

## 1.3 Stream Corridor Protection Zone

A stream corridor protection zone consists of the stream and the riparian area along the stream. Its purpose is to allow the natural, lateral movement of open water courses and prevent structures from being impacted by natural stream bank erosion.

### 1.3.1 Definitions

The total width of the stream corridor protection zone for Tier I and Tier II streams shall be established using the following criteria, whichever is greater:

- 1) The Federal Emergency Management Agency (FEMA) designated 100-year floodway, or
- 2) **Table 1-1**, based upon the upstream drainage area of the stream.

**Table 1-1**  
**Required Stream Corridor Protection Zone Width By Contributing Drainage Area**

| Contributing Drainage Area (ac) | Stream Corridor Protection Zone Width (ft) <sup>1</sup> |
|---------------------------------|---|
| <100                            | 50  |
| 101-250                         | 75  |
| 251-500                         | 100   |
| 501-800                         | 125   |
| 801-1200                        | 150   |
| 1201-2000                       | 175   |
| >2000                           | 200   |

In most instances the stream corridor protection zone is located by placing its centerline over the centerline of the watercourse. However, individual site conditions including, but not limited to, topography and slope must be considered when determining the precise location of the stream corridor protection zone.

The width of the stream corridor protection zone will be extended to include slopes that are greater than 15 percent and begin at a point within the stream corridor protection zone. The maximum width of the stream corridor protection zone extension shall be to the top of the slope or to a point up-slope, as measured horizontally, where the width of the stream corridor protection zone is doubled, whichever is less. Slope protection widths may be extended beyond these limits at the City's discretion on a case-by-case basis.

<sup>1</sup> Based on the following equation:

$$\text{Stream Corridor Protection Zone, in feet of width} = 117 (\text{DA})^{0.43}$$

where DA is the drainage area of the stream in square miles. This equation was developed and recommended by the Ohio Department of Natural Resources (ODNR) based on regional curve analysis for various watercourses measured in the eastern United States region. Based on studies conducted by Ward (2001), Williams (1986), and Leopold (1978), the equation yields a protection zone wide enough to include a meander belt width plus two channel widths.

### **1.3.2 Permanent Protection of the Stream Corridor**

The stream corridor protection zone shall be kept in as natural state as possible so that it can perform its inherent function of erosion protection, flood storage, and water quality protection. In order to ensure the permanent protection of the zone, the developer shall provide for the permanent protection of the zone.

The developer shall identify on the plat or plan and visibly delineate on the site the stream corridor protection zone prior to any construction on the site to prevent excursions onto the zone during construction. Such delineation must be submitted to the Director of Public Utilities or the Director's designee for review and approval prior to construction.

No later than the conclusion of construction, the developer shall permanently delineate the stream corridor protection zone in an aesthetically harmonious manner, approved by the director, such that the location of the zone is apparent to casual observer and that permits access to the zone.

Language preventing property owners from constructing facilities and performing activities that are prohibited within the stream corridor protection zone, as described in Section 1.3.3, shall be shown on the plat and reflected on all deeds. Land designated as a stream corridor protection zone may, at the option of the land owner, be deeded in fee simple to the city of Columbus.

That portion of a lot or parcel reserved as the stream corridor protection zone may be included in the total area for computing the density permitted by the particular underlying zoning district for that parcel even if ownership of the stream corridor protection zone is subsequently transferred. The resulting increase in net density permitted on that portion of the lot or parcel located outside of the stream corridor protection zone is acceptable to the extent that the gross density for the total area does not exceed the density prescribed by the underlying zoning district.

### **1.3.3 Prohibited Uses in the Stream Corridor Protection Zone**

**Table 1-2** lists facilities/activities that are prohibited within the stream corridor protection zone. Where feasible, stormwater pipe outfalls shall be located outside the stream corridor protection zone and discharged into a constructed open channel with appropriate protection from erosion.

**Table 1-2**

**Facilities and Activities Prohibited in the Stream Corridor Protection Zone**

| Prohibited Facilities  | Prohibited Activities*  |
|--|---|
| <ul style="list-style-type: none"> <li>▪ Buildings/structures (except bridges)</li> <li>▪ Swimming pools</li> <li>▪ Signs</li> <li>▪ Billboards</li> <li>▪ Fences</li> <li>▪ Electric lines (with the exception of transmission lines)</li> <li>▪ Utility lines or pipes (except for necessary public sanitary, water, stormwater [see above] and public utility transmission lines as approved by the City)</li> <li>▪ Telecommunications lines (with the exception of transmission lines)</li> <li>▪ Cable TV lines</li> <li>▪ Other improvements deemed unacceptable to the City</li> </ul> | <ul style="list-style-type: none"> <li>▪ Agriculture</li> <li>▪ Industry/ commercial business</li> <li>▪ Filling</li> <li>▪ Excavation</li> <li>▪ Ditching/diking</li> <li>▪ Removal of topsoil, sand, gravel, rock, oil, gas</li> <li>▪ Any other change in topography other than what is caused by natural forces</li> <li>▪ Herbicides/pesticides</li> <li>▪ Removal of native ground cover/vegetation except as approved by the City</li> </ul> |

\* Unless designated a permitted use by the City

**1.3.4 Permitted Uses in the Stream Corridor Protection Zone**

Uses permitted within stream corridor protection zone include, but are not limited to, the following:

- 1) Passive uses including hiking, fishing, picnicking, and similar uses. Construction of paved trails to further such passive recreation uses is permitted; however, trails that become damaged due to natural erosion should not be repaired but should be moved upland or removed altogether
- 2) Vegetation removal on existing levees and dikes
- 3) Activities by City personnel that are necessary to maintain the function of any open watercourse and the West Columbus Local Protection Project (floodwall)
- 4) Removal of damaged or diseased trees
- 5) Revegetation and/or reforestation with plantings of native species
- 6) Public utilities (Those utilities owned by the City, suburb or any entity contracting with the City as defined by Title 11 of the City Code.)
- 7) Street crossings
- 8) Excavation for providing compensatory floodplain volume immediately adjacent to the channel
- 9) Construction activities associated with properly permitted stream restoration projects

- 10) Disturbances resulting from permitted stream and/or wetland mitigation projects provided the mitigation is to offset impacts to local protected wetlands (See Section 1.5)

Disturbances within the stream corridor protection zone as a result of a permitted use must be mitigated through revegetation/reforestation, with the exception of vegetation removal for floodwall and dike/berm maintenance and inspection.

### 1.3.5 Applicability of Stream Corridor Protection Zones

**A Stream Corridor Protection Zone is required for all projects subject to this manual, except as follows:**

*Exemption 1* – Stream corridor protection zones will not be required along existing streams located within the Downtown Zoning District as defined in City Code 3359.03 (See **Figure 1-1** at the end of this section).

*Exemption 2* – Where the stream corridor protection zone falls beyond the limits of the existing West Columbus Local Protection Project (floodwall) along the Scioto River the limits of the stream corridor protection zone shall end at the river side face of the floodwall or floodwall easement.

*Exemption 3* – The size of the stream corridor may be reduced if the project is a redevelopment, and the existing buildings already exist within the protection zone. The redevelopment shall not encroach further into the protection zone.

## 1.4 Floodplain Preservation and Developments within Special Flood Hazard Areas

All development within FEMA designated Special Flood Hazard Areas is subject to conditions of the City of Columbus' Title 33 Zoning Code, Chapter 3385 Flood Plain Development. The process for approving and administering floodplain fill permits is administered by the Columbus Development Department.

With the exception of fills associated with widening an existing public roadway within a FEMA designated Flood Hazard Area, fill within the FEMA delineated 100-year floodplain outside of the stream corridor protection zone must be compensated by removing an equivalent volume of material. (Information on FEMA's 100-year floodplains can be obtained through ODNr's Geographic Information Management Systems metadata or directly through FEMA.) The amount of compensatory storage shall be determined by the volume of material removed above the ordinary high-water mark of the stream and below the 100-year flood elevation established for the area. For development sites that border either side of a stream reach, first consideration for volume compensation shall be given to expanding the stream's existing floodplain where fill is not being proposed. The practice of utilizing added volumes to detention basins upland of the stream's existing floodplain as floodplain compensation is discouraged on streamside development sites. Reductions in volume due to floodplain fills must be mitigated within the legal property boundaries of the development.

Disturbances created within the stream corridor protection zone for the purpose of providing compensatory floodplain storage adjacent to the stream are permitted; however, all disturbances must be mitigated through reforestation and revegetation. A streambank restoration plan that incorporates bioengineering techniques shall be prepared for compensatory floodplain fill work that occurs immediately adjacent to the stream bank. The streambank restoration plan shall be submitted as part of the Storm Water Management Report and Construction Plan submission (Part II) for the project. The means and methods for stream restoration work, including non-vegetative and vegetative materials, shall be shown in the plan. Streambank restoration plans shall be prepared and signed by a Professional Engineer, with assistance from a stream restoration specialist and/or a Professional Landscape Architect, and shall be designed and constructed to withstand the inundation, stream velocities, and channel stresses associated with the 100-year flood event without structural failure. Guidance and further references for streambank stabilization techniques are provided under USDA's *Stream Corridor Restoration: Principles, Practices and Processes* and *Engineering Handbook*.

Embankment slopes proposed in compensatory storage areas must reasonably conform to the natural slopes adjacent to the disturbed area. The use of vertical retaining structures constructed of concrete, brick, block or other like-material is specifically prohibited. The use of crib walls with bioengineered fascines may be approved on a case-by-case basis.

Figure 1-1

Downtown Zoning District as Defined in City Code 3359.03



## 1.5 Wetland Protection Policy

The City of Columbus supports the preservation of existing wetlands and values the stormwater benefits that they provide. Wetlands have been determined to provide flood and storm control by the hydrologic absorption and storage capacity; pollution treatment by nutrient uptake from wetland plants and the filtering of silt and organic matter by settlement; protection of subsurface water resources by recharging ground water supplies; and wildlife habitat in nesting areas, feeding grounds, and cover for many species including migratory waterfowl, rare, threatened, or endangered wildlife species.

Jurisdictional and isolated wetlands on development sites shall be delineated by a qualified professional as required by the US Army Corps of Engineers (Corps) and the Ohio Environmental Protection Agency (OEPA). Wetland boundaries shall be mapped in an acceptable electronic format and submitted to the Stormwater Management Section. Copies of all permit applications and any associated wetland mitigation plans shall also be submitted to the Stormwater Management Section with the Stormwater Management Report.

Where wetlands protected under federal or state law are located partially within the stream corridor protection zone, the stream corridor protection zone shall be extended to include the full extent of the wetland area.

For impacted wetlands that fall outside the stream corridor protection zone, the City encourages the mitigation of proposed impacts to occur within the limits of the development site but not outside the watershed. To encourage onsite/intra-watershed wetland mitigation, the City will consider the location of mitigation projects within the stream corridor protection zones of properties that are located adjacent to a tributary stream provided that:

1. Impacts to isolated wetlands and associated mitigation plans are approved/permited by the Corps and/or OEPA and
2. Wetlands constructed for mitigation purposes are not used to serve as a stormwater Best Management Practice (BMP) to treat onsite stormwater runoff.

The stormwater system design for the project shall ensure that the predevelopment quantity and quality of stormwater flows directed to any protected wetlands is maintained. Constructed wetlands (including bio-retention basins) shall not be considered subject to these requirements. Existing wetlands shall not be used for stormwater management or stormwater runoff quality treatment of the development site.