

CITY OF MILWAUKEE STORMWATER MANAGEMENT CHARGE GREEN INFRASTRUCTURE CREDIT CALCULATION WORKSHEET

OVERVIEW

What is the City of Milwaukee's Stormwater Management Charge?

- The City uses the Stormwater Management Charge (Milwaukee Code of Ordinances [309-54.5](#)) to offset the costs needed to manage and reduce the amount of polluted stormwater runoff entering Milwaukee's storm sewers and waterways.
- The fee is collected quarterly:
 - For one to four unit properties the current quarterly fee is \$22.30 per 1 ERU (Equivalent Residential Unit)
 - For all other properties the fee is based on the total area of impervious surface on the property.
 - One ERU is equivalent to 1,610 square feet of impervious surface. Thus the annual fee is \$0.053/square foot impervious surface $[(\$22.30 \times 4 \text{ quarters})/1610]$.
- All reductions are capped at 60% of the stormwater fee for the contributing area. The City caps the reduction at 60% because there are remaining operating and maintenance costs associated with the City's collection and conveyance systems.

How can I Reduce the Stormwater Management Charge?

- No credit will be issued for practices that are required under [Chapter 120](#) (Storm Water Management Regulations) of the Milwaukee Code of Ordinances. Credits shall only be issued for Storm Water Management practices that exceed the requirements of the above chapter.
- Non-residential property owners may receive a credit to the stormwater management charge by voluntarily investing in green infrastructure on the property. The City will perform a calculation based on total gallons of capture and provide a credit to the stormwater charge.
- The credits are issued based on the City's [Storm Water Management Adjustment Policy](#).

What is Green Infrastructure?

- Green infrastructure is a variety of vegetation, soils, and natural processes used on a property to manage water and create healthier urban environments.

Why does the City need Green Infrastructure?

- Green Infrastructure (GI) is required to help limit the volume of stormwater runoff produced during storms and improve the quality of our waterways. GI also helps reduce surface flooding, basement backups and combined sewer overflows (CSOs)
- There are regional goals that the City is part of and needs to comply with. For example:
 - MMSD requires that, by 2035, the service area captures 740 million gallons of water every time it rains
 - City of Milwaukee has in its code of ordinance a requirement to reduce volume and improve quality for every development or redevelopment that disturbs an acre of land or more.
 - MMSD has a stringer requirement for a development or a redevelopment that adds half an acre or more of new impervious surface or disturb more than two acres of land.
 - Wisconsin Department of Natural Resources (WDNR) requires reduction of Total Suspended Solids (TSS) and compliance with future Total Maximum Daily Loads (TMDLs) allocations.
- The City has invested in a significant number of green infrastructure projects in the public right of way; however the City needs the partnership and involvement of private property owners to see a significant improvement.

The City has constructed over 200 bioswales in medians at various locations within the City since 2009.

- A permeable paver project that included bioswales was partially completed in 2014 on East Greenfield Avenue between South first St and the KK River and will be fully completed by 2015.
- The City has installed 26 alleys with permeable pavers at various locations.
- As part of public/private partnership between the City and the former Pabst Brewery Development, porous parking stalls and bioretention facilities are being installed in stages.

Types of Green Infrastructure Strategies:

- Green Roof: Roof that is covered with growing media and vegetation that enables rainfall infiltration and evapotranspiration of stored water.
- Permeable/Porous Paving: Surfaces paved with either porous concrete, porous asphalt, or permeable pavers that infiltrate, treat, and/or store rainwater where it falls.
- Bioswale: Vegetated and/or mulched native landscaping that slows, infiltrates, and filters stormwater flow as it moves from one place to another.
- Wet Detention Pond: A permanent pool of water that receives stormwater runoff and provides retention and treatment of water until it is displaced by runoff from another storm event.

To determine eligibility, please use the attached worksheet. Any questions, please contact Department of Public Works staff below.

CONTACT INFORMATION FOR THE CITY'S DEPARTMENT OF PUBLIC WORKS:

City of Milwaukee, Department of Public Works - Stormwater Management
Municipal Building
804 N. Broadway, Room 820
Milwaukee, WI 52302
414-286-0514
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STORMWATER MANAGEMENT CHARGE WORKSHEET DETERMINING ELIGIBILITY FOR GREEN INFRASTRUCTURE CREDIT

STEP 1: IS YOUR GREEN INFRASTRUCTURE PROJECT PART OF A STORM WATER MANAGEMENT PLAN (SWMP)?

- IF YES.** Call Department of Public Works (DPW) for approval. DPW will determine any available credits. You will need to achieve additional reduction above and beyond your TSS reduction requirements.
- IF NO.** You will need to provide WinSLAMM inputs, calculations and results. Complete Steps 2 and 3 to estimate potential credits. Then contact DPW for help in producing these calculations.

Stormwater Management Fee Credits are summarized in the table below.

Table 1: Stormwater Fee Reduction (Credit) for TSS Reduction through Green Infrastructure Implementation				
TSS Reduction Achieved	SWMP Not Required (Existing Building, No SWMP)		SWMP Required	
			(New Development – Must Achieve >80% TSS Removal)	(Re-development – Must Achieve >40% TSS Removal)
10%	7.50%		0%	0%
20%	15%		0%	0%
30%	22.50%		0%	0%
40%	30%		0%	0%
50%	37.50%		0%	15%
60%	45%		0%	30%
70%	52.50%		0%	45%
80%	60%		0%	60%
90%	60%		7.50%	60%
100%	60%		15%	60%

STEP 2: WHAT GREEN INFRASTRUCTURE PROJECT ARE YOU PLANNING?

- Amounts for the stormwater credit may be estimated for each type of green infrastructure below. Perform the calculations for the planned strategy to determine the possible credit based on size and contributing area.
- All reductions are capped at 60% of the stormwater fee for the contributing area.
- Please note that all information must be verified by the City, either with WINSLAMM or construction details. These worksheets are provided to give you an estimate of what the credit might be. DPW reserves the right to establish the credit based on construction plans or details provided or WINSLAMM modeling.
- To help the City approve your credit, you will need to provide a plan outlining the project. See example here. You will need to provide the following:
 - Overview of site plan
 - Cross section of the green infrastructure project
 - Site plan showing contributing area following to green infrastructure project (not for green roof)
 - Measurements and dimensions of area

GREEN INFRASTRUTURE PROJECT OPTIONS:

1. GREEN ROOF

- A green roof is a roof covered with growing vegetation and soil that enables rainfall infiltration and evapotranspiration of stored water.
- Stormwater fee reductions (credits) are based on pan depth of the green roof.
- All reductions are capped at 60% of the stormwater fee for the contributing area.
- Please see Table 2 for more information on estimated fee reduction based on soil depth.

Table 2: Stormwater Fee Reduction (Credit) for Green Roofs	
Depth of Engineered Soil in Pan	Stormwater Fee Reduction (Credit)
1"	12%
2"	24%
3"	36%
4"	48%
5"+	60%

Green Roof Calculation:

- a) Square feet of green roof proposed: _____
- b) Stormwater charge per square foot (ERU on page 1): \$0.051 / sq ft
- c) Current stormwater charge of proposed area per sq ft (**a x b**): _____
- d) Depth of soil in pan for proposed project: _____
- e) Stormwater fee reduction (based on (d) and credit in Table 2): _____
- f) Potential annual fee reduction for entire project (**c x e**): _____

Green Roof Example:

- a) Square feet of green roof proposed: 1,000 sq ft
- b) Stormwater charge per square foot (ERU on page 1): \$0.051 / sq ft
- c) Stormwater charge of proposed area per square foot (**a x b**): \$51.00
- d) Depth of soil in pan for proposed project: 2 "
- e) Stormwater fee reduction (based on (d) and credit in Table 2): 24%
- f) Potential annual fee reduction for entire project (**c x e**): \$12.24

2. PERMEABLE/POROUS PAVING

- Permeable paving are surfaces paved with either porous concrete, porous asphalt, or permeable pavers that infiltrate, treat, and/or store rainwater where it falls.
- Stormwater fee reductions (credits) are affected by the installation of drain tile (see Table 3)
- Permeable/porous paving credit is based on “contributing” area, which is the amount of stormwater that will run into the porous paving area instead of flowing into storm sewers.
- All reductions are capped at 60% of the stormwater fee for the contributing area.
- You will need to provide a plan outlining the project including contributing area.

Table 3: Stormwater Fee Reduction (Credit) for Permeable/Porous Paving	
With Drain Tile	Without Drain Tile
47%	60%
(TSS Removal = 65%)	(TSS Removal = 100%)

Porous Pavement Calculations:

- a) Square feet of contributing area proposed: _____
- b) Stormwater charge per square foot (ERU on page 1): \$0.051 / sq ft
- c) Current stormwater charge of proposed area per sq ft (**a x b**): _____
- d) Percent reduction based on drain tile (See Table 3): _____
- e) Potential annual fee reduction for entire project (**c x d**): _____

Porous Pavement Example:

- a) Square feet of contributing area proposed: 1,000 sq ft
- b) Stormwater charge per square foot (ERU on page 1): \$0.051 / sq ft
- c) Current stormwater charge of proposed area per sq ft (**a x b**): \$51.00
- d) Percent reduction based on drain tile (See Table 3): 47%
- e) Potential annual fee reduction for entire project (**c x d**): \$23.97

3. BIORETENTION: BIOSWALES and WET DETENTION PONDS

- Bioretention projects can include bioswales and wet detention ponds. Bioswales include vegetated and/or mulched native landscaping that slows, infiltrates, and filters stormwater flow as it moves from one place to another. A wet detention pond is a permanent pool of water that receives stormwater runoff and provides retention and treatment of water until it is displaced by runoff from another storm event.
- The fee reduction in a bioretention project is based on square footage of “contributing” area, which is the amount of stormwater that will run into the porous paving area instead of flowing into storm sewers (Table 4).
- All reductions are capped at 60% of the stormwater fee for the contributing area.
- You will need to provide a plan outlining the project including contributing area.
- Required minimum criteria include:
 - 9” ponding
 - 18” engineering soil
 - 18” storage layer

Bioretention Calculations:

- | | |
|--|-----------------|
| a) Square feet of proposed project area: | |
| b) Square feet of proposed contributing area: | |
| c) Ratio of bioretention area to contributing area,
as a percent ((a / b) x 100) : | |
| d) Percentage stormwater fee reduction potential (c x 4) :
(4% reduction in stormwater fee for every 1% strategy size
as compared to the contributing area – see Table 4 below) | |
| e) Stormwater charge per square foot (ERU on page 1): | \$0.051 / sq ft |
| f) Current stormwater charge of proposed contribution area (b x e) : | |
| g) Potential annual fee reduction for entire project (f x d) : | |

Bioretention Calculation Example:

- | | |
|---|-----------------|
| a) Square feet of proposed project area: | 50 sq ft |
| b) Square feet of proposed contributing area: | 1,000 sq ft |
| c) Ratio of bioretention area to contributing area,
as a percent ((a / b) x 100) : | 5% |
| d) Percentage stormwater fee reduction potential (c x 4) :
(There is a 4% reduction in stormwater fee for every
1% strategy size as compared to the contributing area) | 20% |
| e) Stormwater charge per square foot (ERU on page 1): | \$0.051 / sq ft |
| f) Current stormwater charge of proposed contribution area (b x e) : | \$51.00 |
| g) Potential annual fee reduction for entire project (f x d) : | \$10.20 |

Table 4: Stormwater Fee Reduction (Credit) for Bioretention Strategies			
Contributing Area (square feet)	Minimum Required Strategy Area (square feet):		
5000	0-250	250-500	500-700
20000	0-1000	1000-2000	2000-3000
40000	0-2000	2000-4000	4000-6000
60000	0-3000	3000-6000	6000-9000
Strategy Size based on Contributing Area:			
Bioretention Area	0 to 5%	5 to 10%	10 to 15%
Stormwater Fee Reduction for Contributing Area	0 to 20%	20 to 40%	40 to 60%

STEP 3: CITY OF MILWAUKEE VERIFIES PROPOSED PROJECT’S IMPACT

To approve your credit, the City will need to review your proposed project. You will need to provide a plan outlining the project. See example here. You will need to provide the following:

- Overview of site plan
- Cross section of the green infrastructure project
- Site plan showing contributing area following to green infrastructure project (not for green roof)
- Measurements and dimensions of area

Once the information has been received, reviewed, and verified by City of Milwaukee’s Department of Public Works, your credit will be calculated and applied to your next quarterly bill.

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Municipal Building
804 N. Broadway
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