

A Guide to the Drainage Charge

This guide describes how the drainage charge is calculated.

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Drainage Charge Applicability

Parcels that meet the criteria below will receive a drainage charge.

- a. The parcel is located within the City of Detroit, or is outside of the City of Detroit, but has a direct connection to a DWSD sewer;
- b. The parcel has no direct outlet to the Detroit or Rouge Rivers and thus drains to the sewer system (either directly or indirectly); and
- c. The parcel contains 0.02 or more acres of impervious surface(s).

Did You Know?

An acre equals
43,560 square feet

Drainage charges are applied to all parcel ownerships and classifications. The parcel may be owned by a resident, business, governmental, or tax exempt organization. It may be classified by the City Assessor's Office as industrial, commercial, residential, or tax exempt. Drainage charges are billed on all parcels whether or not there is water service provided to the parcel or if the water service is active.

A limited number of parcels outside of the City are also charged for drainage, if they are directly connected to the Detroit Water and Sewerage Department's (DWSD) sewers. This happens in a few isolated locations near the City limits or when a property owner owns land both inside the City and in an adjacent community and it is determined that runoff generated by the property enters the DWSD system.

The Michigan Department of Transportation (MDOT) and the Wayne County roadways that connect to DWSD's sewer system are also assessed a drainage charge for their impervious surface(s).

Properties Exempt from Drainage Charges

Parcels with less than 0.02 acres of impervious area are exempt from the drainage charge.

Properties Discharging to Surface Waters

Parcels that discharge runoff generated by impervious areas directly to the Detroit and/or Rouge Rivers may be eligible for reduced drainage charges. Information on these potential adjustments can be found in A Guide to Drainage Charge Bill Adjustment.

Green Credits

The following properties may be eligible for Green Credits:

- ◆ Residential and non-residential properties that have downspouts directed to vegetated areas
- ◆ Residential and non-residential properties that have flow from impervious areas directed to vegetated areas
- ◆ Properties with green infrastructure practices or other stormwater management practices.



Parcels and Properties

Parcel Information

DWSD develops the impervious area data from aerial photography and obtains information on parcel configuration and ownership from the City of Detroit Assessor's office. The pervious drainage billing methodology is shown in Table 1.

Parcel Ownership Information

Parcel ownership information is based on DWSD records or assessor data information. For a parcel that has an existing water and sewer account with DWSD, the drainage charge will be attached to the water and sewer account bill. Parcels that do not have an existing water and sewer account with DWSD will be issued a separate drainage charge bill. In this case, assessor data is used to designate ownership. DWSD works with the Assessor's office to update this information to accurately reflect current ownership and configuration data. See *A Guide to the Drainage Charge Bill Adjustment* for instructions on how to address incorrect ownership information.

Collapsed Parcels

In some instances, what functions as a single property may consist of more than one parcel. See Figure 1.

The drainage charge is assessed to a parcel and bills are generated for each parcel. Customers who own several parcels and wish to receive just one bill, are encouraged to "collapse parcels" (the joining of multiple parcels into a single parcel recorded at the Assessor's Office.) Please refer to *A Guide to the Drainage Charge Bill Adjustment* for information on how to simplify your bill.

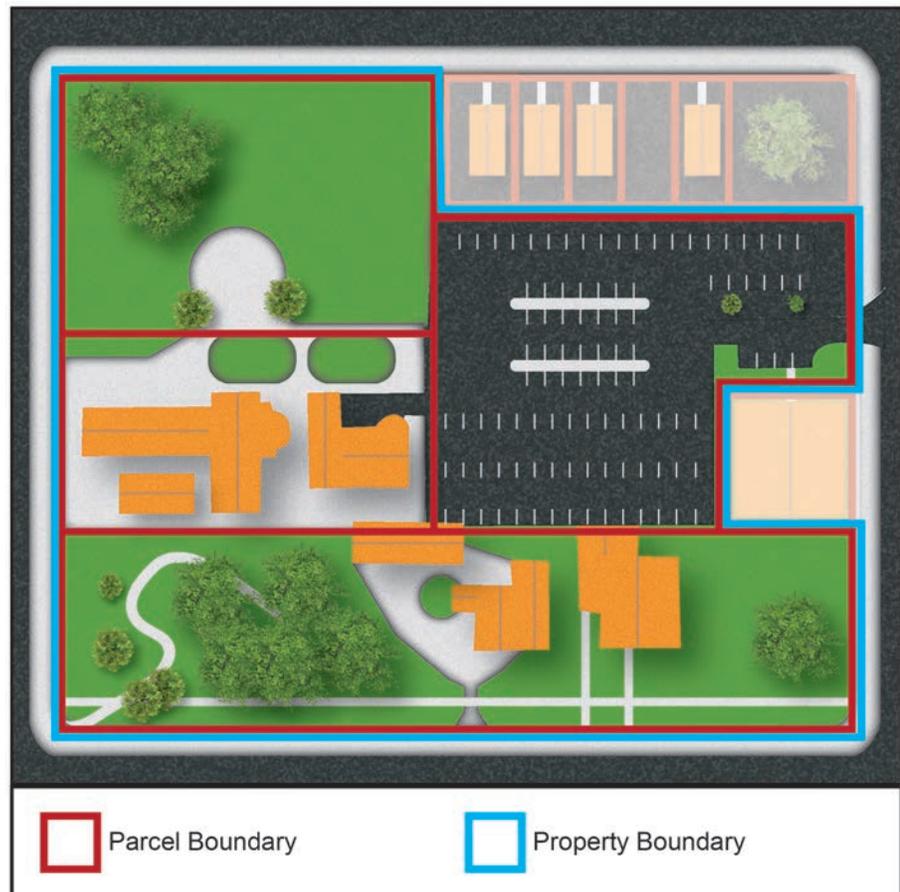


Figure 1: Multiple Parcel Property

Occupied Right-of-Way

A drainage charge will also be assessed for properties that occupy the Right-of-Way. An example of a property occupying a right-of-way is in Figure 2. Many of these locations are not reflected in the current assessor property information.

These charges will be implemented as assessor data is updated.

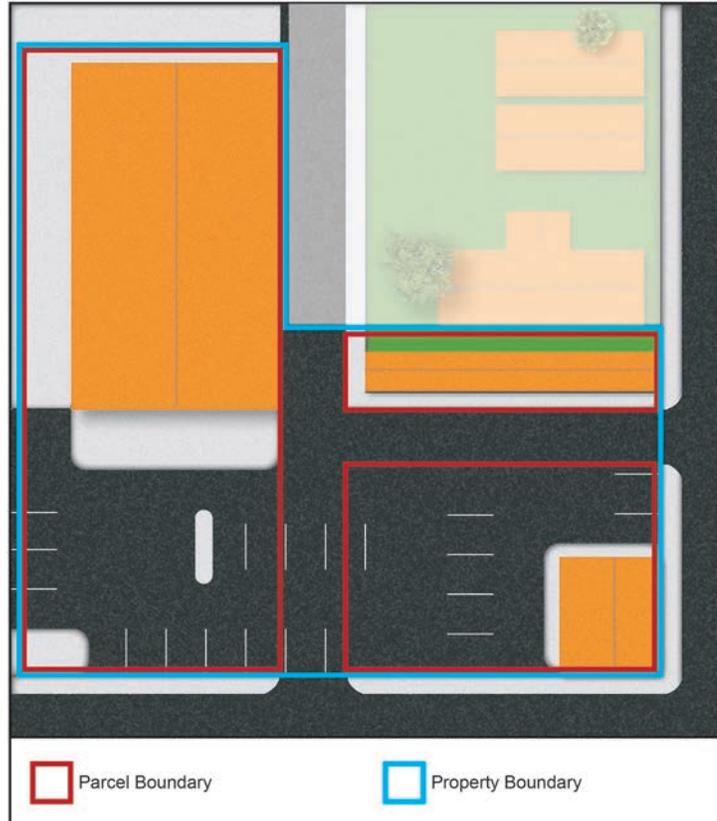
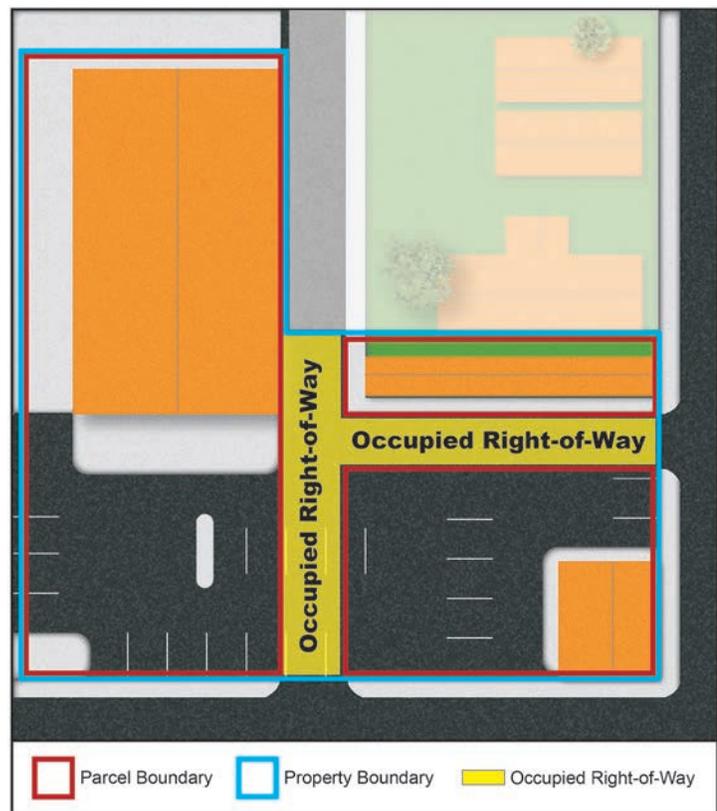


Figure 2: Occupied Right-of-Way vs. Not Occupied Right-of-Way



How the Drainage Charge is Calculated

Existing customers were billed under the combined fixed fee and class indexed impervious area based rate structure in place until their transition date. The previous drainage billing methodology is shown in Table 1.

TABLE 1 - Previous Drainage Methodology		
Class	Description	Billable Unit (% of Base Rate)
Fixed Fee Low	Meter Size – 5/8” to 1”	--
Fixed Fee High	Meter Size > 1”	--
Class 1	10–24% Impervious Area	17%
Class 2	25–49% Impervious Area	37%
Class 3	50–74% Impervious Area	62%
Class 4	Standard	72%
Class 5	75–100% Impervious Area	87.5%

New and transitioning customers will be billed based on the total impervious acres of their parcel multiplied by the fixed impervious acre rate.

The fundamental drainage charge calculation for these customers is:

Drainage charge = Total impervious surface area of the parcel
x Impervious acre rate (dollars per acre per month)



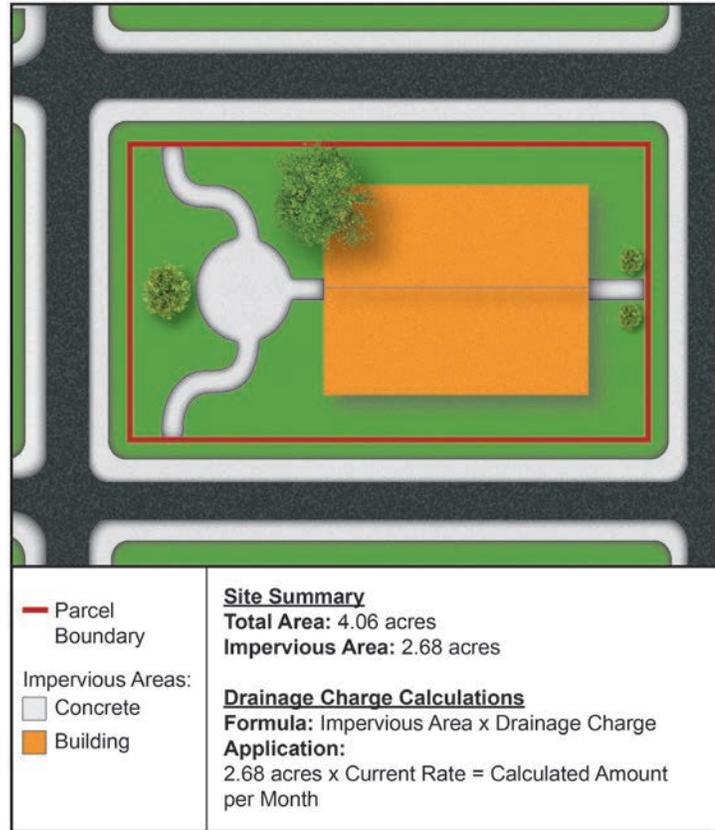
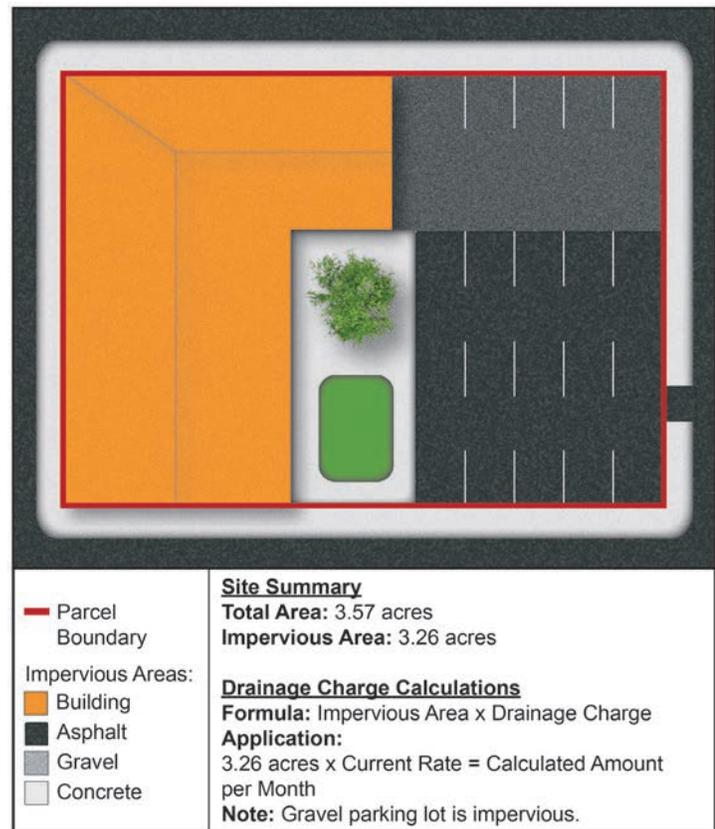


Figure 3: Example Calculation for Impervious Acre Based Bill



Impervious Surface Area

The definition of impervious areas is:

Hard surface areas which either prevent or retard the entry of water into the soil in the manner that such water entered the soil under natural conditions pre-existent to development, or which cause water to run off the surface in greater quantities or at an increased rate of flow than that present under natural conditions pre-existent to development, including but not limited to such surfaces as roof tops, gravel, asphalt or concrete paving, driveways and parking lots, walkways and sidewalks, patio areas, storage areas, or other surfaces which similarly affect the natural infiltration or runoff patterns existing prior to development.

Important note: Any surface that experiences routine vehicular traffic (e.g., gravel, dirt, and grass) is considered impervious regardless of surface material as it causes compaction.

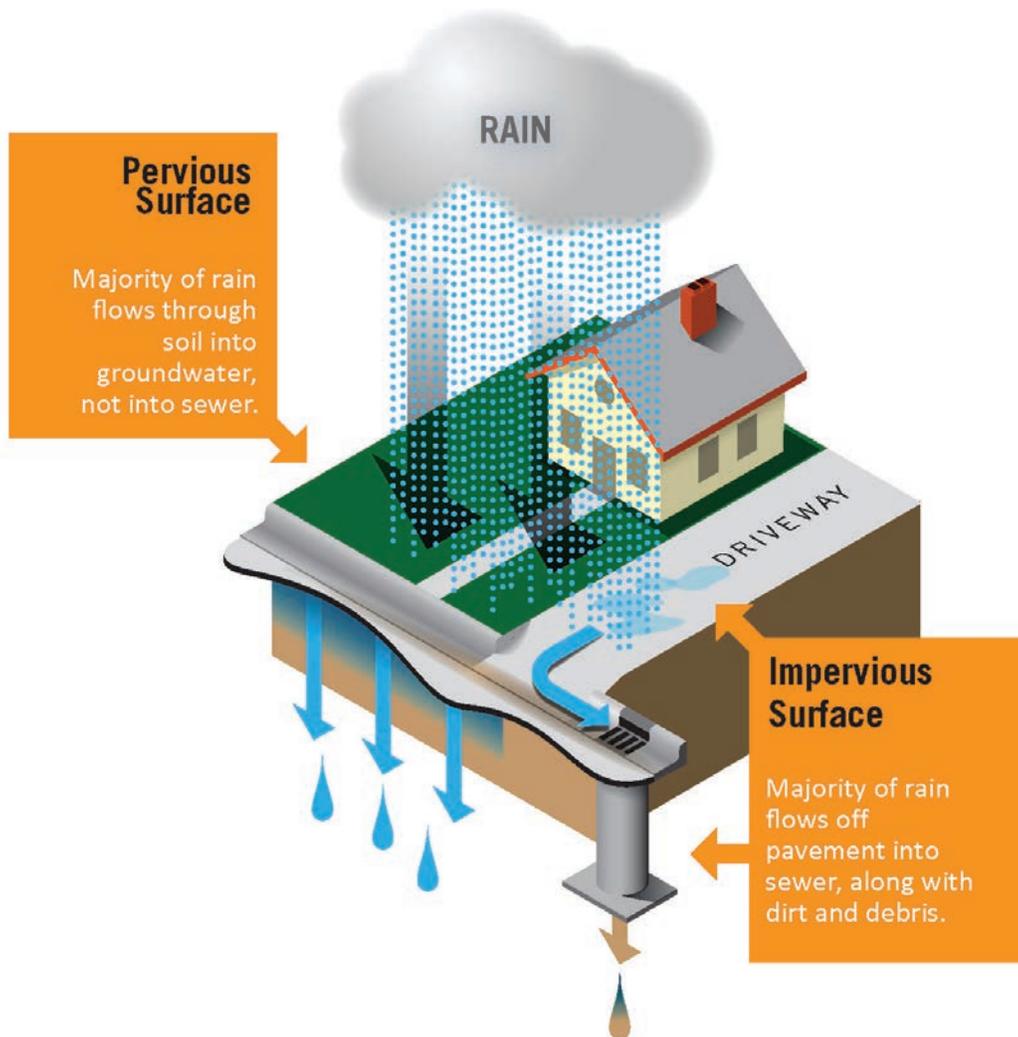


Figure 4: Impervious Area versus Pervious Area

Examples of impervious surface areas are included in the following table and pictures.

TABLE 2 - Impervious Surface Areas			
Land Cover Type	Impervious	Pervious	Stormwater Practice*
Buildings and roofs	✓		
Concrete (parking, driveways, sidewalks, etc.)	✓		
Asphalt (parking, driveways, sidewalks, etc.)	✓		
Brick surface (parking, driveways, sidewalks, etc.)	✓		
Any gravel or dirt surface that is used for vehicular traffic (driving or parking)	✓		
Uncompacted dirt/gravel (no vehicular traffic)		✓	
Decks, pavement below	✓		
Decks, vegetation or earth below		✓	
Stockpiled dirt/gravel/sand/ other materials		✓	
Railroads with gravel ballast		✓	
Gravel or decorative stone used for landscaping (not compacted, open- graded)		✓	
Gravel walkway (No vehicular traffic)		✓	
Impervious area covered with a minimum of 2'-0" dirt surrounded by pervious area		✓	
Lawn, vegetated areas		✓	
Permeable pavement*	✓		✓
Ponds (natural, ornamental)		✓	
Buildings with green roofs*	✓		✓
Swimming pools		✓	

*Surface areas eligible for a stormwater management practice credit. Both permeable pavement and buildings with green roofs are considered impervious.





Impervious Roof Area



Impervious Roof Area



Impervious Parking Lot



Impervious Parking Lot



Impervious Gravel Parking Lot



Impervious Gravel Parking Lot



Compacted Gravel Parking Lot



Compacted Gravel Storage Yard



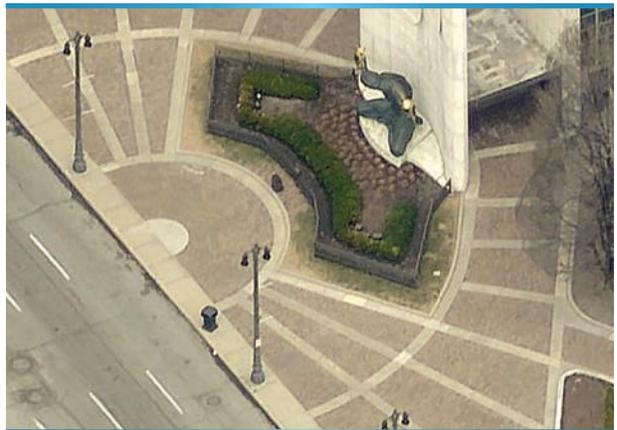
Impervious Driveway



Impervious Sidewalk



Impervious Brick Patio



Impervious Concrete and Brick Plaza





Impervious Pavilion with Roof



Impervious Concrete Patio



Impervious Roof and Concrete on an Industrial Property



Impervious Roof and Concrete at a Gas Station

The following images are examples of areas that are considered PVIOUS.



PVIOUS Railroad Ballast



PVIOUS Railroad Ballast



PVIOUS Stockpile



PVIOUS Stockpile





Pervious Gravel and Garden



Pervious Landscaping



Pervious Walkway Open Aggregate



Pervious Lawn



Pervious Mulch and Garden



Pervious Lawn and Forested Area



Deck with Open Aggregate Undercover



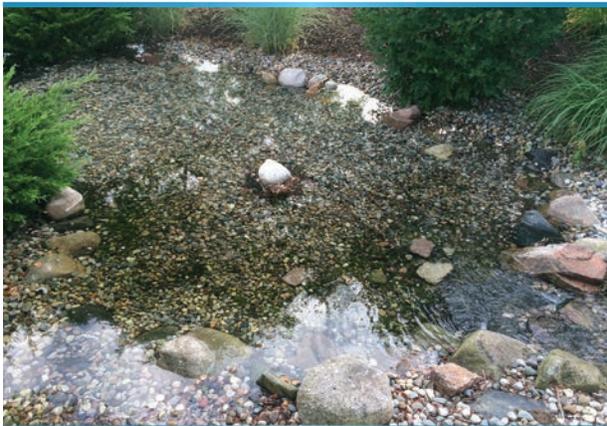
Deck with Vegetative Undercover



Natural Pond



Ornamental Pond



Ornamental Pond



Swimming Pool



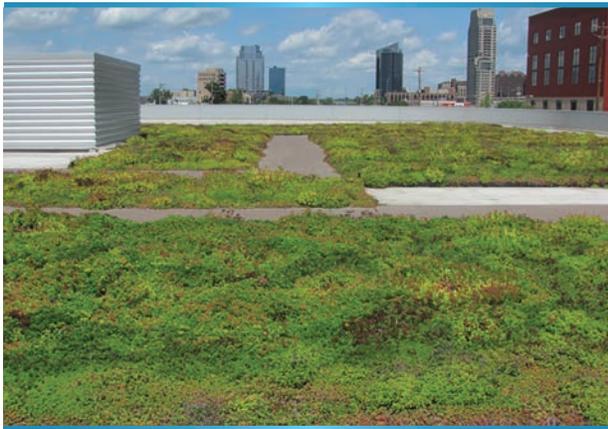
The following images are considered stormwater practices and not pervious areas.



Green Roof



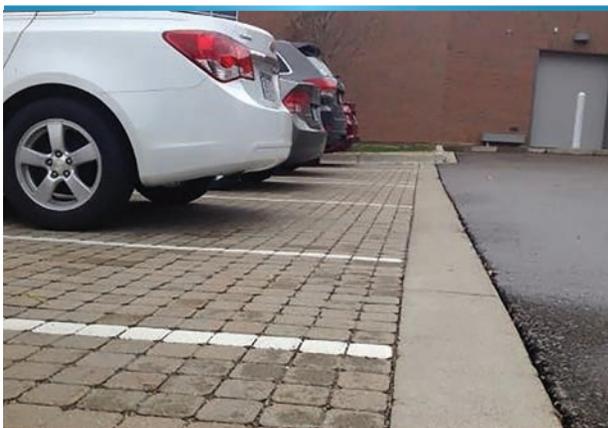
Green Roof



Green Roof



Green Roof



Permeable Pavement



Permeable Pavement

How is Impervious Acreage Determined?

The amount of impervious area for each parcel is determined by examining aerial photography from the latest available flyover. Impervious acreage is determined by overlaying the parcel's legal boundaries with the impervious area delineation from the aerial photography. Property ownership data for each parcel is drawn from data managed by the City Assessor's office. Individual properties may be updated as information becomes available.

The current values used by DWSD for each parcel can be found on the Parcel Viewer at www.detroitmi.gov/drainage or <http://arcg.is/29KWCPY>.



Figure 5: Screen Shot of the Parcel Viewer

DWSD recognizes the limitations of aerial photography to define site characteristics. This method represents an advance from earlier methods and provides reasonably accurate measures of impervious area suitable for drainage charge determinations. Notwithstanding these advances, impervious acreage determinations using aerial photography is subject to limitations. A mechanism for review of the impervious cover quantification is described in *A Guide to the Drainage Charge Bill Adjustment*.



Precision of the Measurement

The parcel impervious area is measured in acres, to the 0.01 (hundredth) of an acre. This acreage is equal to 435 square feet or approximately the size of a two-car garage.

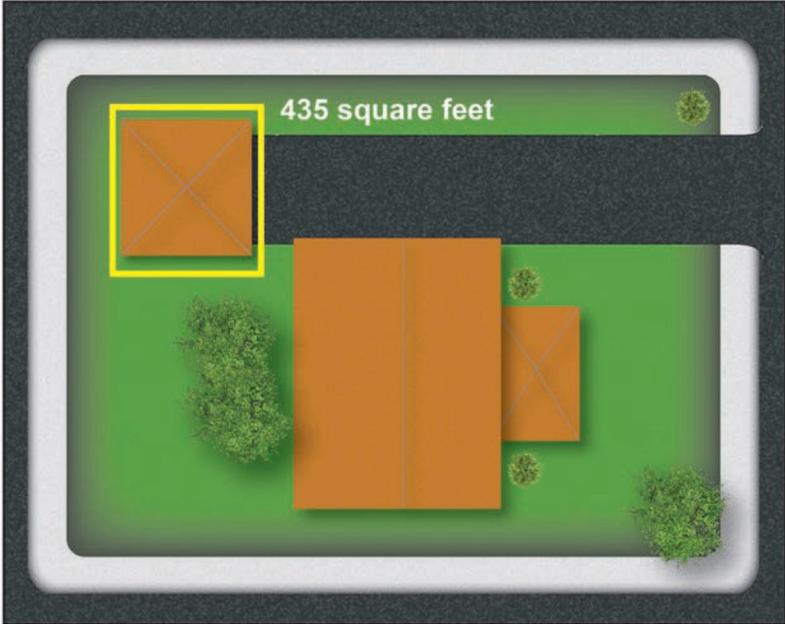


Figure 6: Representation of 435 Square Feet

Billable Impervious Area

For billing purposes, charges will be based on the impervious area in increments of 0.01 acre. The value calculated for acres will be truncated (not rounded). Parcels with an impervious area that truncates to 0.01 acres or 0.00 acres will not be assessed a drainage charge.

Site Characteristic	Area (sf)
Buildings	10,400
Pavement	11,300
Sidewalk	2,500
Green Space	11,000
Total	35,200 or 0.808 acres
Impervious Area	24,200 or 0.558 acres
Billed Impervious Area	0.55 acres



Figure 7: Example of Truncation to 0.01 Acres

Impervious surfaces located within the public right-of-way (sidewalks, driveway approaches) are not charged to the adjacent parcel. An exception to this is when the parcel occupies the adjacent right-of-way. Refer to Figure 2.

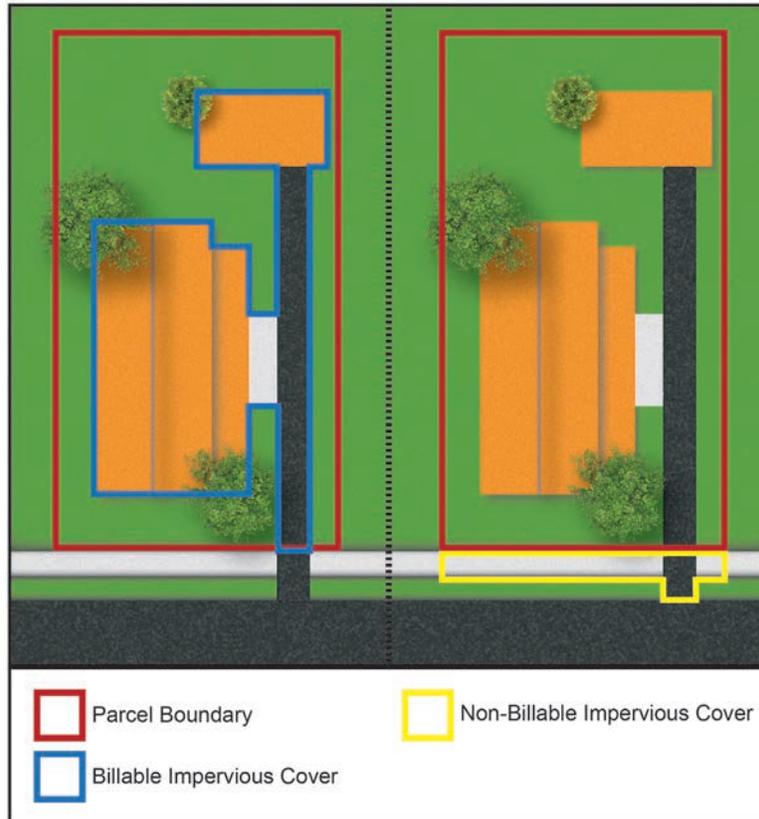


Figure 8: Parcel versus Right-of-Way Impervious Area



The Linkage Between Accounts and Parcels

Drainage charges are based on the measured impervious area of individual parcels. In many, if not most cases, these drainage charges are a component of a water, sewer, and drainage bill that is the responsibility of the property owner.

In some cases one water/sewer connection may serve multiple parcels. In this case, the property owner will receive multiple drainage charges. The parcels without a water/sewer account would receive a bill that only contains drainage charges.

In other cases, like strip malls or multi-family properties, a single parcel may have more than one water/sewer meter (see Figure 10). In this case, the drainage charge goes to the parcel owner unless requested by the owner to bill to the tenants under the submission owner/tenant agreement.

For condominiums and/or townhouses, DWSD will distribute drainage charges among multiple tenants unless requested by the association.

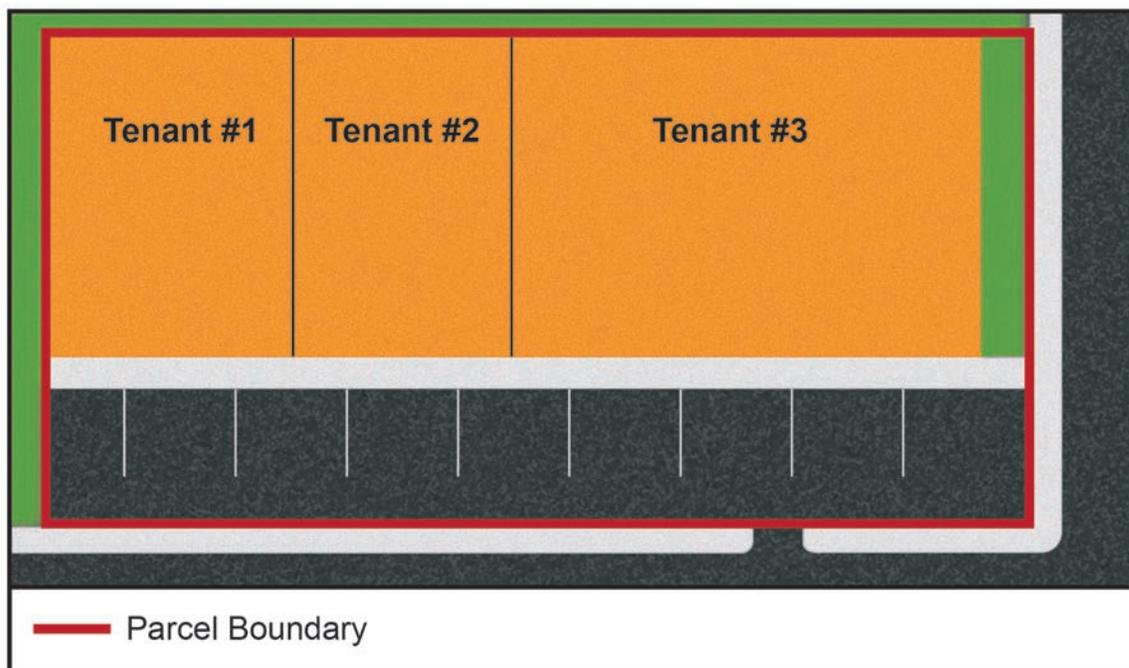


Figure 10: One Owner, Multiple Tenants

Payment Responsibility

The drainage charge for a property is generally the responsibility of the property owner. The charge may be assigned to a tenant if the entire parcel or property is leased to the tenant and the tenant is responsible for water and wastewater charges. However, a landlord/tenant agreement must be on file with DWSD for the tenant to be responsible for these charges.

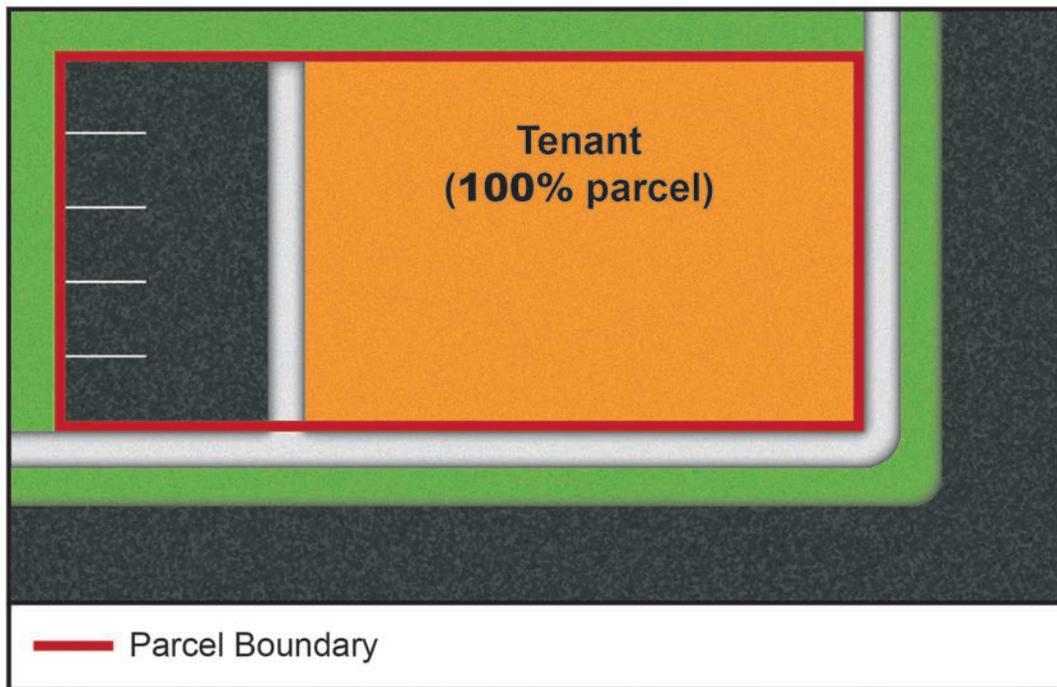


Figure 11: One Owner, One Tenant

