

III. Impervious Acre Credits of Upland Best Management Practices

Upland BMPs are stormwater BMPs that meet the water quality criteria and design standards in the Manual. Upland BMPs include structural practices, nonstructural practices, and alternative surfaces. Impervious acre credits may be achieved when upland BMPs are implemented as part of a restoration, retrofit, or redevelopment project that provides water quality treatment for previously unmanaged impervious surfaces. BMPs must function properly to ensure that the expected water quality improvements are achieved. Upland BMPs must be regularly maintained and inspected a minimum of every three years. BMP data must be submitted within the MS4 Geodatabase.

1. Structural Practices

The impervious acre credit for structural practices is based on the impervious acres in a BMP's drainage area, the depth of rainfall treated, and the water quality volume (WQ_v) standards found in the Manual. For restoration and impervious acre crediting, the rainfall depth treated may be less than the 1 inch required for the WQ_v. For the purposes of this Guidance, the rainfall depth treated in restoration practices is referred to as the water quality treatment volume or "WQ_T". Treatment of 1 inch of rainfall across the drainage area of the BMP will provide full credit for the impervious acres in the BMP's drainage area. This WQ_T is considered the minimum treatment level for 1 impervious acre credit of restoration. Opportunities for restoration that treat less than 1 inch of rainfall (i.e., WQ_T < 1 inch) can be pursued where they make sense to an MS4 jurisdiction for local water quality, flooding, or co-benefits. Where the WQ_T is less than 1 inch, the impervious acre credit will be pro-rated on the fraction of the rainfall depth treated (see Equation 1).

Equation 1. Impervious Acre Credits for Structural Practices

$$\text{Impervious Acres in Drainage Area} \times \left(\frac{\text{Rainfall Depth Treated}}{1 \text{ inch}} \right) = \text{Impervious Acre Credit}$$

Examples:

A structural BMP with a drainage area of 10 impervious acres receives the following credit based on the rainfall depth treated:

$$10 \text{ Impervious Acres} \times \left(\frac{1.0 \text{ inch Rainfall Depth Treated}}{1 \text{ inch}} \right) = 10 \text{ Impervious Acres Credit}$$

$$10 \text{ Impervious Acres} \times \left(\frac{0.75 \text{ inch Rainfall Depth Treated}}{1 \text{ inch}} \right) = 7.5 \text{ Impervious Acres Credit}$$

$$10 \text{ Impervious Acres} \times \left(\frac{0.5 \text{ inch Rainfall Depth Treated}}{1 \text{ inch}} \right) = 5 \text{ Impervious Acres Credit}$$

2. Nonstructural Practices

Nonstructural practices acceptable for MS4 restoration must meet the design criteria found in Chapter 5 of the Manual. These practices include disconnection of rooftop runoff,

disconnection of non-rooftop runoff, and sheetflow to conservation areas. Nonstructural practices combine relatively simple features, grading, and landscaping to divert runoff into vegetated areas and away from conventional storm drain systems. Runoff flows over these areas, filters through the vegetation, and soaks into the ground.

Impervious acre credits for nonstructural practices are directly proportional to the amount of impervious acres in a watershed that are disconnected from the storm drain system (see Equation 2).

Equation 2. Impervious Acre Credits for Nonstructural Practices

Impervious Acres in Drainage Area × Percent Disconnect = Impervious Acre Credit

Example

A drainage area of 10 impervious acres will receive the following credit based on the percentage of impervious acres that are disconnected:

10 Impervious Acres × 100% Disconnect = 10 Impervious Acres Credit

10 Impervious Acres × 75% Disconnect = 7.5 Impervious Acres Credit

10 Impervious Acres × 50% Disconnect = 5 Impervious Acres Credit

3. Alternative Surfaces in Chapter 5 of the Manual

Alternative surfaces accepted for MS4 restoration must meet the design criteria found in Chapter 5 of the Manual. These practices include green roofs, permeable pavements, and reinforced turf. Replacing one acre of impervious surface with an approved alternative surface provides a credit of one acre of impervious area restoration.

4. Redevelopment

Impervious acres that drain to upland BMPs where the State regulatory requirements for redevelopment are met or exceeded are eligible for restoration credit. Since 2010, State regulations require water quality (WQ) treatment for 1 inch of rainfall for fifty percent of the untreated existing impervious acres within the project's limit of disturbance (LOD). Additional credit may be granted for any untreated existing impervious acres that are treated to meet or exceed the fifty percent requirement (see Equation 3).

Equation 3. Impervious Acre Credits for Redevelopment

Existing Untreated Impervious Acres × % of the Existing Untreated Impervious Acres Treated for WQ through Redevelopment = Impervious Acres Restoration Credit

Examples

Below are examples of the credits that a redevelopment project would achieve for treating different percentages of an existing 10 acres of untreated impervious surface within the LOD.

*10 Existing Untreated Impervious Acres ×
50% of the Existing Untreated Impervious Acres Treated for WQ through Redevelopment =
5 Impervious Acres Restoration Credit*

*10 Existing Untreated Impervious Acres ×
75% of the Existing Untreated Impervious Acres Treated for WQ through Redevelopment =
7.5 Impervious Acres Restoration Credit*

*10 Existing Untreated Impervious Acres ×
100% of the Existing Untreated Impervious Acres Treated for WQ through Redevelopment =
10 Impervious Acres Restoration Credit*