

# **Appendix F**

## **Riparian Buffer Guidance**

Riparian Buffer

Recommended buffer standards are adapted from Chapter 5.1.2 of the DEC Stormwater Design Manual with suggested modifications that reflect local urban and agricultural land uses, unique resources and site conditions specific to Smokes Creek. Riparian buffer functions include mitigation of stormwater discharges, floodplain protection, groundwater-surface water interaction, wetland protection, instream habitat, and terrestrial habitat protection and connectivity. A three-zone buffer approach is recommended as shown in Figure 1.

Figure 1 – Three-Zone Stream Buffer  
DEC Stormwater Design Manual, 2015

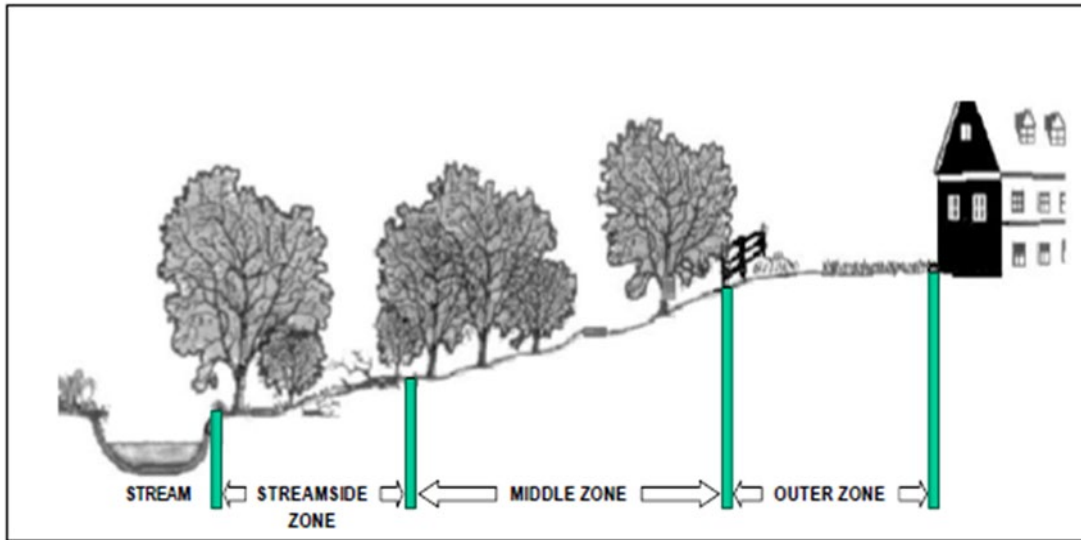


Table 1 summarizes buffer zone criteria. The Streamside Zone should be measured landward from the meander belt to accommodate lateral movement of the channel. The Middle Zone should extend landward from the Streamside Zone at least 50 feet and/or the extent of the 100-year floodplain. The Outer Zone should extend landward of the Middle Zone to within 25 feet of structures, impervious surfaces or intensive agricultural uses (e.g., row cropping, pasture with frequent grazing, etc.). Where constrained by existing development, roads and other features, buffer averaging along the same side of the stream corridor or increases to buffer width on the opposite bank should be explored so that the total acreage of buffer within the immediate area is maintained.

The vegetation target describes what types of vegetation should be established or enhanced and recommended uses provides guidance on recommended levels of activity within each zone. Where city-owned land, public drainage easements and other instruments are in place within the Streamside Zone and Middle Zone, land conservation measures are not required; however, where Smokes Creek flows across private land conservation tools should be considered.

Table 1 Riparian Buffer Zone Criteria

Criteria	Streamside Zone	Middle Zone	Outer Zone
Width	Minimum of 25 feet from meander belt and contiguous wetlands, bluffs and groundwater seepage areas and other critical habitat	Minimum of 50 feet from streamside zone, plus 100-year floodplain	25-foot setback from structures, impervious cover, or other intensive urban or agricultural land uses

Vegetation Target	Undisturbed mature forest or unmaintained prairie in rural/agricultural areas	Managed forest with retention of native herbaceous, shrub and tree canopy strata; or sustainably managed grassland in rural/agricultural areas	Native grassland, woodland or forest encouraged
Recommended Uses	Low impact uses that do not encroach on stream or forest habitat	Low impact residential and agricultural uses, recreational trails, stormwater practices that protect streamside zone	Low impact urban and agricultural uses are encouraged. Stormwater controls that mitigate impacts of residential development.
Land Conservation Tools	Protective easements/fee title	Protective easements/fee title; landowner education	Landowner education

#### Riparian Buffer Enhancement

Riparian buffers may be negatively impacted by current and historic land use, invasive species, dumping, all terrain motor vehicles, mountain bikes, agricultural practices, and grazing to name just a few. These impacts reduce the capacity of the buffer to protect Smokes Creek and provide broader ecological functions. Key elements of riparian buffer enhancement include:

- Control invasive species (especially glossy buckthorn, common buckthorn and multiflora rose)
- Remove yard waste, debris and fill material.
- Control/manage access of motorized vehicles/mountain bikes
- Stabilize erosion hot spots on streambanks and bluffs
- Reroute stormwater outfalls to level spreaders, infiltration ponds and other facilities that attenuate discharge, improve water quality and promote infiltration.
- Supplement existing plant communities with tree, shrub and herbaceous planting, consistent with species composition of locally occurring natural communities (See Attachment A).

#### Riparian Buffer Creation

Where the Streamside, Middle or Outer Zone is lacking or does not meet minimum width requirements, the riparian buffer can be expanded to protect Smokes Creek and adjacent sensitive resources more fully. Site hydrology, soils, and comparable areas (same elevation, landform) should be evaluated to determine historic natural community. Tree, shrub and herbaceous plantings consistent with locally occurring natural communities (See Attachment A) should be planted within applicable riparian zones.

