

Summary of Assessment Method

Effective January 1, 2022

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Assessments are determined by the Logan County Engineer's Office (LCEO) who models the assessment calculations after a procedure first developed by the Preble County Soil and Water Conservation District in 1981. This procedure takes into consideration the following four physical features of a watershed: benefitted acres, land use, soils, and topography. Drainage need unit (DNU) is the term used for the calculation that determines the drainage need of each parcel based upon the parcel's land use, soil type and topography.

Land Use Since the amount of runoff on a particular parcel of land is directly related to the amount of impervious (i.e. water does not easily infiltrate the surface) areas which it has, there is a greater need for drainage for those parcels of land with a large amount of impervious areas when compared to pervious (i.e. water can readily infiltrate into the surface) areas.

As shown below, various land surfaces have been categorized based upon how impervious the land surface is. The more impervious that an area is the higher an area's drainage factor will be.

Industrial areas/City and municipal lots: Parcels composed predominantly of land cover that has a high amount of imperviousness (i.e. roofs and paved surfaces). These parcels are assigned a drainage coefficient of 1.0.

Roads: All right-of-way that includes a road are given a drainage coefficient of 0.70; this is a reflection of the fact that the drainage coefficient for asphalt ranges from 0.7-0.95 and the drainage coefficient for pasture ranges from 0.05-0.30.

Residential: Parcels will be categorized as residential if they generally contain a small amount of impervious areas (i.e. roofs and driveways) and a large amount of pervious surfaces (i.e. grass lawns). Residential areas are given a 0.50 drainage need factor.

If there is any sort of residential structure (i.e. house, driveway, shed or barn) on the benefitting parcel then said parcel will be assigned a minimum of 1 acre for Residential. If said parcel contains less than 1 benefitted acre the entire benefitted area will be assessed as Residential.

If the LCEO determines that over half of the parcel is composed of residential structures, the entire parcel will be charged residential.

Cultivated: Crop ground are given a 0.20 drainage need factor.

Pasture: Pasture land generally creates a small amount of runoff so they are given a 0.10 drainage need factor.

Woodland: Because of how well wooded areas soak up rainwater, these areas generally create very little runoff and thus areas that are predominantly woodland are given a drainage coefficient of 0.05.

Soils The U.S. Department of Agriculture and Soil Conservation Services has classified soils into four hydrologic soils groups according to their infiltration and transmission rates are. These groups are:

Soils Group A: These soils have high infiltration rates and consisting primarily of deep, well-to-excessively drained sands and gravels. These soils have a high rate of water transmission and are given a drainage factor of 0.10.

Soils Group B: Soils that have moderate infiltration rates when thoroughly wetted. These soils consist of moderate rate of water transmission and are given a drainage factor of 0.40.

Soils Group C: Soils that have slow infiltration rates when thoroughly wetted. They consist of somewhat poorly drained soil and have a slow rate of water transmission. Consequently, the “C” soils are assigned a drainage factor of 0.70.

Soils Group D: These soils have a very slow infiltration rate and consisting of very poorly drained soils having high clay content. These soils have a very slow rate of water transmission. Since the “D” soils have the greatest need for artificial drainage they are assigned a drainage factor of 1.00.

Topography Topographical information for determining the elevation drainage factors are obtained from 2019 LiDar data. Elevation factors are assigned based upon the presumption that land at higher elevations has less of a need for the drainage improvement and therefore receives less benefit from drainage improvement projects. These factors will vary from project to project because of different elevation ranges but here is a typical example:

Elevation difference from the

improvement's flow line outlet Elevation factor

0 to 9.99'	1.00
10' to 19.99'	0.95
20' to 29.99'	0.90
30' to 39.99'	0.85
40' to 49.99'	0.80
50' to 59.99'	0.75
60' to 69.99'	0.70
70' to 79.99'	0.65
80' and up	0.60

Explanation of Assessment Schedule

Benefited Acres = Area of the parcel found to be benefitting from the ditch improvement

Land Use DNU = [(Benefitted acreage associated with parcel (BAAWP)* Industrial coefficient) + (BAAWP * Roads coefficient) + (BAAWP * Residential coefficient) + (BAAWP * Cultivated coefficient) + (BAAWP * Pasture coefficient) + (BAAWP * Woodland coefficient)] / Benefitted Acres

Soils Group DNU and *Topography DNU*: Calculated according to the same methodology as the Land Use DNU using the respective drainage factors associated with each soils group and topography range

Tract DNU = (Land Use DNU)*(Soils Group DNU)*(Topography DNU)*(Benefitted Acres)

DNU Assessment = Tract DNU * (Project Cost/Total DNU)

Minimum assessments: Per ORC: \$10/parcel for the construction of the improvement and \$2/parcel for annual assessments

Tract cost = Adjusted cost for each parcel with minimum assessments factored into assessment schedule

Cost per benefitted acre = Tract cost/Benefitted Acres

First year maintenance cost = Small percentage of the total project cost used to fund maintenance issues that arise in the first year and to initiate the annual maintenance fund. For

example, if someone's Tract Cost is \$10,000 and the LCEO recommends 5% for first-year maintenance, that person will be assessed \$500 for first year maintenance.

Total cost = Tract cost + First year maintenance cost

Annual assessments = Percentage of total project cost used to fund annual maintenance and to fund future repair issues. This percentage is subject to change (from the value listed in the original assessment schedule) in future years depending on the annual maintenance performed on the ditch (i.e. inspections, mowing, bottom dip-outs) and repair issues (i.e. repair of washouts and suck holes) that arise when maintaining the ditch improvement. For example, if someone's Tract Cost is \$10,000 and the LCEO recommends 1% for annual assessments, that person will be assessed \$100 for annual assessments. Per ORC, parcels are assessed a minimum of \$2.00. The ditch maintenance fund is allowed to have a balance of up to a maximum of 20% of the permanent assessment base per ORC.

Direct Assessments Assessments to a specific property for any work which directly benefits "that particular parcel only and not the remainder of parcels in the watershed" (ORC 6131.15). Items include private crossings, outlet pipe, brush removal, junk disposal, certain rip-rap placement, or any other related item required by the construction or maintenance of the project which is not considered an improvement for the remainder of the watershed.

When the tile or ditch crosses a railroad or a roadway owned by the state, county, township or any other political entity, the respective railroad company or entity will be assessed both (1) for their assessments as calculated via the process explained in the 'Explanation of Assessment Schedule' and (2) for all construction, maintenance and repair costs within their respective right-of-way. Railroad companies and political entities (i.e. the state and townships) are encouraged to enter into a written agreement with the county whereby the railroad company or political entity performs the maintenance and repairs of the section of ditch within their right-of-way, under the direction of the LCEO, and in exchange the railroad company or political entity will be removed from the assessment schedule.