsibility for stormwater management efforts. NYC's highly-structured approach to public engagement creates a predictable rhythm and expectations around soliciting and incorporating community

input, and a vast array of web-based materials targeted at a variety of audiences help to keep a diverse public up-to-date and informed about the latest projects and initiatives.

2018 Stormwater Master Plan (updated in 2021) + the Stormwater Advisory Group:

- City formed a Stormwater Advisory Group (SAG) in 2016, who held meetings that were open to the public, to provide substantive feedback throughout the drafting of the SWMP Plan. SAG members were key stakeholders identified by their past participation in other water quality programs, and included representatives of neighborhood associations and community organizations, environmental advocates, as well as the design, construction, and development community, among others. At each SAG meeting, the City provided a general update on the legal authority development, stakeholder engagement as pertained to the individual permit provisions, and an in-depth look into the development of specific programs for the SWMP. These focused meetings created a space for participants to “dive deep” into the latest planning and analysis.
- City also conducted targeted outreach during SWMP development to stakeholder groups—meeting frequently met with the Stormwater Infrastructure Matters (SWIM) Coalition to receive detailed feedback from environmental advocates
- Every year since the SWMP process began, and as projects are implemented, NYCDEP issues an [Annual Progress Report](#) which includes a summary of all public comments received, their responses, and a description of any changes the City will incorporate because of public input.
- Ongoing engagement also includes waterbody-specific planning workshops and presentations—in 2020 NYCDEP held 6 public meetings total related to stormwater management implementation.

<https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/gi-annual-report-2021.pdf>
<https://www1.nyc.gov/assets/dep/downloads/pdf/water/stormwater/ms4/nyc-swmp-plan-full.pdf>

The Stormwater Controls Working Group:

- Interagency collaboration is a critical component for the implementation of NYC's Stormwater Management Plan (SWMP). NYC Dept of Environmental Protection (NYCDEP) formed The Stormwater Controls Working Group, an inter-agency team with representatives from 13 NYC agencies with obligations under the MS4 Permit to collaborate and continue implementation. This team meets frequently –every other month– and remains actively involved with the negotiations of the impending permit, annual reporting, and programming. The group compares 10-year plans for capital projects to identify places where stormwater project components may be added.

Public Education and Outreach Program:

- During the SWMP development, public input suggested that the City focus education efforts on schools and teachers located in the MS4 area; use social media platforms to raise awareness of MS4 issues; and incorporate more graphics in presentations and education materials. NYCDEP now provides extensive educational resources to schools and teachers interested in teaching about stormwater and stewardship in the form of

ArcGIS storymaps on [NYC H2O HUB](#). (Note the [survey](#) visitors to collect info on how these resources are being used).

- In addition to presenting information about MS4 and SWMP development at multiple conferences, teacher professional development, and interagency meetings, program staff also facilitate community group involvement in waterbody-specific planning workshops, as well as attend various programs and community events with residents and neighborhoods timed with the widespread GI construction activity in those areas. These regular activities add up to an average of 36 public-engagement touchpoints each year.
- Brochures and door hangers are typically distributed during design and construction for area-wide GI contracts and contain DEP's green infrastructure "hotline" phone number and an outreach email address monitored regularly by a communications staff person.
- The DEP also maintains a [publicly accessible, interactive web-map](#) showing all green infrastructure practices at advanced design, in construction, or constructed statuses.

<https://www.nych2ohub.org/>

<https://www.surveymonkey.com/r/FCP6XWY>

<https://www.arcgis.com/home/webmap/viewer.html?webmap=a3763a30d4ae459199dd01d4521d9939&extent=-74.3899,40.497,-73.3757,40.9523>

Cloudburst Neighborhoods Approach:

- Green infrastructure has been rebranded in NYC— "Cloudburst Neighborhoods" is the new approach
- NYC Dept of Environmental Protection (NYCDEP)'s 2017 Cloudburst Resiliency Planning Study adapted an approach developed in Copenhagen to managing extreme rain events, or "cloudbursts," using streets and open space. See [Cloudburst Resiliency Study](#)—this study emphasizes creating increased livability, integrating cultural + social + physical, and using an iterative process to build improvements, and connecting many small projects into larger networks.
- To identify initial cloudburst neighborhoods and carry out a multi-year approach to cloudburst neighborhood planning, the City formed an inter-agency Cloudburst Task Force. The task force is led by NYCDEP and the Mayor's Office of Climate Resiliency, and includes the NYC Departments of City Planning, Parks and Recreation, Emergency Management, Design and Construction, Transportation, and the New York City Housing Authority, among others.
- For the 2017 Cloudburst Resiliency Planning Study, the process was designed around three stages of analysis connected via three workshops with stakeholders. Stakeholders identified two pilot projects on NYC Housing Authority property in Southeast Queens as part of the study to measure risks, prioritize responses, develop neighborhood-based solutions, and assess costs and benefits for managing large volumes of stormwater using this approach. The team engaged the residents through several workshops to solicit input and better understand what the property could look like after design intervention.

- In 2022 the City will conduct further cloudburst feasibility studies at different sites considering physical vulnerability, social and economic factors, and below-ground conditions, and will also seek public input on future projects through a community board consultation process.

<https://www.arcgis.com/home/webmap/viewer.html?webmap=a3763a30d4ae459199dd01d4521d9939&extent=-74.3899,40.497,-73.3757,40.9523>

Philadelphia

Prioritize, define, and illustrate opportunities for catalytic investment

Practice civic engagement and shared leadership that reflects the communities served

Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate

Support ongoing participation through increased clarity and by maximizing accessibility

Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower

The Philadelphia Water Department is a recognized pioneer of integrating innovative stormwater solutions in order to meet their obligations to improve water quality. The department's commitment to public engagement and community involvement may be an underappreciated piece of their successes over the past years. Through interviews with former head of Public Affairs, Joanne Dahme, and Howard Neukrug, former PWD (now with Penn Water Center and part of the SWSP consulting team, who also offered input via the Peer Utilities focus group), this plan's recommendations were informed by examples of what worked in the Philadelphia context, where many challenges are similar to Pittsburgh's — and resources are likewise limited.

The Philadelphia Water Department made a commitment to "continual engagement" years ago, with the "mission to help people understand what they are paying for." In the 1980's the water-emergency call center (which creates work tickets) was subsumed under Public Affairs, which has an annual budget of approximately \$5 million and 100 employees, with approximately 30% dedicated to communications and engagement. According to Dahme, it's valuable to have the emergency call center under the Public Affairs division as they act like the canary in the coal mine or the voice of the customer, reporting back to the Water Department on emerging and common issues. Today, there are approximately 30 staff dedicated to communications and engagement in Public Affairs, including in-house graphic designers and web developers.

Green City, Clean Waters Plan: Community/Stakeholder Engagement Structure

- The **Community Engagement Outreach Specialist program** (previously "Water Outreach Ambassadors") began with [Green City, Clean Waters](#) (the plan approved by the Pennsylvania Department of Environmental Protection (PADEP) and the EPA in 2011-12). PWD recognized that installing GSI projects would mean disrupting community spaces and parks, so they would need to have a stronger presence in communities to make people aware of upcoming projects – the goal was "to have communities value the projects and see them as their own."

- Role of [Outreach Specialists in four districts](#): An outreach specialist is assigned to each of the four districts PWD determined based on combined sewer overflow areas. Through regular community engagement, the outreach specialists strive to make authentic relationships with as many residents while explaining how, why, where, and when new green tools will be installed in their neighborhood. Essential duties include: *study targeted communities and research resources that help build capacity to support bringing more amenities to communities (i.e. playground equipment), which will complement the green stormwater infrastructure; propose an outreach plan (including training) for targeted communities; develop a communications campaign for identified sites; develop toolkit with resources for community leaders; implement outreach plan and communications campaign; hold a celebratory event and strengthen partnerships with communities.*
- **Standing Community Advisory Committees** are places where representatives of both low-income customers and environmental groups come together. These groups are consulted before any rate increases or changes are implemented. PWD has found that having these groups meet together helps set expectations around the desired level-of-service versus the need to balance affordability for customers (“we’d love to do more, but we also have to make sure we remain affordable for customers”).
- PWD recognized that improving inter-agency coordination is critical to GCCW’s successes. In 2017, the **Clean Waters Taskforce** was formed, representing leadership from more than 10 city agencies, working toward establishing meaningful, cross agency collaborations to implement GSI. In the first years, the Task Force has focused on more basic pollution prevention practices. However, [current efforts](#) are underway for all city department heads, through this task force, to develop and formalize numeric targets and implementation plans to install and maintain GSI on their respective departmental properties, as well as establish guidelines and metrics that city agencies should follow to implement the city’s green-first approach to stormwater management.

<https://water.phila.gov/green-city/>

<https://water.phila.gov/community-resources/>

<https://www.pennfuture.org/Files/Admin/Common-Agenda/GreenStormwaterAgenda2.pdf>

Partnership Programs

- Active relationships with non-governmental organizations and coalitions like Philadelphia Water Department’s **Watershed partnerships** (such as with the [Tookany/Tacony-Frankford Watershed Partnership](#)) serve as a vehicle for stakeholders to participate through public outreach initiatives, watershed assessments, and watershed management plans.
- Partnerships with public parties outside of city government, such as the Philadelphia School District, Philadelphia Housing Authority, public transit, PennDOT and local universities have yielded additional stormwater management opportunities. For example, the [Fairmount Water Works Interpretive Center](#) hosts a collaboration with the School District of Philadelphia to present the [Understanding the Urban Watershed curriculum](#) to educate school students on urban water topics.

<https://ttfwatershed.org/>

<https://fairmountwaterworks.org/>
<https://www.resourcewater.org/>

Stewardship Programs

- The [Soak It Up](#) Adoption “Adopt-a-Feature” grant program has encouraged community groups to adopt rain features, to provide for maintenance, take photos, and make sure these features continue to thrive. These projects include installing [physical signage](#) that draws attention to the project's multiple benefits.
- Stewardship programs also include [Rain Check](#), designed to encourage homeowners to install landscape improvements that manage stormwater as a partnership with Pennsylvania Horticultural Society (PHS).

<https://water.phila.gov/adoption/>
<https://www.flickr.com/photos/philadelphiawater/albums/72157654299547526>
<https://www.pwdraincheck.org/en/>

Pittsburgh

[Prioritize, define, and illustrate opportunities for catalytic investment](#)

Ensure authentic community voice in creation of plans, programs, policies, and projects
Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower

Pittsburgh has spent years laying the groundwork, and can continue to prioritize, define, and illustrate opportunities for catalytic investments. The city has a wide network of active community collaborations that have grown over time. These networks have proven effective in bringing projects to fruition. Pittsburgh has a history of focusing on priority sites and then expanding on the initial investment. The “PWSA City-Wide Green Infrastructure Assessment” (2016- “Green-First Plan”) is an excellent example of a city-wide effort to craft solutions designed to manage stormwater. It recommends the use of green stormwater solutions in several priority sewersheds and envisions a network of stormwater systems that will help to capture, reduce, and slow down the flow of water into the sewer system, and improve water quality. Strengths of the plan include its focus around identifying major sources of combined sewer overflows, considering intersections between those areas and other types of investment activities in Pittsburgh, and relying on an adaptive approach that puts green-stormwater infrastructure strategies first. The Green-First Plan is one of the primary plans that underpins the current SWSP; its context and inputs have, of course, been broadened to include other considerations. Plan implementation that also draws from the best practices and principles for community engagement is best illustrated within the context of the Negley Run Watershed Task Force (NRWTF) is a model of a successful interdisciplinary group consisting of public and private stakeholders. The group was formed to steward projects, and to ensure that the community was involved in a truly collaborative way. Advocates and stakeholders have proven to be empowered through this process. Indeed, the NRWTF serves as the model for ongoing community collaboration (see Appendix C), and stands shoulder to shoulder with other national models of engagement in the context of successful stormwater management strategies.

Green-First Plan:

- In 2016, the City of Pittsburgh and the Pittsburgh Water and Sewer Authority developed the Citywide Green First Plan. It outlines how Pittsburgh intends to use cost-effective green infrastructure solutions to manage stormwater. Implementing the plan will reduce local street flooding and sewer backups caused by large rainstorms, though at the time, the future of ALCOSAN's infrastructure investments were being revisited through a consent order revision. These innovative practices were considered a preferred, adaptive approach to aid Pittsburgh and the region in complying with the U.S. Environmental Protection Agency (EPA) combined sewer overflow mandates, and in improving the quality of local waterways.
- This plan outlines how Pittsburgh intends to use innovative, cost effective, and green infrastructure approaches to manage stormwater and reduce combined sewer overflows.

<https://www.pgh2o.com/your-water/stormwater/stormwater-plans>

Negley Run Watershed TaskForce:

- The Negley Run Watershed Task Force is an interdisciplinary collaboration to engage community, creatives, and professionals in urban ecosystem regeneration. With the City and related agencies, the Task Force will support innovative rainwater stewardship and conveyance strategies. The Task Force's approach will introduce habitat, (bio)diversity, ecological function, and stormwater stewardship into municipal, agency, and private development plans and programs that may otherwise lack a holistic systems perspective to watershed conservation and management, and CSO and flood control.

<http://www.livingwaterspgh.org/landing-page/living-watersheds/negley-run-a42/negley-run-watershed-task-force/>
<https://upstreampgh.org/projects/negley-run-environmental-equity-study/>

Washington, DC

[Leverage the impact of the stormwater fee](#)

Ensure authentic community voice in creation of plans, programs, policies, and projects
[Transparent, authentic public participation with awareness of impacts of other agencies and a changing climate](#)

Practice civic engagement and shared leadership that reflects the communities served
[Guiding principles for level of service delivery and localized flooding reduction](#)

Ensure the full spectrum of community engagement includes strategies to involve, collaborate, and empower

Washington, D.C. has proven its impact in leveraging a stormwater fee, while also ensuring community voices were front and center in the creation of plans, programs, policies, and projects. The City uses smart technologies and incentives to pay for their robust network of stormwater programs. There is a strong commitment for the public to drive priorities through civic engagement. George Hawkins (former CEO of District of Columbia Water and Sewer Authority, or “DC Water”), founder and President of Moonshot Missions cites the “Green Infrastructure Challenge” as a good introductory tactic to educate folks on the basics of stormwater management, and begin to increase visibility in the region. DC Water is also a national leader in the success of leveraging their Environmental Impact Bond. As the stormwater rate increased over the years, it helped to have clear, ongoing communications with residents. DC Water prioritizes proactive communications before, during, and after new

stormwater infrastructure projects. "Clean Rivers" was able to better engage with the community after a new, fresh branding launch. This marketing campaign (including a new look, name, website, logo, colors) increased visibility of the issue, and allowed the residents of DC to understand the stormwater work that was happening in their communities. The work thrived when staff were able to act as communications point people who were accessible, visible, and available to community members.

Stormwater Plan:

- The District is in the midst of a major strategic planning effort to address stormwater pollution from the city's Municipal Separate Storm Sewer System (MS4). The result of this planning effort, the Consolidated Total Maximum Daily Load (TMDL) Implementation Plan, will result in a performance based approach for reducing stormwater runoff volume and pollution, while still providing the District flexibility to plan and judiciously allocate limited resources. This project will utilize a combination of monitoring and modeling approaches to make the best possible estimates of pollution discharged from the District's MS4, any pollution reductions that have been achieved via programs and best management practices (BMPs) implemented in recent years, and the scale of further reductions still needed to meet Clean Water Act requirements.
- Example: The Clean Rivers program is improving the quality of the Anacostia Watershed, ultimately reducing combined stormwater and sewage discharge into rivers at times of heavy rainfall by 96% upon completion in 2030. To ensure success of the program, an array of water users in the watershed need to set higher water quality standards when discharging.

<https://dcstormwaterplan.org/>

https://dcstormwaterplan.org/wp-content/uploads/ExecutiveSummary_InteractivePDF.pdf

<https://www.dewater.com/cleanrivers>

RiverSmart:

- RiverSmart is an example of a comprehensive program centered around stormwater fees but also encompassing grants, substantial rebates and incentives for property improvements and educational efforts.
- RiverSmart programs help to reduce stormwater runoff that harms the District's waterways and the Chesapeake Bay. The programs provide financial incentives to help District property owners install green infrastructure such as rain barrels, green roofs, rain gardens, permeable pavers, shade trees, and more. These practices allow rainwater to stay on site and soak into the ground, where natural processes help remove pollutants.
- The RiverSmart program has a wide offering of financial incentive programs to reduce stormwater runoff in the DC region. RiverSmart encourages green infrastructure projects for both small and large entities such as: private residences, nonprofits, churches, and schools. The DC Rewards program provides a discount of up to 55% off the stormwater fee, and up to 20% off DC's Clean Rivers Impervious Area Charge.

<https://doee.dc.gov/riversmart>

Environmental Impact Bond:

- The Environmental Impact Bond was launched in DC in 2016. In spring of 2017, DC Water announced the success of both its first green infrastructure (GI) projects in Rock Creek and the innovative Environmental Impact Bond (EIB) that financed them. Robust evaluation of project outcomes helped to establish the effectiveness of GI in the District and tracked reduced combined sewer and stormwater runoff into Rock Creek, improving the health of waterways. DC Water achieved the following objectives established at the outset of the financing opportunity:
 - Ensure responsible stewardship of ratepayer funds by transferring a portion of performance risk associated with technologies that had never been implemented on a large scale in the District.
 - Enhance future decision-making about how much and which types of green infrastructure to build.
 - Create a model funding mechanism that other municipalities can leverage to advance the use of green infrastructure to address stormwater management in their communities.
 - Establish a green jobs initiative targeting local workforce development and sustainable job creation, including training and certification opportunities for District residents.
 - Improve transparency to local ratepayers by formally predicting, measuring, and publicly reporting the environmental impact of the green infrastructure.

<https://dcwater.com/environmental-impact-bond>

<https://www.quantifiedventures.com/dc-water>

[https://www.epa.gov/sites/default/files/2017-](https://www.epa.gov/sites/default/files/2017-04/documents/dc_waters_environmental_impact_bond_a_first_of_its_kind_final2.pdf)

[04/documents/dc_waters_environmental_impact_bond_a_first_of_its_kind_final2.pdf](https://www.epa.gov/sites/default/files/2017-04/documents/dc_waters_environmental_impact_bond_a_first_of_its_kind_final2.pdf)

Appendix B: Effective Web-Based Communication Tactics

While PWSA customers and Pittsburgh residents surveyed during this planning process list bill inserts and emails as the primary sources of information they recall receiving information about stormwater services, those tools offer one-way information. Other tactics that are more engaging and dynamic include regular communications via Nextdoor, deploying the City's EngagePGH site and lists, coordinating with City Neighborhood Services representatives who attend all neighborhood meetings, using partner networks and social media channels, and creating PWSA staff lines of communication within a growing network of watershed task forces while also supporting watershed ambassadors. Additionally, these ideas for web-based tactics are recommended:

1- Good, accessible websites highlight key issues and make it easy to engage

High-quality information accessible through online platforms are key to the mission of making sure people understand what they are paying for, and how they may be involved in supporting efforts to improve water quality and infrastructure systems. Websites need to serve as a trusted source for information, and updating them with relative frequency is critical to achieving the expected level of transparency.

- *A good resource for this is:* The Water Research Foundation's [Website Strategies for Water Professionals \(or, What You See Is Not What Google Sees...\)](#) and the [One Water: Pittsburgh's Guide to Action](#) resource.

A great website, like any great communication tool, meets people where they are. In the context of a water and sewer authority's website that means putting the main issue (what's in the news, or the customer's largest concern) up-front when visitors navigate to the website. At different times that may mean emphasizing water quality, safe drinking water, or stormwater, depending on what is occurring in the community.

- *Good examples of this include:* [DC Water's home page](#); [Washington DC's Clean Rivers Project interactive website](#);

Several examples of effective websites also aim to present these issues in terms of shared responsibility and partnership, placing content related to "here's what you can do to help" in obvious or highly-emphasized positions on the webpages, making it as easy as possible for folks to figure out how to get involved. Clear, straightforward infographics help to present complex information about water issues in an easy-to-digest, accessible format.

- *Good examples of this include:* [NYCDEP's page on CSO's](#); [NYCDEP's Trash it, Don't Flush it](#); [DC's page on CSO's](#); [DC's Stormwater Management FAQs](#); [Philadelphia's Community Resources Page](#); [Buffalo's Rain Check website \(excellent infographics\)](#)

Google analytics is a simple tool and an effective method for assessing how people are navigating the website — what they are clicking on most often and what pages get the most views, etc. Philadelphia's Water Department's communication team periodically does this form of assessment, and uses that data to redesign and update web content, hiring external consultants as needed while relying on internal staff to perform regular updates. Including a link to a live survey on the website may also be a good way to collect information on how web resources are being used.

- *Good examples of this include:* [NYC H2O Hub Survey](#)

2- Celebrate project success and advantage video content

Several water and sewer authority's websites offer good examples of celebrating shared success in implementing effective stormwater management efforts. This celebratory content

creates a sense of momentum that makes people want to be part of the larger project of improving water quality and infrastructure performance over the long term — which ultimately will be crucial to securing financial support. Strong video content creates an engaging medium for sharing project successes; videos grab people's attention, are more memorable than text, are easy to share, and if made right they can take lots of information and make it easy to interpret in a short amount of time. They also elicit emotional connections that make people want to share and comment (online videos get 1,200% more shares than text and images combined). Embedding videos on your web pages also drives web traffic to your site by causing those pages to rank higher in search engine results.

- *Good examples of this include:* [Philadelphia's blog site \("A rolling collection of stories, tips, and news powered by the people of the Philadelphia Water Department"\)](#); [Philadelphia's Soak it Up Program Adoption page](#); [Washington DC's "Virtual Tour" of a Successful Project \(PDF\)](#); [Buffalo Rain Check filter-able project grid](#); [NEORSD's Youtube Channel](#); [Video: How green tools protect Philly's waterways](#)

3- StoryMaps break down complex water issues and make good public education materials

Another common tool in use by many water and sewer authorities is the creation of public education materials in the form of [ArcGIS StoryMaps](#) — a relatively simple-to-use webpage builder tool that allows users to add text, photos, and videos to existing ArcGIS web maps to create an interactive narrative that can be published and shared. Using maps as an integral part of storytelling makes them a more effective and accessible tool. StoryMaps can be used for a wide variety of purposes- for advocacy and outreach, education, and to deliver public information. A major advantage of the StoryMap format is it facilitates a sequential breakdown of complex information while also offering opportunities to interact with content along the way – allowing visitors to absorb information at their own pace. These materials may be especially useful for teachers to engage students in learning about urban water issues in their home communities (think of these young people as future customers and rate-payers).

- *Good examples of this include:* [NYC H2O HUB – StoryMap "lessons" for educating New Yorkers of all ages on city's local water ecology](#); [Kansas City's Green Stormwater Infrastructure StoryMap](#); [Northeast Ohio Regional Sewer District History StoryMap](#); [Atlanta's Green Infrastructure Program StoryMap](#)
- *As part of the Watershed Ambassador work in Pittsburgh through this plan, pro bono services were obtained by the international planning and architectural firm GBBN. In response to Ambassador input, GBBN is currently working on drafting a [StoryMap](#) with Grounded Strategies, PWSA, and the Pittsburgh Parks Conservancy — this project should be continued to include up-to-date information following the completion of the SWSP. We are aware that the PWSA GIS team is also completing a StoryMap for [completed PWSA projects](#), and that the Negley Run Watershed Task Force is completing one for its watershed as well. Considering how to or whether to integrate the three is an important recommended next step.*

4- Interactive database maps of green infrastructure projects that are continually updated

Many water and sewer authorities who are engaged in similar stormwater management projects over the long term maintain transparency by providing online tools to help interested community members navigate information about the status of current, past, and future planned projects. These have varying degrees of depth of information, but most are presented in the form of interactive maps based on ArcGIS mapping of project data.

- *Good examples of this include:* [NYCDEP Green Infrastructure Program Map](#); [Philadelphia Water Department's Big Green Map: ArcGis map of all GSI public and](#)

[private projects](#); [Kansas City's Smart Sewer program](#); [NEORS Green Infrastructure Grants Programs Storymap](#)

- *Living Waters of Pittsburgh created "[One Water Map](#)" on their site, highlighting Pittsburgh's priority sewersheds in the Pittsburgh Area, which allows visitors to locate their sewershed but doesn't include any information about completed, current, or planned projects in those sewershed areas as the above examples from other cities show.*
- *Note: It is recommended that groups should combine efforts and integrate GIS maps with story maps.*

Links for this section:

<https://www.waterrf.org/resource/website-strategies-water-professionals-or-what-you-see-not-what-google-sees>

<https://www.dewater.com/>

<https://www.dewater.com/cleanrivers>

<https://www1.nyc.gov/site/dep/water/combined-sewer-overflows.page>

<https://www1.nyc.gov/site/dep/whats-new/trash-it-dont-flush-it.page>

<https://www.dewater.com/css>

<https://doee.dc.gov/service/stormwater-management-faqs>

<https://water.phila.gov/community-resources/>

<https://raincheckbuffalo.org/our-stormwater-challenge/>

<https://www.surveymonkey.com/r/FCP6XWY>

<https://water.phila.gov/blog/gccw10-outreach>

<https://water.phila.gov/adoption/>

https://dewater.com/sites/default/files/finance/rock_creek_project_green_infrastructure_virtual_tour.pdf

<https://raincheckbuffalo.org/project/>

<https://www.youtube.com/user/neorsdccr>

<https://vimeo.com/205411916>

<https://www.esri.com/en-us/arcgis/products/arcgis-storymaps/overview>

<https://www.nych2ohub.org/>

<https://kcws.maps.arcgis.com/apps/Cascade/index.html?appid=8be27e83d420431e9679ca283f249655&folderid=33103bf3deef48bd899be072950d9a32>

<https://storymaps.arcgis.com/stories/823cb522dd79431281273a2946e68667>

<https://storymaps.arcgis.com/stories/c41bc3f84d8e4e70bc1672ffcd830f1f>

<https://storymaps.arcgis.com/stories/22e46cd887424ee69e084ba5febd7e3e>

<https://www.pgh2o.com/projects-maintenance/search-all-projects>

<https://www.arcgis.com/home/webmap/viewer.html?webmap=a3763a30d4ae459199dd01d4521d9939&extent=-74.3899,40.497,-73.3757,40.9523>

<https://phl-water.maps.arcgis.com/apps/webappviewer/index.html?id=c5d43ba5291441dabbee5573a3f981d2>

<https://www.kcsmartsewer.us/home-smartsewer>

<https://neorsd.maps.arcgis.com/apps/Shortlist/index.html?appid=efd0ff60d52f4860978c5bb4098cb3d9>

<https://www.google.com/url?q=http://www.livingwaterspgh.org/landing->

[page/map/&sa=D&source=docs&ust=1654106111632752&usg=AOvVawOGdY5B-r9ng5u56sJTUSLy](https://www.google.com/url?q=http://www.livingwaterspgh.org/landing-page/map/&sa=D&source=docs&ust=1654106111632752&usg=AOvVawOGdY5B-r9ng5u56sJTUSLy)

Appendix C: Pittsburgh's Network of Watershed Task Forces

Pittsburgh

Following the release of the PWSA "City-Wide Green Infrastructure Assessment" (Green-First Plan), which identified the areas of Pittsburgh where large-scale green stormwater infrastructure projects could significantly manage the majority of combined sewer overflows and create community co-benefits, area non-profits focused efforts to organize collaborative working groups in the areas identified as high priorities. The Negley Run Watershed Task Force (NRWTF) assembled in an area covering the historic Negley Run watershed, approximately contiguous with the A-42 sewershed footprint. This task force grew out of longstanding, successful community organizing efforts in and around several key neighborhoods striving for sustainable redevelopment and affordable housing, having identified water resources and stormwater management as central to these efforts. Organizations including the Larimer Consensus Group, Kingsley Association, and groups including the Living Waters of Larimer were central to this long standing work. Emphasis on stormwater management improvements by initiatives including Project 15206 and organizations like Upstream Pittsburgh (then called the Nine Mile Run Watershed Association) and local and state elected officials had brought visibility, momentum, and important investments into this watershed, where chronic flooding and catastrophic loss of life have recurred. Local water activist and attorney, John Stephen, coordinates the task force, and since 2018, partnered with the Pittsburgh Parks Conservancy to jointly fundraise and manage the group. The NRWTF routinely meets, and has operated on a model of assembling a diverse set of stakeholders together to jointly discuss and strategize about opportunities to align goals and interests within the context of water issues inside the watershed. Representatives from local neighborhood groups, community development corporations, nonprofits, universities, elected offices, public agencies and departments, and allied professionals in the field come together under the auspices of the NRWTF.

A vision to replicate this watershed task force model in subsequent years was successfully pursued by the Pittsburgh Parks Conservancy and Pittsburgh United, attracting national funding from the Pisces Foundation, JPB Foundation, and locally from the Heinz Endowments to continue to support both the NRWTF as well as to more formally replicate the model in the other Green-First Plan priority sheds (Heth's Run, Soho Run, Four Mile Run, Woods Run, Sawmill Run, and SouthSide/21st Street). Numerous studies (including the City of Pittsburgh's "[Watershed Resilience Accelerator Project Report](#)," 2016; and the Water Research Foundation's "[Pittsburgh Region: A Regional Scale Analysis of a One Water Approach](#)," 2017) identified a lack of integration between plans and a lack of clarity around responsibility for action about water management. These same reports acknowledge the absence of community voices. Seeking to avoid the pitfalls of overlooking the critical role for community-based groups in shaping actions to achieve water management goals together with investments in public spaces, these groups identified a need to proliferate formal watershed task forces like the NRWTF. Citing a desire to ensure that stormwater infrastructure investments create collateral benefits, particularly for those most vulnerable people within these areas of Pittsburgh, six additional task forces assembled in those areas starting in 2019 and 2020. These groups have been coordinated by the Pittsburgh Parks Conservancy, who sought to add cohesion to loose affiliations that were more or less present in each watershed already.

The task forces educate and activate residents within their watersheds as advocates for plans that include ecological function, biodiversity, linkages to neighborhood priorities, and stormwater. Existing parks and vacant properties offer opportunities for capturing and slowing

stormwater, conveying it within a more decentralized and adaptive system. Task forces also offer local residents and businesses opportunities to collaborate with public agencies to perform stewardship and maintenance for green stormwater infrastructure installations. Integrating other perspectives and tactics, such as artist-led projects, has become a hallmark for the NRWTF, for example. The [River Roots art installation](#) adjacent to Liberty Green Park in Larimer, developed through the Living Waters of Larimer collaborative, completed in 2019) is one good example of how water is celebrated as a resource in the neighborhood, and how sustainably managing stormwater helps to return assets to a community. Another art-inspired joint project is the [One Water Trail, a Concept Plan for Highland Park](#), where the landscape of Highland Park and its varied water resources, including the drinking water reservoirs, human-made lake, water treatment brook, natural streams, and wetlands are embodied in a conceptual design for a water “trail” and interpretive program that reveals the connections among water resources, infrastructure, and the ways we experience water in our daily lives.

An important tool developed by Pittsburgh Parks Conservancy, in collaboration with PWSA and ALCOSAN, is the [One Water: Pittsburgh's Guide to Action](#) information piece. Created to serve as a fundamental overview of all things related to water in Pittsburgh, this tool is organized to offer comprehensive but accessible information about how water flows and is and can be more resiliently managed. Information about how the public can be engaged and involved at various scales (citywide, within a watershed, within a neighborhood, and within their own business or residence) are provided. The Guide was meant to serve as a primary tool for the Watershed Task Forces to use in their work. Keeping this guide up to date and perhaps replicating it in an online, more interactive format, might be a very useful option for the future.

Within the community engagement plan for this SWSP development, watershed task forces served as key connection points at many stages in the plan, including active participation and contributions to identifying plan priority focus areas within three focus groups (October-November 2021), contributing input to the refinement of the SWSP investment areas and strategies, disseminating community input surveys (described more fully in Appendix D), and hosting informational sessions regarding the plan development.

While PWSA routinely sends staff representatives to watershed task force meetings, and is open and responsive to their requests for input and assistance, there is no formal relationship between PWSA and these groups. Furthermore, the SWSP identifies areas that as of yet do not have an existing local task force. Finally, these task forces are under-resourced and supported entirely by philanthropy on a year-to-year basis; their continued existence and function is not sustainable under the current construct.

Watershed Task Forces beyond Pittsburgh

As described in the matrix and Appendix A, many cities studied for their approaches to equitable communications and engagement rely on and formally support some version of community-centered watershed task forces in their effective stormwater management efforts. A key element in those cities that is lacking in Pittsburgh is that the municipal government and/or the stormwater utility financially supports, in whole or in part, these groups. Another key element is that there is some formal mechanism identified in the decision-making process for the task forces to play a role, be it in disseminating resources to communities and residents, implementing stormwater management projects, and/or hosting paid staff from the stormwater agency with community engagement and water expertise.

Links for this section:

https://apps.pittsburghpa.gov/redtail/images/8376_WRAP_Workshop_Debrief_Document.pdf

<https://www.alishabwormsley.com/riverroots>

<https://cdn2.hubspot.net/hubfs/415693/Highland%20Park%20Water%20Trail.pdf>

<https://cdn2.hubspot.net/hubfs/415693/One%20Water%20Guide.pdf>

Appendix D: Watershed Ambassadors for Community Engagement in the Stormwater Strategic Plan Development

Recruiting, compensating, training, and supporting community members to serve as Ambassadors for stormwater engagement work is an adaptation of a model that Grounded Strategies has employed since its inception 15 years ago. In essence, the concept relies on the lived experience of residents as experts in their own neighborhoods, and in a desire to compensate people for their time and contributions to ongoing engagement within any given project or activity. Ambassadors agreed to a 10-18 hour/month commitment through July 2022, including six, two-hour training sessions. The Watershed Ambassadors would focus on communicating with the public about the planning effort, engaging with neighbors on stormwater-related matters, and also assisted with community level data collection. The team employed this model to demonstrate the value of both hyperlocal and equitable engagement.

Cohorts

In October 2021, a cohort of six community ambassadors (Cohort 1) located within sewersheds identified as priority areas in the PWSA Green-First Plan were recruited by Grounded Strategies to serve as direct correspondents both to and from PWSA, the project team, and Pittsburgh residents in their areas. Despite best efforts, it was not possible to recruit an Ambassador in this first group from Wood Run despite it being a previously identified priority area. Watershed Ambassadors were as follows (Figure 4):

- Four Mile Run (1)
- Negley & Heth's Run (3)
- South Side/21st Street (1)
- Soho Run (1)



Figure 4: Cohort 1 watersheds covered

In March 2022, an initial cohort of eight community ambassadors (Cohort 2) located within priority areas identified through the SWSP process were recruited to augment the community engagement team, serving in a similar capacity, but with the ability to communicate with neighbors regarding existing and future catalytic investment opportunities more closely aligned to the plan's refined geographic focus. Watershed Ambassadors were from the following areas (Figure 5):

- Sheraden/Chartiers Creek (1)
- Negley Run (2)
- Sawmill Run (2)

- Hazelwood (2)
- Woods Run (1)* *the Ambassador opted out following training, but the team was able to work directly with members of the Woods Run Watershed Task Force as an alternative*

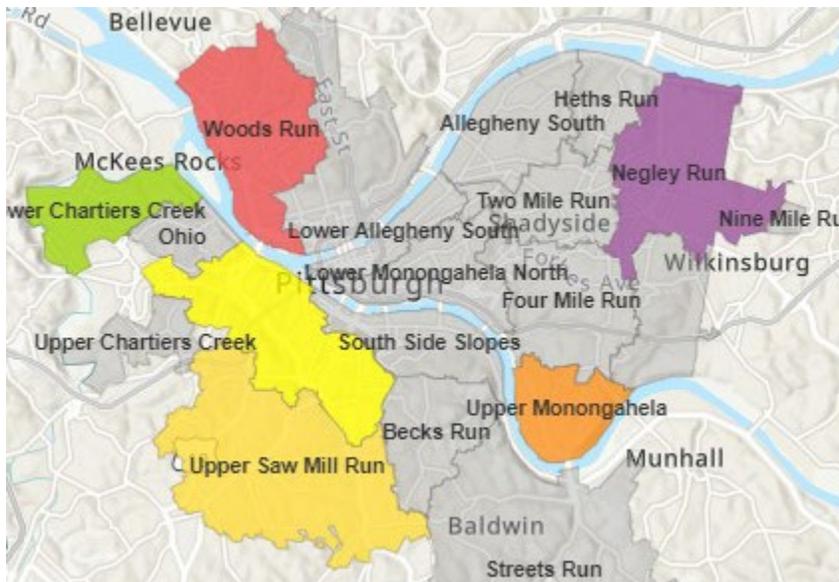


Figure 5: Cohort 2 watersheds covered

Recruitment happened in partnership with the Pittsburgh Parks Conservancy, who in 2017 began working in close alignment as the fiscal sponsor for the Negley Run Watershed Task Force, and then received both national and local grant support for replicating the watershed task force model (see Appendix C) in other priority stormwater areas from 2019 to the present. Pittsburgh United was also a partner in creating the task forces and recruitment. Funding from PWSA through the SWSP was sufficient to cover the costs related to six of the Watershed Ambassadors; the other eight Ambassadors and additional planning team time were supported through the Parks Conservancy's 2021 and 2022 grant support.

Training

Grounded Strategies and Heather Sage, with close coordination and assistance from PWSA staff, created and provided training for both cohorts over an approximately six-week period for each. Education modules consisted of a blend of basic information related to stormwater, stormwater infrastructure, and One Water concepts; information specific to the watersheds and sewersheds of focus for each cohort; presentations from PWSA team members and other SWSP consulting team members and partners, covering a range of subjects, with a particular emphasis on the stormwater utility and how it functions as well as affordability options for residents; and engagement tactics and resources. Ambassadors were encouraged throughout to feel empowered to bring their experiences and perspectives to the work. Ambassadors were a diverse group geographically, racially, economically, professionally, and from a gender-identity perspective.

Training took place through hybrid in-person and online sessions; Ambassadors were offered both transportation compensation and Internet/technology access as needed. Hired as contractors to Grounded Strategies, each was compensated \$15/hour for up to 18 hours/month, including training time. Google Classroom was used as the platform for housing training materials, presentations, additional resources, assignments (required for each training session),

and administrative documents. Recordings of all training sessions were made available to all participants; any missed sessions needed to be made up by viewing the recording. Each Watershed Ambassador was responsible for creating a work plan of activities to include communications and engagement around the plan priorities (identifying basement backup and localized flooding locations, understanding community information needs, etc.) and other PWSA stormwater priorities (the stormwater utility, affordability programs).

In addition to the staff and consultants supporting the Watershed Ambassadors, *pro bono* assistance was sought and obtained beginning in November 2021 by the planning and architecture firm GBBN as part of their annual [Design Issue Series](#). Their 2022 theme was "Watershed." GBBN professionals lent their time and expertise, working most closely with Cohort 1 to support visual communication needs and community engagement concepts that the group expressed a desire to create. GBBN also assisted community-based groups in Cincinnati, OH with similar stormwater management community engagement efforts.

Following training, routine cohort check-in sessions were scheduled, both individually and as groups. Additionally, Watershed Ambassadors together with the existing watershed task forces and other stakeholders were invited to information sessions at various points in the plan development process, with a particular emphasis on understanding community priorities within the two catalytic investment opportunity areas identified in the SWSP: Negley Run (Homewood focus) and Sawmill Run (McKinley Park and Seldom Seen areas).

Activities

Equipped with knowledge about CSOs and stormwater infrastructure, Watershed Ambassadors undertook a variety of outreach and engagement activities to share what they learned within their watersheds. This included presenting at community meetings, tabling at community events (Figure 6), engaging residents through social media and Nextdoor, door-to-door canvassing, distributing information on door hangers at neighbors' homes, organizing and hosting community walks to share information and view stormwater projects, and participating in SWSP input sessions. One Ambassador was [featured in a local news story](#) to bring awareness to the work. Another Ambassador raised key issues related to accessibility; she provided, for example, versions of her work in large print and braille. Further work related to translated materials, customer service lines that are accessible to hearing impaired residents, and other accommodations should be explored.



Figure 6: Watershed Ambassadors providing information and gathering community input at a local Arbor Day event.

Ambassadors worked closely with Grounded Strategies and PWSA to create surveys to provide community-level feedback for the SWSP. Watershed Ambassadors were primarily responsible for the data collection efforts, distributing them through various means from early 2022 through June. Using that feedback together with anecdotal conversations at events and between their contacts with task forces and other community partners, Ambassadors also worked with GBBN to identify other tactics to help engage and educate residents. The team created an [online story map site](#) to help better explain Pittsburgh's watersheds and specific issues with videos, graphics, and text. They considered creating temporary, informational signage to place within a particular watershed (Four Mile Run) to help explain challenges, solutions, and ways to get further information. Mock-ups were developed, but the Ambassadors collectively decided not to invest in final signage, though this tactic is believed to be valuable in the future. They created a Pittsburgh watersheds display board consisting of a map of Pittsburgh with tear off sheets

encompassing different neighborhoods containing information about each watershed/sewershed that the location lies within (Figure 7). PWSA also developed a similar survey that can be used on an ongoing basis via the [EngagePGH site](#) for community feedback.

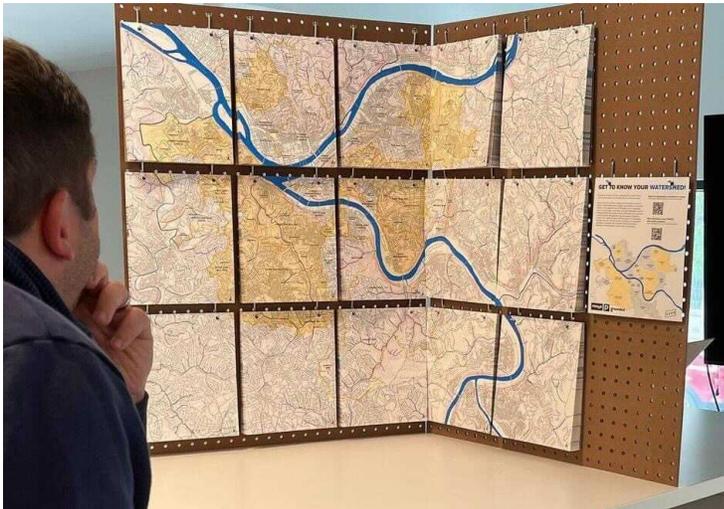


Figure 7: Tear-away neighborhood maps with watershed and sewershed specific information on the flip side.

Community Feedback

By early June 2022, Stormwater Ambassadors were able to collect 208 detailed surveys from area residents. Obtaining many of the surveys also involved conversations between Watershed Ambassadors and residents, and information sharing about the stormwater planning process and the new stormwater utility. Each Ambassador customized their survey with some watershed-specific components, and the data collected has been geo-located. For example, some areas were known to have issues with basement backups, and this data has been particularly challenging for PWSA and the planning team to acquire reliably. Any additional basement backup information was deemed to be a high priority in the engagement process. Information about nuisance flooding (i.e. very localized, repeated puddling/flooded areas within yards, roads, and neighborhoods) was obtained (Figure 8). Or in other cases, there was more of a focus around gathering renters' concerns and sharing affordability program information. All survey data collected is [summarized here](#).

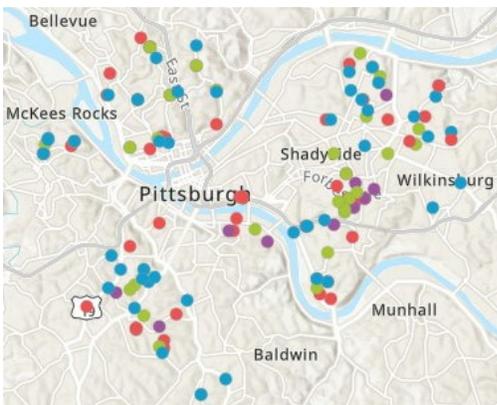


Figure 8: Nuisance flooding and basement backup occurrences collected via community surveys.

A number of themes emerged from the community surveys. These included:

- A need to reduce overland flooding and pooling and basement backups

- A preference for environmentally-focused designs, beautification, and protection for existing waterways
- A desire for PWSA to establish and maintain productive partnerships
- Understanding the relationships between stormwater management and city resilience
- Mixed results regarding awareness of the stormwater fee, with some areas expressing a clear lack of awareness and a high desire for additional information (Figure 9)
- Concerns related to flooding believed to have been caused by PWSA activities
- A large number of people experiencing localized flooding but many or most of them not reporting this to PWSA or others

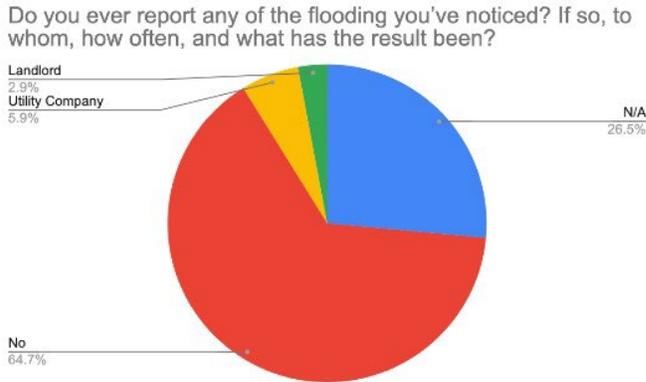


Figure 9: Data summarized from the Four Mile Run watershed regarding respondents' reports on flooding events.

Watershed Ambassadors will continue to share information within their neighborhoods throughout Summer 2022, and additional information and data will be summarized and shared with PWSA.



Figure 10: Watershed Ambassador and the GBBN team touring watershed to film story map videos.

Ambassadors at Work in Other Cities

Through our research into peer cities, we identified quite a few similar models of engagement at work (Appendix A). These include particularly well-developed and successful programs in Atlanta, Cleveland, and Philadelphia.

Links for this section:

<https://www.gbn.com/dis/>

<https://storymaps.arcgis.com/stories/22e46cd887424ee69e084ba5febd7e3e>

<https://engage.pittsburghpa.gov/>

<https://www.wesa.fm/health-science-tech/2022-05-31/pittsburgh-is-preparing-for-increasingly-severe-flooding-from-climate-change>

<https://arcg.is/15maKq>

