

**CITY OF ZANESVILLE
STORM WATER UTILITY PROGRAM**

POLICY: DEFINITION OF IMPERVIOUS AREA

I. OVERVIEW:

The JHA/ERC Team has been retained by the City of Zanesville to provide assistance in developing and implementing a successful and legally defensible storm water utility program and stormwater billing master file that will include a stormwater database and impervious area measurements. As part of the overall process and approach, the JHA/ERC Team is developing a series of "Policy Papers" and "Billing Policy Papers" that will be used to document the basis for various components of the storm water utility program and recommendations.

This is the second in a series of billing policy papers that will document the overall billing mechanism process including, the identification of properties within the proposed utility service area, assigning each parcel/property a land use code of either SFR (single-family residential) or NON (non-residential) or VAC (vacant and undeveloped), measuring the impervious area for all non-residential properties, calculating the number of Equivalent Residential Units (ERUs) for those non-residential properties, determining the rate of charge per ERU per month, and calculating the charge for all properties in the City. This "amount to bill" will then be transferred to the City of Zanesville's finance department or utility billing department who will be responsible for merging and integrating the JHA/ERC Team's stormwater database created as part of the process into the existing water and sewer utility billing system for billing storm water under the ERU based approach.

II. DISCUSSION:

Because the impervious area for a randomly selected number of single-family properties and the impervious area for all non-residential properties will be measured, a definition of what is impervious and what is pervious is necessary. This Billing Policy Paper is particularly important especially for those personnel who will perform the process of "capturing" and measuring the impervious areas for all non-residential properties.

Impervious is defined in *The American Heritage Dictionary* (3rd Edition, 1994 Houghton Mifflin Company) as "**Incapable of being penetrated, as by water**". Therefore, the definition of impervious would include the rooftops of any structures, paved areas such as driveways, parking lots and sidewalks. Inclusion of rooftops, driveways, parking lots and sidewalks in the definition is straightforward. However, treatment of the not so straightforward surface of gravel should also be considered for inclusion in the impervious area definition.

III. ISSUE:

The issue is whether to consider “including” gravel driveways and gravel parking lots in the impervious area polygon calculations (treating gravel as impervious), to “exclude” gravel driveways and gravel parking lots in the impervious area polygon calculations (treating gravel as pervious) or, to consider partially “including” gravel driveways and parking lots in the impervious area polygon calculations (percent impervious). The following are basic issues that need to be considered when developing a policy for gravel:

- Gravel surfaces have varying degrees of imperviousness and perviousness (2/3 impervious according to “C” Factor runoff coefficient);
- It can be costly to perform compaction tests for such surfaces throughout the utility service area;
- Aerial photo interpretation and misinterpretation issues in some cases will make it difficult to distinguish between pavement and gravel;
- Simplifies or complicates the aerial photo impervious area interpretation process; and
- Several storm water programs have avoided the issue by treating gravel as pervious including The City of Toledo, Ohio, the City of Columbus, Ohio, and the Louisville/Jefferson County, Kentucky programs;
- Other programs such as the cities of Lancaster, Newark and Milford, Ohio have defined gravel as impervious and include gravel in the calculations. The City of Elyria, Butler County, Ohio and Lorain County, Ohio programs treat gravel at 2/3 impervious, and charges at 2/3 of the measured value (The City of Elyria and Lorain County accomplish this through the stormwater credit program).

Since gravel surfaces have varying degrees of imperviousness and perviousness and it is very costly for storm water utility personnel to perform compaction tests for such surfaces throughout the City that contain gravel, there is an argument to “exclude” gravel from the impervious area polygon calculations. Excluding gravel simplifies the process and there is precedence by many other major storm water programs to exclude gravel from the calculations. However, field inspections will be required for a number of properties in order to determine for certain that the surface is paved or gravel, during the impervious area measurement process. Every effort should be made to properly identify gravel areas from impervious surfaces, but there will be situations where it is simply impossible to delineate gravel from hard surface (using aerial photography). In these cases, impervious area measurements will need to be adjusted by the Storm Water Utility once it has been determined that a gravel surface was included in the original impervious area measurement if the decision is made to treat gravel as pervious.

The customer class most likely to be affected with the gravel issue is the large trucking companies who have tractors and trailers parked on gravel parking lots. In these cases,

the gravel is traveled on very frequently and can be compacted to nearly the same extent as an asphalt or concrete parking lot. Because of this issue, the requirement for paved parking in the zoning regulations may need to be revisited and/or modified.

IV. TAC RECOMMENDATIONS:

The JHA/ERC Team recommends that the City of Zanesville Storm Water Utility include gravel driveways and gravel parking lots in the definition of impervious area where the interpretation is clear that the area is gravel (aerial photograph), and include these areas in the impervious area measurements for all non-residential properties.

A consideration for treating gravel as part of the credit program should be added to the Credit Program. The potential credit will apply to non-residential customers only for the gravel surfaces that are contained on their properties. The credit will only be given to those non-residential customers that properly complete and submit the required credit application and any required documentation. The percent of the credit for gravel will be determined later.

Adjustments for impervious area interpretation errors should be limited to a one-year retroactive period from the time that the interpretation error is discovered.

The credit program, the application process, procedures and specific forms will be developed by the JHA/ERC Team as part of the overall project at a later date.

V. TAC ACTION:

The TAC reviewed, discussed and approved this billing policy paper during the February 24, 2016 TAC meeting.

Approved: 

Date: 2/24/16