

Stormwater Billing Based on Impervious Area

QUESTION

On March 11, 2010, the following question was sent to members of NACWA's Legal Affairs Committee:

"We are writing to you as a member of the NACWA Legal Affairs Committee with a request for information from a NACWA public utility member, which has asked the following two questions:

1. Are there any NACWA members that use impervious surface area as a basis for stormwater utility user fees?
2. For those utilities that use this methodology, how are residential fees determined? Does the utility use an Average Residential Unit or ARU that charges a flat rate or does the utility use actual measurements of impervious area?"

RESPONSES

The following responses were received from members of the committee:

Response 1 – Hampton Roads Sanitation District (HRSD) does not but our member jurisdictions do. They base the fee on ARUs. Residential units pay for one ARU but industrial and commercial sue ARU equivalents to charge. Some reductions are made for pervious surfaces, retention ponds, etc. If an industrial or commercial property is expanded or improved, there are requirements to reduce impervious surfaces.

Response 2 – The Watershed Management Dept. of the City of Atlanta has not gone to City Council yet to seek approval of creation of a Stormwater Management function and service fee. The work to do such has however been completed and includes the following relative to the request you have received: Impervious surface will be used for the basis of the service fee. Residential properties will be in 2 classes based on property size. Each class is based on average impervious area for a certain size lot. For commercial, industrial and other types of large area properties, actual impervious area will be used.

Response 3 -- The City of Toledo uses impervious surface as a basis for storm water fees. A residential parcel is charged 1 ERU (equivalent residential unit) regardless of the size of the parcel. All other non-residential properties are charged on the basis of actual measured square footage from aerial maps -- but no less than 1 ERU. Here is the applicable section (TMC 943.05) from Chapter 943 (Storm Water Management Program) of the Toledo Municipal Code.

943.05 Rate structure.

(a) A storm water service charge shall be billed to the owner of each and every lot and parcel of land within the City that contains impervious area and contributes directly or indirectly to the storm water system of the City. This charge is necessary to pay for the repair, replacement, planning, improvement, operation, regulation and maintenance of the existing and future City storm water system. This charge is not related to water and/or sewer service and applies whether or not the premises are occupied.

(b) All properties having impervious area within the City of Toledo will be assigned an Equivalent Residential Unit (ERU) or a multiple thereof, with all properties having any impervious area receiving at least one (1) ERU as follows:

(1) All residential properties, as defined in Section 943.02(w), will be assigned one (1) ERU. A flat rate will apply to all residential properties.

(2) All non-residential properties, as defined in Section 943.02(o), will be assigned an ERU multiple based upon the properties' individually measured impervious area (in square feet) divided by 2,500 square feet (1 ERU) but in no event less than one (1) ERU. This division will be calculated to the first decimal place and rounded according to mathematical convention.

(Ord. 586-99. Passed 11-9-99.)

(c) The storm water charge shall be \$0.1139 per day per Equivalent Residential Unit (ERU) which amounts to an average of \$3.47/month. Owners of property who are eligible for the Water Discount Program as specified in Toledo Municipal Code section 933.02(a)(7) shall be charged \$0.0854 per day per Equivalent Residential Unit (ERU) which amounts to an average of \$2.60/month. [eff. 12-1-08]

(c) The storm water charge shall be \$0.1248 per day per Equivalent Residential Unit (ERU) which amounts to an average of \$3.80/month. Owners of property who are eligible for the Water Discount Program as specified in Toledo Municipal Code section 933.02(a)(7) shall be charged \$0.0936 per day per Equivalent Residential Unit (ERU) which amounts to an average of \$2.85/month. [eff. from and after 11-1-09]

(Ord. 644-08. Passed 11-5-08.)

Response 4 -- The City of Colorado Springs had a stormwater fee which was based upon impervious surface as actually measured and related to units or increments of size and the related fee. A citizen petition resulted in a vote that repealed the fee. The argument was that it was a tax and that as a tax it had to be approved by a vote of the citizens. So the repeal was in part a decision that it was a tax and not a fee and also in part a determination to not have the stormwater charge. So the politics of getting it established is huge. If more information is needed, contact Ken Sampley at ksampley@springsgov.com. He is the program manager.

Response 5 -- The Philadelphia Water Department utilizes a stormwater fee based upon impervious area. Beginning July 1, 2010, non-residential and condominium properties in Philadelphia will be billed for stormwater based on a combination of the parcel's gross area and impervious area. Residential parcels will (continue to) be billed a flat rate based on a fixed calculation of GA and IA. See their web site at http://www.phila.gov/water/Stormwater_Billing.html.

Response 6 -- The City of Tacoma bases its surface water charge for specific properties on a properties' development status. Highly developed properties have more impervious surfaces than lesser developed properties and pay higher rates because they generate more surface water and, consequently place a greater burden on the City's MS4. I'm attaching the part of Tacoma's code that deals with surface water charges. If a member has specific questions they may want to call Kirk Zempel of Tacoma's Public Works Department at (253) 502-2158, kzempel@cityoftacoma.org.

Response 7 -- The Northeast Ohio Regional Sewer District's future program will use impervious surface area as the basis and will have ERU (Equivalent Residential Unit)-based fees.

Response 8 -- Chattanooga has just implemented an impervious surface area fee based system. Residential properties are presumed (based upon scientific sample) to be 3200 sf of impervious area (one ERU) and charged \$115.20 per year. Impervious areas on non-residential properties are measured via aerial photography, but subject to ground measurement verification. Our ordinance currently charges non-residential users \$115.20 per ERU (i.e. multiples of 3200 sf of impervious area); however, there was such an outcry from non-residential users, particularly shopping centers and churches with

large impervious parking lots that the City is now considering amending its Code to provide a four-year phase-in to the \$115.20 per ERU rate for non-residential users. We also have a system of credits for activities that reduce the quantity or quality of storm water run-off for non-residential properties of more than 3 ERU's.

Response 9 – Raleigh, North Carolina uses aerial imagery to gives us the detail to determine impervious area for every lot including residential. From there, Council approved a tiered fee for residential for improved equity so the actual impervious surface is lumped into 5 divisions (6 if you count those that do not have to pay a fee). Commercial is billed on actual impervious surface.

Here's a link that describes the program:

http://www.raleighnc.gov/portal/server.pt/gateway/PTARGS_0_2_104413_0_0_18/Impervious_InfoSheet.pdf

Response 10 -- Columbus, Ohio does use impervious area as the basis for stormwater charges. Everything is based on a 2,000 sq ft Equivalent Residential Unit (same as your ARU). Each residential stormwater customer is charged one ERU per month. Commercial and Industrial customers are charges based on measured impervious area. The ERU charge is calculated yearly and the system multiplies that charge by the customers ERU number. Commercial and Industrial customers are billed monthly and residential customers are billed quarterly.

Response 11 -- The most common approach in Texas is to use impervious area as a basis for storm water utility user fees. Residential fee approaches for these cities vary, often depending on available data. Most, if not all, have either a flat rate or several tiers of rates for single family residential properties. I can't think of a city that has unique rates for each individual residential property. Existing available information used typically used to identify the equivalent residential unit (ERU) includes some combination of the following:

- a. Parcel area
- b. House square footage
- c. Living area square footage
- d. Garage spaces
- e. Impervious area measurement for representative sample of residences

Response 12 -- The City of Durham, NC has a stormwater utility with fees based on impervious area. Some cities that use this type of system either use a flat fee for residential.

We use a three tier system for residential.

Tier 1 is for properties with less than square feet of impervious cover (\$26 per year)

Tier 2 is for properties with 2,000 to 3,999 square feet (\$54 per year)

Tier 3 is for properties with 4,000 feet or greater (\$108 per year)

For other properties the rate is \$4.50 per equivalent residential unit (ERU) per month. One (1) ERU is equal to 2,400 square feet of impervious area.

We have very good GIS data, including a spatially accurate map of parcel boundaries. Initially parcel imperious surface was determined by consultants using aerial photogrametry, and then updated using a small field survey crew. A number of years ago the City began using annual satellite imagery (leaf-off, 4-bands or wavelengths) to automatically determine parcel impervious cover. This method allows us to pick up new impervious cover. The additional billing more than pay for the cost of obtaining annual

satellite images. Our field crew now uses survey grade GPS to map stormwater system structures and to manually verify properties that are close to the two cut-off points (2,000 and 4,000 square feet.)

Additional information is available on our website at:

http://www.durhamnc.gov/departments/works/stormwater_fees.cfm

Response 13 – King County, Washington uses impervious surface as a determination of stormwater fees for businesses and industrial. Residential fees are a flat rate.

Response 14 -- Clean Water Services in Oregon assesses a flat fee on residential lots. However for commercial and industrial lots they used an “equivalent residential unit” value to determine the fees for those lots. The base was an average value of impervious value for residential lots.

Response 15 -- The Stormwater User Fee in Nashville/Davidson County is based on a Tiered System of charges that is based on the amount of impervious surface on the property. The residential measurement of impervious surface was done by a consultant who created a program to statistically evaluate neighborhoods to determine the Rate Category that applies to each residential property. The measurement for non-residential properties (mostly commercial properties) was done on an individual property basis -- each property was digitally measured on Metro's GIS Mapping system.

While considered during a couple of years of evaluation and planning, Metro decided against using an Equivalent Residential Unit (ERU) basis for charging for both residential and non-residential fees. In summary, our charges are based on impervious area as shown in the chart below.

Residential Stormwater Rates

Square Feet	Monthly Rate
0-400	\$0.00
400-2,000	\$1.50
2,000- 6,000	\$3.00
>6,000	\$4.50

Non-Residential Stormwater Rates

Square Feet	Monthly Rate
0-400	\$0.00
400-6,000	\$10.00
6,000-12,800	\$20.00
12,800-51,200	\$40.00
51,200-300,000	\$100.00
300,000-1 million	\$200.00
> 1 million	\$400.00

Additional information can be found in the following links:

http://www.nashville.gov/water/cwip/stormwater_fee.asp

http://www.nashville.gov/water/cwip/rate_structure.asp

Response 16 -- The City of Cincinnati Stormwater is billed based on each property’s contribution to stormwater runoff, collected from property owners in the city. Below is a link to the website that explains the fee structure. <http://www.msdcg.org/stormwater/fees.htm>

Response 17 -- the City of Portland, Oregon uses impervious surface area as the basis for stormwater utility fees. Residential fees are based on the assumption that a single residential unit has 2,400 square feet of impervious area.