

**Date:** May 5, 2025

**To:** Holly Christmann, Assistant County Administrator

**From:** Diana Christy, MSD Executive Director

**Copy:** Lauren DeGoricia, Assistant Superintendent, OOD  
Karen Ball, County Monitor

**Subject: Alternatives to a Wet Weather Impervious Surface Charge**

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This memo is intended to provide MSD’s comments and recommendations regarding the previously evaluated impervious surface fee, known as the Wet Weather Impervious Surface Charge (“WWISC”), as well as to propose and discuss alternative measures that address similar objectives. The central themes are:

- **High Cost and Complexity of WWISC Implementation:** The proposed WWISC presents significant challenges related to data collection, billing system overhauls, and legal hurdles, which would require extensive resources and ultimately increase costs for ratepayers.
- **More Feasible and Equitable Alternatives Available:** MSD recommends targeted, cost-effective alternatives, such as updating the current I/I cost allocation, evaluating the minimum charge, and incentivizing stormwater reduction efforts, that can improve rate equity and system performance without the complexities of the WWISC.
- **Targeted Approach to Excessive Wet Weather Contributors:** Rather than a broad impervious surface charge, MSD proposes a phased, data-driven program to bill only those properties with large impervious areas that significantly contribute to wet weather flow, paired with credits for effective stormwater management.

## **Background**

MSD’s wastewater service rates and charges are its primary source of revenues (over 90% annually), making the ability to bill and collect its rates and charges of utmost importance to the financial health of the District. The defensibility and stability of MSD’s billing structure and practices is even more critical now as we prepare to implement and fund the next major phase of our Consent Decree. The wastewater rate structure as it currently exists includes a combination of monthly minimum fixed charge and a volume-based charge, as discussed further below.

Generally speaking, the objective is to design rates to progress toward the following goals:

- Generate adequate revenues to meet projected operating and capital costs, while maintaining sound financial performance;
- Provide system-wide revenue stability;
- Establish equitable rates and charges to customers commensurate with the cost of providing service; and
- Address other utility policies, as applicable.

The County Administration and MSD have recently undertaken a study of the feasibility of implementing an impervious surface-based charge, along with significant stakeholder engagement. The impetus of the study was the 2016 report from the Hamilton County Rate Affordability Task Force, which noted the amount of inflow and infiltration (“I/I”) received by the MSD sewer system and recommended evaluation of an impervious surface-based charge. In 2019, the Board adopted Resolutions directing the County Administration to develop a work plan to implement an impervious surface-based charge as well as creating a task force and working group (“Stakeholders”) to assist with and provide input on said work plan.

Rate consultants Black & Veatch developed a proposed bifurcated (two part) rate structure under which the WWISC would be used to recover the annual wet weather portion of MSD’s revenue requirement, and the sanitary sewer rate structure would recover the annual sanitary sewer portion. Due to the complex and highly integrated nature of the MSD system, the two-part rate structure was proposed to be charged uniformly to all parcels within the MSD sewershed regardless of whether in the combined sewer area, where parcels are likely contributing wet weather flow to the MSD sewer system, or the separated sanitary and storm sewer area, where parcels are less likely to be contributing wet weather flow.

As a preliminary matter, the WWISC would require the collection and ongoing management of more detailed and comprehensive impervious surface data than is currently maintained in order to have sufficient information to calculate and bill the WWISC. The systems and processes of the ten municipalities that provide billing services for MSD would need to be updated in order to facilitate billing a second charge in addition to the current service charge. During the pilot billing impact analysis conducted as part of the WWISC feasibility study, many difficulties were encountered in attempting to identify parcels with sufficient existing information to calculate the proposed bifurcated service charges. Therefore, extensive effort and cost to implement the WWISC are anticipated.

The resources needed and cost of administration is likewise anticipated to be significant given the duplicative nature of a rate structure and level of specificity supported by the Stakeholders, including property-specific calculation of impervious area for all parcels (as opposed to a tiered approach or uniform equivalent residential unit assigned to all residential properties) as well as a robust credit program to provide a discounted WWISC to properties that meet on-site stormwater management requirements. This would require additional resources and staff (e.g., additional in-house billing personnel, IT, inspectors). All costs of implementation and

administration would ultimately be passed on to the ratepayers and any credits provided would shift costs back onto the other ratepayers.

As stated previously, the WWISC would be charged uniformly without regard to whether a property is located in the combined or separated sewer area. While it is true that there are some portions of the separated sewer area that have I/I, it is likely in many separated areas that properties are contributing negligible amounts of wet weather flow to the MSD sanitary system. Differentiating and “carving out” these areas and allocating costs accordingly for recovery was determined to be an infeasible and unprecedented level of administrative effort, resulting in the uniform charge proposal. However, the defensibility of billing a charge to properties that arguably do not contribute wet weather flow to the MSD system, particularly with the level of specificity in bill calculation proposed, is questionable.

For example, a large office complex in a suburban, separated sewer area would likely experience a significant increase in its MSD bill due to its high amount of impervious area (large parking lots, roof tops) although the property is likely contributing very little wet weather flow to MSD’s system. Offering credit for reducing run off from a property that is not contributing run off in the first place only further highlights the inequity presented in what would be a very common scenario if the WWISC were to be implemented as proposed.

While there are many challenges presented by the implementation and administration of an impervious area-based charge, as discussed above, there are feasible alternatives that address the primary drivers like rate equity, public education and engagement, incentives for improved on-site stormwater management, as well as disincentives for excessive stormwater contributions.

## **Alternatives to a Wet Weather Impervious Surface Charge**

### **1. Improve Rate Equity**

As a preface, support for the WWISC, or an impervious surface-based charge generally, is often based on the misconception that MSD’s current rates are based solely on potable water usage and wet weather flow is not charged, thus creating a perceived inequity amongst those who are contributing large amounts of stormwater to the system and those who are not. It is important to acknowledge that MSD’s rates are more complex and not solely based on water usage (i.e., the commodity charge).

There is also a minimum charge that includes an allowance of 300 cubic feet (3 Ccf) of water usage. For water usage in excess of the 3 Ccf allowance, the commodity charge is assessed. Residential customers consisting of one- and two-family units are billed based on metered water use for the current billing period or the previous winter billing period, whichever is less. The “winter billing period” approach is intended to avoid billing for increased water usage during other warmer seasons (e.g., lawn or garden watering) that may not enter MSD’s sewer system.

Additionally, the District offers a customer assistance program (CAP) to eligible residential customers (senior, homeowners that meet income requirements), which provides a 25% reduction of the applicable monthly charge. Lastly, additional charges for high strength discharge (i.e., surcharge) and industrial pretreatment also apply to certain customers. While the current rate structure does not have a distinct, separate charge for wet weather costs, it does account for and recover costs associated with inflow and infiltration (“I/I”) costs, including those associated with groundwater and wet weather and, again, costs are not solely recovered based on water usage.

### Existing MSD Rate Structure

Minimum Charge	
Meter Size Inches	Minimum Monthly Charge
5/8"	\$ 41.50
3/4"	\$ 53.51
1"	\$ 73.36
1 ½"	\$ 124.66
2"	\$ 176.57
3"	\$ 453.17
4"	\$ 750.51
6"	\$ 1,482.84
8"	\$ 2,212.60
10"	\$ 2,956.65
12"	\$ 3,413.71
Commodity Charge	
First 300 cubic feet per month -	Included in Minimum Charge
Next 4,700 cubic feet per month -	\$ 6.237 /Ccf
Over 5,000 cubic feet per month -	\$ 4.987 /Ccf
Extra Strength Charges - \$ per mg/l per 100 cubic feet	
	\$ per mg/l
Suspended Solids (TSS) <i>per 100 cubic feet for each mg/l of TSS strength above 300 mg/l</i>	\$ 0.002924
Biochemical Oxygen Demand (BOD) <i>per 100 cubic feet for each mg/l of BOD strength above 240 mg/l</i>	\$ 0.004993
Nitrogen Oxygen Demand (TKN) <i>per 100 cubic feet for each mg/l of Total Kjeldahl Nitrogen (TKN) strength above 25 mg/l.</i>	\$ 0.004373

Wet weather costs are accounted for by using the industry standard method for setting service charges, which has three steps: 1) determining revenue needs (e.g., accounting for operation and maintenance costs, capital improvement plan, revenue forecasting); 2) determining which customer classes are responsible for the costs incurred by MSD to provide service to the respective customer classes and allocating appropriately; and 3) development of a schedule of rates to generate revenue accordingly.<sup>1</sup> Therefore, all MSD service costs, including those resulting from wet weather flow are accounted for and recovered through our current rate structure.

<sup>1</sup> American Water Works Association (AWWA) M1 *Principles of Water Rates, Fees and Charges*; Water Environment Federation (WEF) Manual of Practice No. 27 *Financing and Charges for Wastewater Systems*

### **a) Update I/I Allocation in Existing Rate Structure**

Adjustment of I/I allocation in MSD's existing rate structure would update responsibility for the recovery of wet weather-related costs to customer classes, similar to the WWISC, and would result in the adjusted cost of service and indicated revenue adjustment by customer class as well as elimination of the declining block rate. Historically, 75% of MSD's I/I-related costs have been allocated to the customer component (number of connections and meter size) and is intended to be recovered through the minimum charge, and the remaining 25% is allocated to the volume component (billed volume of water used) and is intended to be recovered through the commodity charge. The current allocation results in a 2-tier commodity charge that has been in place for many years, and has been the cause of confusion, with many customers feeling that the second tier, which has a lower rate than the first tier, is an "industry discount."

The historical 75/25 allocation of I/I was established many years ago, and prior to the initiation of MSD's significant capital program to address sanitary sewer overflows (SSOs) and combined system overflows (CSOs). Therefore, MSD recommends transitioning to an approximate 40%/60% allocation of I/I costs to account for the change in the nature of I/I in MSD's system as a result of the significant investment in the collection system over the past 20 years, including, but not limited to, sewer separation projects, increased capacity in the collection system, and pipe refurbishment and/or replacement. Additionally, a 40%/60% allocation is used by other similar utilities with both combined and separate systems and is consistent with the considerations outlined in the Water Environment Federation Manual of Practice No. 27 Financing and Charges for Wastewater Systems.

Based on preliminary analysis, the shift in allocation is anticipated to result in a modest savings for the average residential and multi-family customers while commercial and industrial customers, as a class, will generally see a modest increase to the monthly sewer bill. The anticipated shift is generally similar to the billing effect of the WWISC but is not anticipated to be as significant (i.e., commercial and industrial will generally not increase as much and residential will generally not decrease as much).

Unlike the WWISC, the additional time and resources required to implement and administer the proposed change in I/I allocation will be very minimal and can be performed as part of the annual MSD rate recommendation. MSD can perform additional financial analysis to evaluate alternative methodologies for allocating I/I (estimated 40% to customer component, 60% to volume component as discussed) and update the schedule of rates accordingly for the Board's consideration, public comment, and, if approved, to be effective as of January 1, 2026. No significant change to levels of staffing or billing systems and processes would be required.

### **b) Evaluate Minimum Charge Reduction**

In addition to updating the I/I allocation, MSD proposes to evaluate the feasibility of reducing the existing 3 Ccf allowance for the minimum charge. A reduction to the minimum charge would

likely improve affordability for customers with low water usage (e.g., households with fewer occupants as is generally seen for senior citizens). However, careful consideration is due as lowering the minimum charge will reduce MSD's fixed charge revenue, increasing volatility in its revenue and potentially raising concerns for rating agencies. Similar to the I/I allocation update discussed above, this evaluation and potential change would require very little time and funding compared to the WWISC and could be performed as part of the annual MSD rate recommendation.

### **c) Evaluate Multi-Rate Structure based on Customer Class**

Lastly, in an effort to further establish equitable rates and charges to customers commensurate with the cost of the services provided, MSD could evaluate potentially transitioning from the existing single rate structure to separate rates based on customer class. This would allow revenue recovery that more closely aligns with allocated cost of service.

## **2. Incentivize Reduced Stormwater Contributions**

In addition to improving rate equity, MSD also proposes to explore new ways, in lieu of a WWISC, to more cost effectively educate and engage with the public on the sources and effects of stormwater on MSD's system as well as incentivize reductions in stormwater contributions. As an initial effort, MSD proposes to revitalize its stormwater removal program to implement a pilot downspout disconnection program while also, as longer term effort, evaluating the feasibility of implementing a permanent program to provide support and financial incentives for property owners to remove or reduce wet weather contributions to the MSD sewer system (e.g., impervious surface removal and/or replacement with pervious pavement; downspout disconnection). The objectives of the program would be:

1. Reduce sewer back-ups ("SBUs") through I/I reduction;
2. Prevent pollution and improve water quality by reducing overflows (i.e., non-permitted discharges) through I/I reduction;
3. Public education and outreach; and
4. Public involvement and participation.

MSD has identified a short list of areas that would be appropriate for a downspout disconnection pilot program, which includes neighborhoods in the combined sewer area or sanitary-only with high incidents of SBUs. The proposed process for the pilot program is as follows:

1. Property owners voluntarily participate in the program by applying to MSD.
2. MSD will inspect each home for eligibility and Provide a list of alternatives (e.g., rain barrel, turnout, rain garden, etc.).
3. The property owner will disconnect downspout with preferred alternative. MSD may also provide a free rain barrel with diverter kit to eligible households.
4. The property owner will notify MSD and submit reimbursement form, if applicable.

5. MSD will perform a follow-up inspection to confirm disconnection.
6. If completed successfully, MSD will provide a one-time bill credit per downspout disconnected from the sewer. The maximum amount per household is to be determined.

Following the implementation of the pilot, MSD will measure the program's success, evaluate any lessons learned, and consider expanding the program. Providing financial incentives for impervious area removal or replacement with pervious material would also be considered as a component of a potential larger-scale program. Collaboration with local organizations that provide complementary services (e.g., rain barrel and rain garden workshops) as well as local governments' respective building and inspections departments would be a critical piece of the program.

### **3. Disincentivize Excessive Impervious Area and Wet Weather Run Off**

Lastly, in order to disincentivize excessive contributions of wet weather flow to its system, MSD will evaluate the implementation of billing for properties with large amounts of impervious area and wet weather flow impacting MSD's sewer system. Unlike the WWISC, which charges based on the amount of impervious area, and thereby disincentivizing it, for all customers in the MSD service area regardless of whether the impervious area is actually contributing flow to the MSD system (e.g., separated sanitary and storm sewer areas, properties with detention or other means of on-site management), MSD proposes to take a more targeted approach to bill for currently unbilled excess wet weather flow in order to enhance equity, efficiency, and effectiveness.

As discussed above, it is not efficient or cost effective to make a significant investment to collect and maintain more robust impervious area data; modify the billing systems and/or processes of ten municipalities to bill a new impervious area-based charge in addition to the existing MSD service charge in order to shift wet weather costs onto many properties which are not contributing wet weather flow to the MSD system. This is a fundamental flaw and should not be remedied by the implementation of a credit program, which will only require additional funding and increased staff to administer and result in shifting costs back to other customers.

Based on a preliminary evaluation of impervious area in the combined sewer area, there are approximately 500 parcels that have more than two acres of impervious area (4.6 acres average) and account for 2,300 acres total impervious area. In comparison, there are approximately 99,000 residential parcels in the combined sewer service area with an average 0.05 acres of impervious area and accounting for approximately 4,000 acres of impervious area total. The single parcel with the largest amount of impervious area is contributing approximately as much wet weather flow as 47,000 average residential properties.

This data indicates that it would be more efficient and cost effective to target properties that are contributing excessive wet weather flow, as opposed to all properties as the WWISC does. Additionally, properties with large amounts of impervious area are more likely to have the

resources and land space to mitigate run-off through separation or best management practices (BMPs). Therefore, MSD will further evaluate the feasibility of charging large impervious area properties for excessive wet weather flow to recover its cost of service. This will also create opportunities for MSD and large impervious area property owners to collaborate on wet weather flow abatement projects to benefit the MSD system.

MSD has authority to collect a service charge for water discharged directly or indirectly to the wastewater treatment system. While the amount of water discharged to the system is typically measured by a public water supply service meter, auxiliary meters are also currently used to measure (addition or deduction) the amount of discharge (e.g., manufacturing where water becomes part of the product, properties that utilize a well for water). Excessive wet weather flow could be measured by either an auxiliary meter, installed and maintained by the property owner, or by an impervious area proxy for flow directly or indirectly to MSD (for example, calculating using rainfall and a runoff coefficient).

Implementation would likely entail a phased approach under which properties with the most impervious area would be subject to a charge first. For example, the program would charge properties with six acres or more of impervious area in the combined sewer area (an estimated 100 properties) in year one. The program would expand to also charge properties with three to six acres (estimated 200 properties) of impervious area in year two and between two and three acres (estimated 200 properties) in year three.

Credits would be provided up to the entire amount of the excessive wet weather flow charge for pre-existing or newly implemented best management practices (e.g., detention).

## **Conclusion**

Various other means are available to address the underlying goals of the WWISC – rate equity, public education, incentivizing stormwater runoff reduction, and disincentivizing excessive runoff. While exploring the feasibility of an impervious surface-based charge has been informative and worthwhile, the complex and integrated nature of MSD's separated and combined sewer system as well as its status as a wastewater-only county sewer district, as opposed to a stormwater utility or joint wastewater and stormwater, make the defensible implementation of the WWISC challenging. Additionally, the cost of implementation and administration of the WWISC would be a significant additional cost to pass on to the ratepayers. In contrast, the alternatives discussed above are all reasonable, feasible practices that more directly target similar goals and could be put into place at minimal cost and within the next one to two years.