

RIPARIAN BUFFER REGULATIONS TECHNICAL BULLETIN

Through the Pennsylvania Municipalities Code (MPC), Act 247 Sections 605 and 503(2)(v), municipalities are encouraged to regulate the land near watercourses in their Township Zoning Ordinance and Subdivision and Land Development Ordinance (SLDO).

“Riparian” refers to the vegetated area of land adjacent to a watercourse, pond, lake, or wetland. The use of forested riparian buffers is one of the most cost-effective techniques for the protection of surface water quality. The vegetation in a buffer slows the flow of stormwater, improving infiltration

rates and assisting in the filtering of pollutants and sediment prior to them reaching a water body. Forested buffers along streams also stabilize stream banks and protect the water from direct sunlight, helping to cool the water and improve aquatic habitats. Furthermore, fallen leaves from trees along streams serve as food and shelter for aquatic species. These forested buffers are especially critical in sensitive headwater areas.

The text box below presents model standards for watercourse and riparian buffer protection.

SAMPLE MODEL ORDINANCE

3.5 Riparian Buffers Protection Standards.

3.5.1 Riparian Buffer Definitions.

3.5.2 Two Forested Riparian Buffer Zones. The forested riparian buffer shall consist of two Zones: Zone One, Inner Riparian Buffer and Zone Two, Outer Riparian Buffer. The provisions of Sections 3.5.3 and 3.5.4 below shall determine the specific widths of the individual riparian buffer zones. The total riparian buffer, consisting of Zone One and Zone Two, shall be a minimum of one-hundred (100) feet in width on each side of the watercourse.

3.5.3 Zone One – Inner Riparian Buffer. This zone shall begin at each edge of any identified watercourse and shall occupy a margin of land on each side, each with a minimum width of thirty-five (35) feet. The width of such margin shall be measured horizontally on a line perpendicular to the nearest edge of the watercourse at bankfull flow, as reviewed and approved by the municipal engineer. Where very steep slopes (+25%) are located within or extend beyond the thirty-five (35) foot margin, the Zone One buffer shall be extended to include the entirety of the very steep slopes up to the total buffer width of one-hundred (100) feet on either side of the subject watercourse. Under such circumstances, the Zone One buffer may constitute the total riparian buffer and the restrictions of the Zone One buffer shall apply. No woodland disturbance, land disturbance, or timber harvesting shall be permitted within the Zone One Riparian Buffer, except for those uses or activities listed below:

- a. Regulated activities (such as permitted stream or wetland crossing) that are permitted by the Commonwealth, Army Corps of Engineers or other Federal agency;
- b. Provision for unpaved trail and trail access;
- c. Selective removal of hazardous or invasive alien vegetative species;
- d. Vegetation management in accordance with an approved landscape plan or open space management plan;
- e. A soil conservation project approved by the Chester County Conservation District; or,
- f. Removal of hazardous material or septic system, junk material, overhanging tree or diseased tree.



3.5.4 Zone Two—Outer Riparian Buffer. This zone begins at the outer edge of the Zone One riparian buffer and extends to a distance of sixty-five (65) feet from Zone One. However, where Zone One is greater than thirty-five (35) feet due to the presence of very steep slopes per Section 3.5.3 above, Zone Two shall cover the remaining distance necessary to achieve a total one-hundred (100) foot riparian buffer. No more than twenty (20) percent of a Zone Two Riparian Buffer on the lot that is affected shall be regraded, filled, built upon, or otherwise altered or disturbed, except for the following activities:

- a. Activities permitted in the Zone One Riparian Buffer.
- b. Timber harvesting, when conducted in compliance with a timber harvesting plan approved by the Township.

3.5.5 Riparian Buffer Disturbance. The following practices and activities are prohibited within the forested riparian buffer (both Zones One and Two), except with approval by the Township and, if required, the Pennsylvania Department of Environmental Protection:

- a. Clearing of existing vegetation except as specifically permitted in Sections 3.5.3 and 3.5.4 above.
- b. Soil disturbance by grading, stripping, or other practices.
- c. Filling or dumping.
- d. The use, storage, or application of pesticides, except for the spot spraying of noxious weeds or non-native species.
- e. Housing, grazing, or other maintenance of livestock.
- f. Storage or operation of motorized vehicles, except for maintenance of emergency use approved by the Township.
- g. Clearcutting or grubbing of timber.

3.5.6 Maintaining Riparian Buffer Vegetation. If currently wooded, the riparian buffer shall be maintained as woodlands. In places where the riparian buffer is not wooded, and until such buffers have become wooded, the buffer shall be maintained as a filter strip of dense grass and forbs no less than one (1) foot high or other methods to provide sediment filtering, and nutrient uptake, as well as to convert concentrated flow to uniform, shallow sheet flow.

3.5.7 Restoring Riparian Buffer Vegetation. When a subdivision or land development is proposed where there is no existing vegetated or wooded buffer (such as in agricultural areas), a one-hundred (100) foot forested riparian buffer shall be required in accordance with the following guidelines:

- a. Forest or other suitable vegetation shall be promoted through natural succession. Selective planting shall also be incorporated on sites devoid of vegetation to stimulate native species and discourage invasive species.
- b. Plant selection, planting, and on-going maintenance shall be planned by a landscape architect under the guidance of a licensed ecologist, the USDA, the Chester County Conservation District, the Pennsylvania Department of Environmental Protection, or the Pennsylvania Department of Conservation and Natural Resources.
- c. The following land uses and or activities are designated as potential water pollution hazards and shall be set back from any watercourse or, lake or pond by the distance indicated in Figure 3.2.

GENERAL NOTES

- **Avoid Conflicting Standards:** Some municipalities include riparian buffer standards in their stormwater management ordinance. Such municipalities should be careful not to create duplicate or conflicting standards in their stormwater management ordinance and their zoning ordinance.
- **Extending the Riparian Buffer Standards:** An additional section can be added after Section 3.5.5 that will address the option for extending the width of the riparian buffer under unique circumstances.
- **Enhancing Riparian Buffer Standards:** Each municipality may consider modifying the above sample riparian buffer standards and widths based on a desire for increased protection, and based on the existing level of land development in which streams or other watercourses are located. A wide forested buffer that is effective in a rural municipality may simply not be feasible in a densely developed suburban or urban community.

WeConservePA, the statewide organization that provides support to Land Trusts in Pennsylvania, has published a Guide and Model Ordinance for Pennsylvania Municipalities, Riparian Buffer Protection via Local Government Regulation. This model ordinance also uses a two-zone forested buffer of 100 feet for attaining streams but increases the minimum required width to 150 feet for impaired streams and streams designated as Special Protection (Exceptional Value and High Quality) waters. WeConservePA's model ordinance also includes a riparian buffer restoration requirement for impacted buffers, and a modification provision that permits limited exceptions to the width and restoration requirements in unique circumstances.

BENEFITS

- **Fosters Cooperation:** Ordinances inform property owners and developers of a municipality's zoning requirements before they make development plans, helping to maintain and protect existing buffer zones while encouraging new plantings. This proactive approach encourages cooperation between municipalities and private parties.
- **Focused on Resources:** By developing an ordinance on natural resource protection, specifically for forested riparian buffers, a municipality can allocate its resources to maintain and negate potential disturbance.
- **Implements Municipal Plans:** The enactment of a riparian buffer protection ordinance helps implement municipal plans, including the Comprehensive Plan and Open Space Plan, complementing existing Zoning and Subdivision and Land Development Ordinance (SALDO) provisions.
- **Can be Linked to Zoning and Subdivision and Land Development Ordinances:** Municipal natural resource ordinances should include regulations that link proposed development or subdivision to limit potential disturbance. This ensures that potential conflicts are addressed during the plan review stage—to ensure setbacks of buildings do not fall within the specified forested riparian buffer zones. In cases where only a building permit is needed, the code enforcement officer can review plans to prevent construction within designated forested buffer zones.
- **Supported by Grant Funding:** Developing a forested riparian buffer protection ordinance can be supported through county and federal funding sources to those showing a cohesive plan and technical readiness for development.
- **Codifies Public Improvements:** Official maps enhance the credibility of planning efforts by codifying public improvements from the municipal comprehensive plan.



Buffers often slow flooding downstream through absorption of stormwater, while collecting pollutants during rain events.

- **Provides Ecological Benefits:** Riparian buffers provide water quality benefits including, protecting the quality of the water we drink; stabilizing stream banks and minimizing erosion; reducing flooding downstream by absorbing and slowing the flow of stormwater; preventing sedimentation, which can choke off stream bottom life; providing shade, which helps to control stream temperature fluctuations and prevent elevated temperatures harmful to aquatic life; providing food and habitat for wildlife; allowing for wildlife movement within corridors; protecting associated wetlands; and, providing the potential for outdoor recreational opportunities.

MISCONCEPTIONS

- **Does Not Have to be the Entire Municipality:** If a municipality adopts a riparian buffer protection ordinance, the provision will only apply within the zones of existing riparian buffer—specifically to maintain and prevent disturbance.

WHAT CAN BE INCLUDED

Enactment of zoning ordinance amendments can be found in Article VI. Zoning of the Pennsylvania Municipalities Code (MPC).

Features identified in the Brandywine Conservancy Model

- Riparian Buffer Definitions
 - Forested Riparian Buffer
 - Native Plant Species
 - Wildlife Corridor
- Riparian Buffer Zones (Two Forested Zones): identifying the width of each forest riparian buffer zone on either side of the watercourse.
 - Zone One (Inner Riparian Buffer): identifying provisions permitted by-right within the zone.
 - Zone Two (Outer Riparian Buffer): identifying provisions permitted by-right within the zone.
- Riparian Buffer Disturbance: identifying provision prohibited within both forested riparian buffer zone or with exception through municipal approval.
- Maintaining Riparian Buffer Vegetation: identifying the means of maintenance for riparian buffers on the sides of a watercourse.
- Restoring Riparian Buffer Vegetation: identifying specifics if a forested riparian buffer is disturbed.
 - Setbacks for Potential Water Pollution Hazards
- Protective Covenants for Riparian Buffers: a form for submission and approval through the municipality when applying for a subdivision

application to ensure the maintenance of forested riparian buffer.

- Extending the Riparian Buffer Width: additional provision to extend the forested riparian buffer beyond the minimum required width when steep slopes are found within the buffer zone.

Additional Features in Riparian Buffer Provisions

- Avoiding Conflicting Standards
- Enhanced Riparian Buffer Standards

KEY CONSIDERATIONS

- The riparian buffer protections should be supported by an adopted Comprehensive Plan.
- Robust public engagement and education should be included during development phase to address maintenance, disturbance and misconceptions about this process and provide for public and stakeholder input. It can be helpful to engage property owners with riparian buffers on their properties early in the process. Proactive transparency is important during this process.
- Riparian buffer protection ordinances typically take 8 months to a year to develop.
- Financial and technical support may be offered through county planning commissions.



ENABLING LEGISLATION

Pennsylvania Municipalities Planning Code

Article VI of the Pennsylvania Municipalities Planning Code (MPC) allows municipalities to enact, amend and repeal zoning ordinances to implement comprehensive plans, which includes riparian buffer protections, as well as other protections for other natural resources.

Delaware Code

Outlined in Delaware Code Title 9 Chapter 26 Zoning §2603, regulations outlined by the County Council include regulations adopted for the purpose of promoting the health, safety, morals, convenience, order, prosperity or welfare of the present and future inhabitants of this State, including the conservation of natural resources.

EXAMPLES

Some riparian buffer protection ordinances are stronger than others. The following are municipalities that have strong provisions within their existing ordinances:

Chester County

- Caln Township, Chester County
- City of Coatesville, Chester County
- East Fallowfield, Chester County
- Honey Brook Borough, Chester County
- Honey Brook Township, Chester County
- Kennett Township, Chester County
- Modena Township, Chester County
- Pocopson Township, Chester County
- Upper Uwchlan Township, Chester County
- West Bradford Township, Chester County
- West Brandywine Township, Chester County
- West Caln Township, Chester County

Delaware County

- Chadds Ford Township, Delaware County
- Radnor Township, Delaware County
- Upper Darby Township, Delaware County

DEVELOPMENT AND ADOPTION

Identify Goals

- Determine the features for protection within the riparian buffer ordinance, such as specific buffer zone width, maintenance of buffers and specifications for restoration (i.e., vegetation species).
- Determine whether new or amended provisions will be located in the zoning or Subdivision and Land Development ordinance.

Preliminary Steps

- Identify a budget and potential funding sources.
- Determine whether the governing body will oversee this process or if it will be delegated to the Planning Commission or a project task force.



Tree plantings act as a great way to get the community involved in restoring a riparian buffer.

- Determine if a consultant will be needed to support the development of the riparian buffer ordinance.
- Ensure that the planning team has reviewed the MPC's guidance on the development of zoning ordinances and amendments.

Identify Features to be Included in the Ordinance

- Determine the most critical features to include within the ordinance. These features should be well documented in the Comprehensive Plan and other Township planning documents.
- The most critical features to include on the map. These features should be well documented in the Comprehensive Plan and other planning documents.
- The municipality should be willing and prepared to act on all features presented on the official map if and when they become available, including identifying potential grant funds to assist in the implementation of identified public benefits.

Draft Ordinance Creation

- The ordinance should clarify the intent and purpose of the riparian buffer protection provisions, specify the protections represented, and detail its intended application.
- A planning consultant or township solicitor can assist with producing the draft ordinance.

Landowner Outreach

- Engaging landowners of properties with riparian buffers early in the process is essential for promoting transparency and fostering a clear understanding of the process.
- Holding dedicated meetings with landowners provides an opportunity for them to ask questions and fosters open dialogue between landowners and the municipality, especially if such communication has not yet been established.



Public and landowner input is essential for an effective Riparian Buffer Protections Ordinance.

Public Review and Input

- The MPC stipulates that the municipal planning commission must have 45 days to review the ordinance; however, if the commission is the one that created the ordinance, this review may not be required.
- During this 45-day review period, the riparian buffer protection ordinance must be submitted to the County Planning Commission and surrounding municipalities for a 45-day review.
- The ordinance should also be available for public review.

Adoption

- Once the 45-day review period is over and comments are collected, the municipality is required to hold a Public Hearing prior to adoption.
- If the Public Hearing does not lead to any changes or only minor corrections to the ordinance, the governing body can proceed with adopting the riparian buffer provisions, contingent on any minor corrections.
- If significant revisions are proposed, such as substantial additions or deletions of features, a new Act 247 Review and Public Hearing should be conducted before adoption.
- Upon completion of the public hearing, the governing body may vote to adopt the ordinance.
- Within 30 days of adoption, the ordinance must be sent to the surrounding municipalities.

- After adoption, the ordinance must be submitted to the county recorder of deeds within 60 days of adoption.

Next Steps

- Amend existing Zoning and Subdivision and Land Development ordinances to reflect and reference the riparian buffer provisions.
- Incorporate the riparian buffer provisions into the standard review process for Subdivision and Land Development applications and approvals.
- Update the online version of the municipalities zoning ordinance to include the new/updated riparian buffer protections ordinance either on the Township's website or through eCode.

ADDITIONAL RESOURCES

- *PA Forested Riparian Buffer Planting Guide for Landowners and Developers—Brandywine Conservancy*
- *Guide and Model Ordinance for Pennsylvania Municipalities, Riparian Buffer Protection via Local Government Regulation—Brandywine Conservancy and WeConservePA*
- *Riparian Buffer eTool—Chester County Planning Commission*
- *Riparian Buffer: Planner's Portfolio Issue 10—Delaware County Planning Department*
- *Riparian Buffers for Wildlife—PennState Extension*
- *Scientific Foundation for Shaping Riparian Buffer Protection Regulations—WeConservePA*

