



# Bridging Stormwater Funding Gaps



**MARC**

MID-AMERICA REGIONAL COUNCIL

April 2022

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## Introduction

Nationally there is a \$7 to \$10 billion annual funding gap for capital expenses and operation of stormwater programs<sup>1</sup>. This funding gap creates numerous administrative and stormwater challenges for communities across the country. In September 2021, the Mid-America Regional Council partnered with the Environmental Protection Agency, Burns & McDonnell, and the Missouri State Hazard Mitigation Office to inform the 119 cities of Kansas City's bi-state region on opportunities to bridge funding gaps in stormwater management. This report discusses the different funding opportunities available to municipalities and several methods through which municipalities can offset the cost of fully implementing a stormwater management plan at the local level.

## Bridging Stormwater Funding Gaps

### Traditional funding mechanisms

Regulatory requirements, infrastructure improvement needs, and system assets are the three major components of a stormwater management plan. These plans are often funded by municipal revenue prior to construction and can include capital sources from property and sales taxes. However, municipalities across the country are left facing a funding gap as the need for dedicated funding outweighs the available revenue. The following funding methods can help municipalities offset the costs of fully implementing a stormwater management plan at scale.

### Utility Fee

A stormwater utility fee is a fee that water companies charge residents and businesses for the water that runs off their property into the city's storm water drainage system. There are four major reasons why municipalities could benefit from a stormwater utility fee:

1. Utility fees can create a dedicated stormwater funding mechanism on a municipal level.
2. There is an increasing need to preserve public and private property from increased flooding<sup>3</sup>.
3. Storm water regulations have become more prescriptive. Permits like the Municipal Separate Storm Sewer System (MS4) permit require more specific municipal-storm water management plans.
4. Stormwater Utility fees are very similar to other fees like wastewater or solid waste fees that are calculated by volume or weight.

## Green Stormwater Infrastructure and its Benefits

The Kansas City region is growing. At the same time, changing weather patterns put new and expanding communities at greater risk of flooding, erosion, heat, and other public health impacts. To address this the Environmental Protection Agency encourages municipalities to upgrade their stormwater systems, and to incorporate Green Stormwater Infrastructure (GSI) on municipal and residential property.

### Traditional Stormwater Infrastructure

Traditional gray infrastructure is designed to convey stormwater runoff from impervious surfaces away from properties, picking up trash and other contaminants and discharging them into local water bodies.

### Green Stormwater Infrastructure

Green stormwater infrastructure, on the contrary, captures, slows, or treats water runoff where it falls. At scale, this can lead to improved water quality, and less flooding, erosion, and pollution in regional waterways. GSI also provides a myriad of co-benefits, including evaporative cooling effects that alleviate heat islands, air quality improvements, job creation, and traffic calming to improve pedestrian safety<sup>2</sup>.

<sup>1</sup> EPA. (2020, March). Evaluating Stormwater Infrastructure Funding and Financing (No. 1). Environmental Financial Advisory Board. [https://www.epa.gov/sites/default/files/2020-04/documents/efab-evaluating\\_stormwater\\_infrastructure\\_funding\\_and\\_financing.pdf](https://www.epa.gov/sites/default/files/2020-04/documents/efab-evaluating_stormwater_infrastructure_funding_and_financing.pdf)

<sup>2</sup> Center for Neighborhood Technology & American Rivers. (2010, January). Value-of-Green-Infrastructure. [https://www.cnt.org/sites/default/files/publications/CNT\\_Value-of-Green-Infrastructure.pdf](https://www.cnt.org/sites/default/files/publications/CNT_Value-of-Green-Infrastructure.pdf)

<sup>3</sup> Sauer Andy, Water Quality Education Committee presentation, September 2021.

To implement a stormwater utility fee, municipalities must first conduct a technical evaluation. The first pillar of this evaluation is the formation of a rational nexus to identify the need for stormwater infrastructure by calculating the proportion of impervious surface to the amount of stormwater runoff in their jurisdiction. This means a single-family home would pay a fraction of what an industrial or commercial parcel would pay due to its smaller proportion of impervious area to parcel size. In this rational nexus a base unit rate (B.U.R.) is established. To do this municipalities sample 5 to 10% of single to multifamily units and calculate the average square footage of impervious area by residential unit to create a figure called an equivalent residential unit (E.R.U. = average residential impervious surface). For commercial parcels one would take the total area of impervious surface and divide by the equivalent residential unit and the result is how much they would pay in proportion to a single-family residential unit. Using these methods to calculate the total amount of equivalent residential units (ERUs) in a municipality will give the figure to divide the total cost of administration, capital improvement projects, and operation and maintenance of stormwater infrastructure. This calculation results in the fee that a municipality can charge to residential and commercial property owners. After doing this technical analysis, the revenue needed to build and maintain stormwater infrastructure should not exceed the amount of funding needed that was calculated in the rational nexus. Lastly once the analysis on rational nexus and funding need is established, everyone utilizing stormwater infrastructure in a given municipality shall pay a calculated and equitable fee.

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While municipal staff carry out the technical analysis it is important to engage stakeholders and educate the public on stormwater infrastructure and its need. The whole process for technical evaluation takes about 17 months and engagement and public education will carry on an additional 4 months. Overall, the process should be presented to all stakeholders, especially those stakeholders who will be impacted the most. Education materials should be available in a variety of print, social media, and digital formats. Using these methods and civic engagement meetings could prove useful in optimizing the viability of passing a Stormwater utility fee and should not be overlooked.

### Impact fees

An impact fee is a funding option that collects a fee from new developments prior to the completion of a given commercial or industrial development. Impact fees are used to shift the cost of a private development's access to public infrastructure, in this case stormwater infrastructure, away from taxpayers. According to the American Planning Association (APA), local governments "are increasingly using impact fees to shift more of the costs of financing public facilities from the general taxpayer to the beneficiaries of those new facilities"<sup>4</sup>. The impact fee is adopted and incorporated into a municipality's master or comprehensive plan. Here a rational nexus should justify the cost of the impact fee based on the size and type of development. For more information on policy surrounding impact fees look at the American Planning Association's Policy Guide on Impact Fees at <https://www.planning.org/policy/guides/adopted/impactfees.htm>.

## Tax/General Fund

A general fund is a municipal fund that is used for discretionary spending on public safety, health, and public works projects. This general fund allocates its revenue from local property tax, sales tax, local income tax and other special taxes created. The yield for stormwater funding here is considered low according to the EPA's report "Evaluating Stormwater Infrastructure Funding and Financing" because tax revenue is volatile. The legislative requirements for special taxes or use of general funds are subject to annual approval by the municipal government and voters.

For more information on the "Evaluating Stormwater Infrastructure Funding and Financing," visit: <https://www.epa.gov/waterfinancecenter/efab-report-evaluating-stormwater-infrastructure-funding-and-financing>

## Grants

Grants provide opportunities to offset costs that burden storm water management plans (SWMP) around the United States. Many grants have yearly application cycles and often express alignment with municipal goals and needs. However, all grants are not suitable for all locations due to environmental conditions that change from region to region (e.g., wetland preservation may be a more dominant goal in the coastal, eastern, and mid-west than the arid southwestern part of the US). Further, due to the competitive nature of many large grants, not all applicants receive funding.

The EPA's Water Infrastructure and Resiliency Finance Center along with other government agencies have compiled the following list of notable grant opportunities.

US Department of Housing and Urban Development (HUD)

- [Community Development Block Grant Programs](#)

US Department of Agriculture (USDA)

- [Rural Development Water and Environmental Program](#)

US Environmental Protection Agency (EPA) (via states)

- [Sewer Overflow and Stormwater Reuse Municipal Grants Program](#)

Federal Emergency Management Agency (FEMA) (via states, tribes, and territories)

- [Hazard Mitigation Grant Program](#)

Grant opportunities are also found on the [EPA's Water Finance Clearinghouse](#). At the water finance clearing house, eligible applicants can research and apply to specific grants to offset expenses that are associated with wastewater and stormwater infrastructure. Grants can also be found on the grants.gov website. Both serve as useful tools to any municipality seeking to offset the costs of their stormwater management plans.

The following list of grants was presented by the Missouri State Hazard Mitigation Officer Heidi Carver in her presentation to the Stormwater Quality Education Committee and includes grants geared towards disaster relief and mitigation. Grants include:

### **Building Resilient Infrastructure in Communities (BRIC Grants)**

This annual program provides a 75% federal share to 25% municipal share on eligible pre-disaster infrastructure. If a given community fits the FEMA description of "economically disadvantaged" then the federal share rises to 90% with a required 10% municipal match of costs. All applicants must have a benefit-cost ratio of 1.0, using the FEMA Benefit to Cost Analysis Program at FEMA.gov.

The FEMA BRIC grant cycle begins with the release of a Notification of Funding Opportunity Report. From that publication date municipalities or jurisdictions have 30 days to submit a Notice of Interest form, where they outline local challenges and express interest in receiving funding. All Notice of Interest forms are reviewed and rated by the State Emergency Management Agency (SEMA) office. Once rated Notice of interest applicants are given an opportunity to develop a full proposal. Selected applicants can then send their application and appropriate documents to the Federal Emergency Management Agency's grant management system for review by the designated deadline.

More information is available at [www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities#](http://www.fema.gov/grants/mitigation/building-resilient-infrastructure-communities#)

## Case study: Coralville, Iowa

Over the last 20 years Coralville, Iowa has suffered from two major flooding events. In 2008, the city suffered from a catastrophic 500-year flood event. This flood event resulted in major losses to public and privately owned property and businesses. Overall, the flooding damaged a combined "\$21 million for commercial properties, \$4 million for residential properties, and \$7 million in damages to public infrastructure."<sup>5</sup> The severity of the damage also resulted in 40% of business owners choosing not to rebuild. In response, Coralville, Iowa was awarded 65 million dollars in combined federal and state grants to address the matter of flooding. The city installed multiple pump stations, water detention basins, flood walls and earth berms (brims). Coralville Iowa is still working on expanding their maintenance of their many detention ponds. Overall, the city uses a combination of local/state measures like, a stormwater utility fee, property taxes, and federal/state road use tax to fund stormwater maintenance and operation.

## Flood Mitigation Assistance (FMA)

This nationally competitive grant is funded by an annual fund allocation by Congress. This is only for flood related projects for NFIP (National Flood Insurance Program) insured properties or properties that surround NFIP insured properties. The application opens each year around August when the Notice of Funding Opportunity (NOFO) is released. This grant provides a 100% Federal costs contribution if the properties suffer severe repetitive loss.

More information flood mitigation assistance grants is available at: <https://www.fema.gov/grants/mitigation/floods>

## Olathe, Kansas Stormwater Cost Sharing Program

In Olathe, Kansas the local cost-sharing program is specifically tailored to address water quality and stormwater runoff. This program funds "the cost of materials, equipment, and labor with a 50 percent match for expenses on the following: Rain gardens, bioswales, stream buffers, or native plantings (up to \$1,000). Rain barrels (up to \$75 each. Limit: two)."<sup>6</sup> The Olathe website also offers information and instruction on rain barrel and rain garden construction and other green stormwater infrastructure implementations methods.

<sup>5</sup> EPA. (2021, July 3). Learn about the Clean Water State Revolving Fund (CWSRF). US EPA. <https://www.epa.gov/cwsrf/learn-about-clean-water-state-revolving-fund-cwsrf>

## **(Missouri Only) Hazard Mitigation Grant Program (HMGP)**

HMGP provides funding after a disaster is declared in Missouri. The federal contribution in this grant is a 75% share to a 25% local municipal match. Applicants must meet a 1.0 Benefit Cost Ratio using FEMA's Benefit Cost Analysis Software Program.

## **Cost Sharing Programs**

Cost sharing programs are used in storm water management plans to incentivize the public to implement green stormwater infrastructure on privately owned property. These programs can be a useful tool for municipalities because the location and maintenance of the green stormwater infrastructure is carried out by property managers and homeowners. However, neither the city nor the property owner is burdened with the costs of overall implementation. The benefits of cost sharing programs include improved water quality, reduced erosion, and reduced water runoff that could potentially overflow gray stormwater infrastructure.

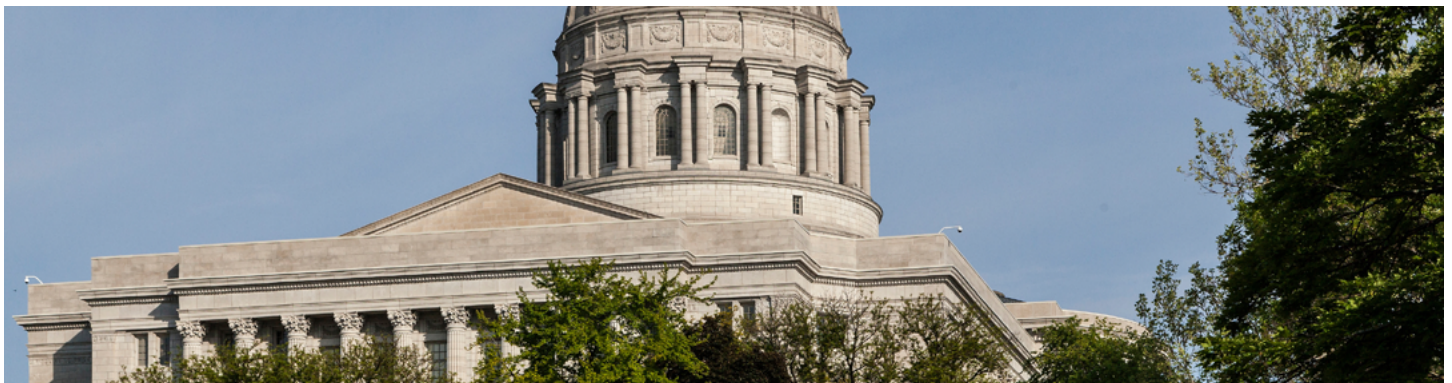
## **Debt Financing**

Debt financing is a method of paying for stormwater infrastructure that is often overlooked by municipalities. Through debt financing, municipalities obtain funds through bonds or loans and use special taxes to pay back the general bond with any required interest. All principal and interest is recycled back into the fund/bond. Some sources for municipal bonds/loans come from the State Revolving Fund (SRF). Loans can be requested through the EPA's Water Infrastructure and Innovation Act (WIFIA) and the Clean Water State Revolving Fund (CWSRF). The purpose of these program includes funding green infrastructure projects for communities in the US and territories. States themselves have the power to customize the terms of the loan on behalf of small or disadvantaged communities. Terms that include justified interest repayment rates as low as 0% or repayment periods of up to 30 years<sup>7</sup>. The state retains ability to apply for a bond on the behalf of small municipalities.

## **Conclusion**

As communities across the United States continue to grow and develop, there is a pressing need to close the \$7-\$10-billion-dollar funding gap in stormwater management. Larger urban populations and more severe storm and flood events put increasing pressure on municipal stormwater infrastructure to convey more and more stormwater away from new and existing development. As demand increases, so does the gap between current funding and funding shortfalls.

In an effort to bridge this funding gap, municipalities can leverage new funding mechanisms or stack multiple funding sources to create a more comprehensive funding scheme.



<sup>7</sup> EPA. (2021, July 3). Learn about the Clean Water State Revolving Fund (CWSRF). US EPA. <https://www.epa.gov/cwsrf/learn-about-clean-water-state-revolving-fund-cwsrf>

## Figures:

**Figure 1: Recurring or Intermittent “Revenue-Based” Funding Sources**

Source: Evaluating Stormwater Infrastructure Funding and Financing, Environmental Financial Advisory Board.

[https://www.epa.gov/sites/default/files/2020-04/documents/efab-evaluating\\_stormwater\\_infrastructure\\_funding\\_and\\_financing.pdf](https://www.epa.gov/sites/default/files/2020-04/documents/efab-evaluating_stormwater_infrastructure_funding_and_financing.pdf)

Evaluation Criteria	Recurring or Intermittent “Revenue-Based” Funding Sources				
	Taxes/General Funds	Stormwater Dedicated Taxes	Stormwater Utility User Fee	Other O&M Fees	Surcharges or Special Assessments
<b>Revenue Sufficiency</b>	<b>Low:</b> general funds typically have different priorities such as public safety	<b>Moderate:</b> better transparency via correlation between revenues and revenue requirements	<b>Moderate to high:</b> generally, the rates and changes are objectively aligned with the revenue requirements of the stormwater system	<b>Low:</b> don’t always have a clear correlation or justification to annual revenue requirements and may be fungible with other general government needs	<b>Moderate:</b> generally, have somewhat limited revenue-raising ability
<b>Stability of Revenues</b>	<b>Volatile:</b> property and sales tax bases can rise and fall with economic cycles	<b>Volatile:</b> property and sales tax bases can rise and fall with economic cycles	<b>Strong:</b> revenues are tied to either the size of the property’s impervious surface area or the category of the property, not to economic cycles	<b>Variable:</b> very low volatility if tied to a per-parcel fee and not subject to property valuation, very high volatility if tied to non-recurring cash flows like development	<b>Low to moderate:</b> special assessments often are tied to property valuation and surcharges sometimes are related to water consumption
<b>Scalability to Meet Increasing Needs</b>	<b>Low:</b> major line item increases area generally subject to political scrutiny	<b>Very low:</b> dedicated taxes are typically voter-approved and may not even exist in perpetuity	<b>High:</b> a dedicated funding source allows the user fees to be leveraged to address both O&M and capital expenditure; however, fee increases are typically not well received by elected officials or the public	<b>Low:</b> would most likely need some kind of authorization to scale up the fee structure, from a municipality or even a homeowners’ association	<b>Moderate:</b> limited ability to increase revenues creates finite financial capacity
<b>Legislative Requirements</b>	<b>High:</b> subject to annual appropriation, sometimes even voter approval	<b>Very high:</b> subject to voter approval and annual appropriation	<b>Low:</b> usually only requires a one-time authorization via either state general assembly or municipal ordinance	<b>Very high:</b> subject to voter approval and annual appropriation, perhaps public education to get buy-in from the developer community	<b>High:</b> likely subject to some kind of initial legal authorization
<b>Community Acceptability</b>	<b>High:</b> aside from politicization of where in the municipality to fund projects, usually not controversial	<b>Moderately high:</b> establishing a new tax may not be politically palatable unless a recent flood event is driving the measure	<b>High:</b> aside from politicization of where in the municipality to fund projects, usually not controversial	<b>Moderately high:</b> establishing a new tax may not be politically palatable unless a recent flood event is driving the measure, but possibly offset by a user-pay	<b>Moderately high:</b> establishing a new tax or fee may not be politically palatable unless a recent flood event is driving the measure
<b>Community Financial Capability Barriers</b>	<b>High:</b> many states have established and/or municipalities have self-imposed limitations related to taxation	<b>Moderate:</b> comparably easier to assess financial capacity and assign resources even if that capacity may be statutorily limited	<b>Low:</b> a dedicated, user-based, non-tax revenue stream creates dedicated financial capabilities and improves ability to do multi-year planning	<b>Moderate:</b> if there is a high degree of revenue fluctuation, it may be difficult to appropriate funding to retain dedicated full-time equivalent staffing: municipality could lose institutional knowledge	<b>Moderate:</b> comparably easier to assess financial capacity and assign resources even if that capacity may be statutorily limited
<b>Household Affordability Impact</b>	<b>High:</b> property taxes are generally deemed as regressive	<b>High:</b> property taxes are generally deemed as regressive	<b>Low:</b> User fees are still somewhat regressive but usually much smaller in actual dollars compared to water and sewer charges	<b>Low:</b> If tied to a “user pay” levy, would most likely be borne by those directly benefiting from the infrastructure	<b>Moderate:</b> not as regressive as a pure tax but still correlated to property valuation without explicit income recognition