

Example Problem 4A-5_1: Determining Composite C

Determine the composite C value for the following situation assuming a 10 year (minor storm) recurrence interval.

A drainage area consists of the following:

Residential ¼ acre lots known to be 40% impervious based on roof area, sidewalks, driveways and other impervious areas:

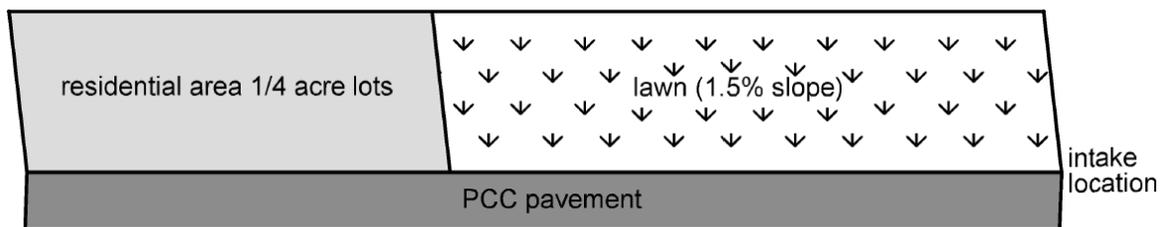
0.18 acres, C = 0.49

Lawn, 1.5% slope known to be 0.0% impervious based on roof areas, sidewalks, and driveways and other impervious areas:

0.25 acres, C = 0.22**

Pavement:

0.09 acres of new PCC, C = 0.95



Use Equation 4A-5_2 to determine a composite C:

$$C = \frac{(0.18 \times 0.49) + (0.25 \times 0.22) + (0.09 \times 0.95)}{0.18 + 0.25 + 0.09} = 0.44$$

Another way to look at this, using the same example, is through percent land use. Assume we were given or estimated that 34.6%* of the drainage area is residential lots, 48.1%* is open lots, and 17.3%* is PCC roadway (with the assumptions stated above for all of these). Composite C is calculated as follows:

$$C = \frac{(34.6\% \times 0.49) + (48.1\% \times 0.22) + (17.3\% \times 0.95)}{100\%} = 0.44$$

* Percent values were calculated by dividing the sub area by the total area and multiplying the resultant by 100.