

Stroud Watershed Tool and CBP Loading Rate Example – York Twp Developed, Open Space Calculations

1. Use WikiWatershed to determine the land uses (see example image)
 - Developed, Open Space: 897.26 m²
2. WikiWatershed uses NLCD data:
 - **Developed, Open Space: 19% impervious**
 - Developed, Low Intensity : 49% impervious
 - Developed, Medium Intensity : 79% impervious
 - Developed High Intensity : 100% impervious
3. County Loading Rates from Attachment B (PRP Instructions):

County	Category	TSS (Sediment) lbs/acre/yr
York	impervious developed	1,614.15
	pervious developed	220.4

4. Calculate the impervious and pervious acres:
 - 897.26 m² = 0.22 ac total
 - 0.22 ac * 19% = 0.04 ac impervious
 - 0.22 ac – 0.04 ac = 0.18 acres pervious
5. Use the acres to calculate the load:
 - 1614.15 lb/ac/yr * 0.04 acres = 64.6 lb/yr sediment from
impervious Developed, Open Space
 - 220.4 lb/ac/yr * 0.18 acres = 39.7 lb/yr sediment from
pervious Developed, Open Space
6. Add them together to get:
104.3 lb/yr total sediment load from Developed, Open Space

This is just a calculation for one land use. You will need to do these calculations for all the land uses within the area you are trying to calculate the load for (see the other side of this page).

You will need to do calculations for each land use.

- Developed, Open Space – 19% impervious
 - 897.26 sq m = 0.22 ac
 - 0.22 ac * 19% = **0.04 ac impervious**
- Developed, Low Intensity – 49% impervious
 - 2,691.78 sq m = 0.67 ac
 - 0.67 ac * 49% = **0.33 ac impervious**
- Developed, Medium Intensity – 79% impervious
 - 1,794.52 sq m = 0.44 ac
 - 0.44 ac * 79% = **0.35 ac impervious**
- Developed High Intensity – 100% impervious
 - 0 ac * 100% = **0 ac impervious**
- Sum the impervious acres
 - 0.04 + 0.33 + 0.35 + 0 = **0.72 ac impervious**
- Total Developed acres
 - 897.26 + 2,691.78 + 1,794.52 + 0 = **5383.56 sq m**
 - **5383.56 sq m = 1.33 ac total**
- Difference of total – impervious = pervious acres
 - 1.33 ac - **0.72 ac = 0.61 ac pervious**

Developed, Open Space	897.26
Developed, Low Intensity	2,691.78
Developed, Medium Intensity	1,794.52
Developed, High Intensity	0.00
Barren Land (Rock/Sand/Clay)	0.00
Deciduous Forest	0.00
Evergreen Forest	0.00
Mixed Forest	0.00
Shrub/Scrub	0.00
Grassland/Herbaceous	0.00
Pasture/Hay	3,589.03
Cultivated Crops	5,383.55

Assume non-urban land uses are 100% pervious, so use the total area.

- Pasture/Hay & Cultivated Crops (Undeveloped) – 100% pervious
 - 8,972.58 sq m = 2.22 ac
 - 2.22 ac * 100% = **2.22 ac pervious**
- Developed Pervious (from above)
 - **0.61 ac pervious**
- Sum the pervious acres
 - 2.22 + 0.61 = **2.83 ac pervious**

Calculate the total impervious/pervious acres, then calculate the load for each.

- 1614.15 lb/ac/yr * 0.72 acres impervious = 1,162 lb sediment/year
- 220.40 lb/ac/yr * 2.83 acres pervious = 624 lb sediment/year

Add the impervious and pervious loads to get the **Total Sediment Load:**

- 1,162 lb sediment/year + 624 lb sediment/year = **1,786 lb sediment/year**