

Buffer Strip

A buffer zone is an area of unmanaged permanent surface or ground vegetation used to reduce sediment, organics, nutrients, pesticides and other contaminants from runoff and to maintain or improve water quality. It slows the velocity of water, filters suspended soil particles and increases infiltration of runoff and soluble pollutants and adsorption of pollutants on soil and plant surfaces. Buffer strips function in the following manners:

- Plant stems slow and disperse flow of surface runoff and promote settling of sediment
- Roots stabilize the trapped sediment and hold soil in place.
- Particulates and sediment-attached pollutants are trapped along with the sediment.
- Improved infiltration of surface runoff and vigorous growth of vegetation promote uptake and transformation of dissolved contaminants by plants and soil microbes.
- Dissolved contaminants may be similarly removed from shallow ground water and used in production of plants and biomass.

Buffers can vary widely in their vegetation and location on the landscape in order to enhance specific ecological functions that achieve conditions landowners and other stakeholders want.

Advantages

- Help remove sediment and other insoluble contaminants
- Work well in residential areas
- Require relatively low maintenance
- Effective along stream banks, grassed dikes, swales, slopes, outlets, level spreaders and filter strips

AT-A-GLANCE SUMMARY

Benefit

High 

Moderate 

Minor/None 


Flow attenuation 

Runoff volume reduction 

Pollutant Removals

Total Suspended Solids 

Floatables 

Heavy metals 

Oil and grease 

Fecal coliform 

BOD 

Total Phosphorous 

Nitrogen 

Costs 

Maintenance 

Buffer Strip

- May be used on any site that will support vegetation
- Particularly effective on flood plains, adjacent to wetlands or other sensitive water bodies and on steep unstable slopes
- One of the more cost effective BMP options



Source: Lake County (IL) Health Department and Community Health Center

Limitations

- Not well suited for slopes $> 5\%$
- Can be difficult to maintain sheet flow which is necessary to ensure proper strip functioning
- In general, should not accept highly contaminated “hotspot” runoff, due to the tendency to contaminate groundwater
- Can be ineffective in areas with poorly drained soils
- Tend to be a poor retrofit option because they can consume a large amount of land

(Metropolitan Government of Nashville and Davidson County (TN), 2000 and Metropolitan Council (MN), 2001)



Source: Iowa State University, University Extension

Buffer Strip

Costs

Costs to retrofit are similar to the costs of filter strips. Please refer to pricing on the “Filter Strip” fact sheet for additional information.

Maintenance

Maintenance tasks for buffer strips include:

- Inspect buffer zones monthly for the first year after construction and annually thereafter.
- Maintenance shall consist of mowing, weeding and ensuring that the irrigation system is operating properly and as designed to sustain growth.
- Inspect buffer strips after significant storm events (10-year storm event or larger). Repair eroded or damaged areas as needed to maintain original purpose and effectiveness of the buffer strip.

(Metropolitan Government of Nashville and Davidson County (TN), 2000)

Eligibility for a Storm Water Credit

In order for a parcel to be eligible for a buffer zone credit the following criteria must be met:

- No more than 20% of the property (defined as an individual parcel by PVA) can be classified as impervious surface (as defined by SD1 Storm Water Policies).
- The unmanaged buffer zone must be a minimum of 50 feet in width throughout its length.
- The buffer strip should have a minimum slope of 2% and a maximum slope of 5%..
- Flow conveyed to the buffer strip must be sheet flow. Flow discharging from a defined channel or a closed system directly into a buffer zone is not eligible for this credit.

Calculating Credit

Credit will be calculated based on the percentage of the impervious area runoff that is properly directed to the buffer zone.

Additional Resources

Visit www.sd1.org to obtain a list of suggested vegetation that is appropriate for use in a buffer strip.