Stormwater and Climate Resilience

What is Stormwater Runoff?

Stormwater runoff is rain or snowmelt that doesn't soak into the ground but flows over impervious surfaces as runoff into a drainage system. Along the way, this runoff picks up pollutants such as vehicle fluids, metals, trash, yard waste, fertilizers, and other chemicals from pavement and other surfaces. Most stormwater flows through storm sewers untreated into streams, lakes, rivers, and the ocean. Extreme events can overwhelm the capacity of a stormwater system and lead to flooding, erosion, and poor water quality. As the climate changes and precipitation becomes more intense, the impacts of stormwater runoff will become more frequent, severe, and widespread. Regulations to protect the environment require municipalities, developers, industry, and large commercial sites to take action to reduce stormwater entering waterways, but when storms are severe, the existing infrastructure may be inadequate. One way communities can address pollutants in runoff and improve resilience to extreme precipitation events is to upgrade stormwater management practices and infrastructure. But this takes dedicated funding.

What is a Stormwater Authority?

In 2021, acting on recommendations of the Governor's Council on Climate Change (GC3), the Connecticut legislature passed PA 21-115 enabling municipalities to create a stormwater authority to help manage stormwater and improve resilience to climate change by assessing a scaled user fee based on the amount of stormwater runoff a property generates. Funding generated from the user fee can be used to maintain and enhance stormwater treatment measures and resilient infrastructure and provide matching funds for state and federal grants.

There are over 1800 stormwater authorities in the US in 45+ states serving communities both large (Los Angeles) and small (under 1000 residents). Under a pilot program, New London, Connecticut created a stormwater authority in 2018 that generates over $1M annually for stormwater system improvements. Revenue generated by a stormwater fee can be used only for specific purposes related to improving stormwater management and allows municipalities to have a dedicated funding stream to pay for capital improvements to improve stormwater treatment and resilience and aid in Municipal Separate Storm Sewer System (MS4) compliance.

The most common means of implementing a stormwater fee is with a charge assessed by calculating the area of impervious surface on a property, such as rooftops, sidewalks, driveways, parking, or other pavement. Impervious services are those areas, like a parking lot, where water will run-off the surface into drains, the roads, wetlands, grass, etc. Both public and private properties can be subject to the fee. Revenue collected then can be used to provide stormwater treatment measures and reduce flooding by improving municipal stormwater management infrastructure, such as storm sewers, drains, flood control reservoirs, rain gardens or other nature-based solutions. Impervious surface reduction reduces flooding, erosion, and concentrations of sediment, oils, trash, or other pollutants. If property owners decrease the extent of impervious surfaces on their property, or make other improvements to mitigate stormwater runoff, fees are reduced.

CIRCA
CONNECTICUT Department of Housing
U.S. Department of Housing and Urban Development

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How Can Municipalities Establish a Stormwater Authority?

Communities interested in establishing a stormwater authority can begin by evaluating both the benefits a stormwater authority could bring to the community and if a stormwater program is feasible. One three-step approach that communities might consider includes a quick assessment, a more detailed feasibility study, followed by an implementation period including stakeholder education and engagement.

1. Convene stakeholders for a "Does It Make Sense" (DIMS) quick assessment

DIMS is a one-day workshop to gauge municipal interest, political and stakeholder support, technical needs, staff capacity, and potential implementation challenges. Questions could include:

- Does our community have a need for increased resilience and better stormwater management?
- Has our community been negatively impacted by stream pollution, swimming or beach restrictions, or run-off from floods and increased storms in the last 5 or 10 years?
- Do we have the leadership and capacity to create and manage a stormwater authority?
- If answering Yes, to the above questions, then proceed to a more detailed feasibility study.

2. Conduct a comprehensive feasibility study

- Review existing stormwater facilities and regulatory requirements to determine condition, current operating costs, and areas where the system is inadequate and assess potential improvements.
- Determine if there are problem areas that require immediate or more funding than is currently available to address persistent or projected increased stormwater impacts.
- Identify town / municipal boards, commissions, and agencies currently engaged in stormwater management. Determine if an existing authority will administer the stormwater authority or if a new body will be created. See below for a model enabling ordinance to create a new stormwater authority.
- Review current funding for stormwater management; develop a fee structure (which necessitates understanding and quantifying how much is needed *and* how much can be collected).
- Design stormwater fee models, including fee collection and staff capacity for developing a billing system.
- Identify projects that the fee revenue could fund to decrease stormwater impacts and increase resilience.

3. Begin municipal implementation

- Educate the community about stormwater management, how the system is currently funded, and how fees would be equitably determined.
- Identify specific projects fee revenue would fund including problem flooding areas and resilient infrastructure improvements.
- Ask for ideas for other stormwater projects.
- Explain how fees would be reduced for property owners who make stormwater improvements to their property.
- Explain limits on fees for hospitals and farmland and the appeals process.
- Adopt an authorization ordinance tailored to the community enabling the stormwater authority.
- Develop a process for applying credits for land users that implement stormwater best management practices.
- Create a dedicated stormwater fund and include the fund in municipal budget projections.

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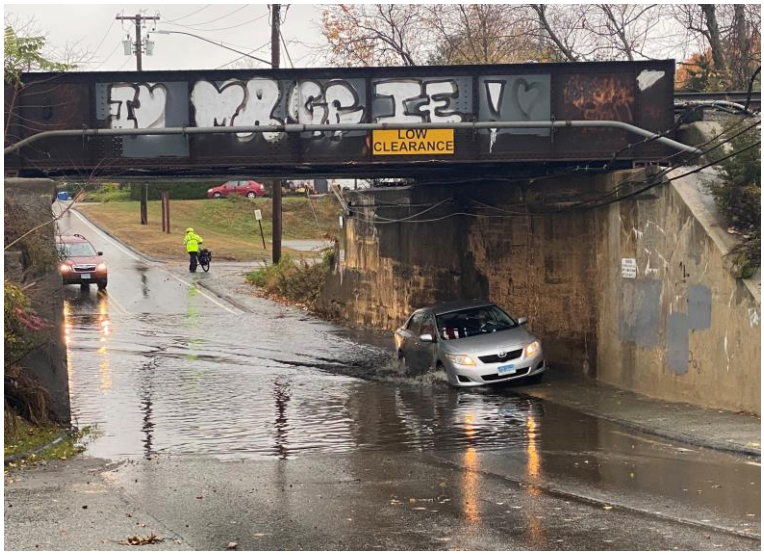
What Kinds of Projects Can be Funded Using Stormwater Fees?

Many municipalities prioritize water and sanitary sewer infrastructure over stormwater drainage resulting in a lack of funding for upkeep and improvement of this vital system. Stormwater management systems can become inadequate to address pollutant and capacity loads from greater precipitation and more frequent storms resulting from climate change. Compliance with MS4 regulation, however, has made stormwater management imperative. Stormwater fees can be a way for municipalities to plan capital improvements that may otherwise be difficult to fund. Just as water and sanitary sewer fees support improvements to their infrastructure, dedicated stormwater funds can be used for infrastructure design, construction, maintenance, and operation of the municipal storm sewer system. Additionally, stormwater funds may be used for public outreach related to stormwater management, program administration, or for critical upgrades to municipal systems. For example, New London, Connecticut used stormwater funds to replace two antiquated pumps in an area prone to repeated and increasingly costly flooding, virtually eliminating the problem. Importantly, this funding expands the capacity of municipalities to address their local resilience financing and project development needs by providing matching funds for state and federal grants.

Modest design changes can greatly reduce stormwater runoff and have a big impact on resilience and environmental quality. Incorporating nature-based, sustainable solutions into sites with large areas of impervious pavement can greatly reduce the amount of stormwater flowing into storm sewers, as well as the pollutants it can carry. Bioretention swales added to parking lots allow for onsite filtration of water. Pervious pavement can be used in appropriate areas to reduce runoff. Combining these efforts with informational signage can educate the public about stormwater and resilience and demonstrate how and where stormwater fees are being used to benefit the community.

How Can UConn Help?

- Grants for stormwater authority feasibility studies
- Public workshops, webinars, and technical assistance, including data and maps
- Model ordinance for stormwater authority implementation



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Model Stormwater Authority Enabling Ordinance

A municipality may prefer to create a new board or commission as a stormwater authority as enabled by C.G.S. 22a-498 (a). A general model for enabling this body is below. The municipality will need to determine if the board/ commission will be compensated, and elected or appointed, and the number and composition of the board and length of term. Additional text is needed If the body recommends establishing a stormwater fee to create a stormwater fund and detail the fee basis and appeal process.

The [*chief municipal officer: Mayor, First Selectman, etc.*] shall appoint with the approval of the [*council, board of selectman, etc.*] a stormwater authority consisting of [*XX*] members who shall be electors of [*municipality*].[1] The authority shall have all the powers and duties conferred upon it by law and specifically by C.G.S. 22a-497. The members shall serve without compensation.[2] Each appointment to the stormwater authority shall be for a term of [*X*] years.[3] There shall be no more than 2/3 members[4] from any one political party appointed to any regular or unexpired term on the authority. *[Language addressing need to remove members from office, if needed.*][5]

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1 "If a new board or commission is created, such municipality shall, by ordinance, determine the number of members thereof, their compensation, if any, whether such members shall be elected or appointed…" C.G.S. 22a-498(a).

2 If members will be compensated, insert details here.

3 Terms can be staggard. For example, if terms are for 5 years, the following language could be added: Except that initially two electors shall be appointed for a term of 5 years, two electors shall be appointed for a term of 4 years, two electors shall be appointed for a term of 3 years and one elector shall be appointed for a term of 2 years, and thereafter all appointments shall be for terms of 5 years unless such appointment is to fill a vacancy in an unexpired term.

4 This term may vary depending on municipal charter provisions or state minority representation provisions.

5 The following language can be inserted if desired to address when and how members may be removed from office: The [chief municipal officer] may remove for improper performance of duties, malfeasance or misfeasance in office, a violation of any Code of Ethics of the [municipality] or for any other proper cause, any member of the stormwater authority appointed by it, provided that the member shall have been served with a written notice of intention to remove the member, containing a clear statement of grounds for such removal and of the time and place, not less than ten nor more than thirty days after service of such notice, at which the member shall be given an opportunity to be heard thereon. Such hearing shall be public at the option of the member who may be represented by counsel. The action of the [chief municipal officer] shall be final.

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PA 21-115

An Act Concerning Climate Change Adaptation enables municipalities to fund climate projects in multiple ways, including creating a municipal Stormwater Authority.

- A Stormwater Authority is responsible for developing a stormwater management program including creation of a stormwater authority district and recommending to the municipal legislative body a modest user fee on all real property. The fee is usually based on the amount of impervious cover on a property. The funds generated must be used for stormwater projects in the district.

- Property owners who install approved best practices stormwater runoff mitigation measures like pervious pavement or onsite retention can qualify for fee reductions. Fees generated from hospital properties are capped at no more than 15% of the total amount collected.

Additional Resources

- PA 21-115, An Act Concerning Climate Change Adaptation
- CT MS4 program
- Resilient Cities Rainwater to Revenue webinar
- UConn CLEAR Stormwater Utilities in CT webinar 2019
- UConn CLEAR Stormwater Collaboratives and Utilities webinar 2020
- GZA stormwater finance blog
- Example ordinance New London, Connecticut
- Central Massachusetts Regional Stormwater Coalition
- DIMS example Portland, Maine
- Example model ordinance with explanation, State of Maine
- Western Kentucky University Stormwater Survey

Contact

To learn more about CIRCA visit circa.uconn.edu and the Resilient Connecticut project for more climate resilience planning tools: resilientconnecticut.uconn.edu

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