

NARRATIVE FOR RIPARIAN BUFFER CREATION AND PRESERVATION IN THE TRI-COUNTY REGION

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I. INTRODUCTION TO THE NEED FOR RIPARIAN BUFFERS.

Lack of riparian buffers and their removal in the tri-county region can cause increased risk of severe flood damage and runoff pollution to both municipalities and agricultural areas as well as threaten biodiversity through destruction of wildlife habitat.¹ This in turn will decrease local food supplies, pollute natural resources, and limit local economic growth.²

In the alternative, establishment and maintenance of riparian buffers has been proven to improve a local area's drinking water quality, minimize erosion, prevent pollution and excess chemicals such as nitrogen and phosphorus, absorb the flow of stormwater preventing flash flooding, provide shade, and prevent sedimentation.³ Furthermore, riparian buffers at a stream's headwaters, abundant throughout the tri-county region, are proven to yield the most ecological benefits overall.⁴

This proposed ordinance seeks to stimulate the construction and maintenance of riparian buffers by incentivizing private landowners to maintain already existing riparian buffers and establish new riparian buffers on their land within the tri-county region. This ordinance will also fill in the gap left by existing Pennsylvania statutes, and the tri-county ordinance adopted in

¹ John Theilacker & Wesley Horner, *Riparian Buffer Protection via Local Gov't Regulation, A Guide and Model Ordinance for PA Municipalities*. <https://conservationtools.org/guides/119-riparian-buffer-protection-via-local-government-regulation> (last visited Sept. 15, 2018).

² The Economic Value of Riparian Buffers. American Rivers, http://americanrivers.org/wp-content/uploads/2016/05/AmericanRivers_EconomicValueRiparianBuffers-2016.pdf, (March, 2016).

³ John Theilacker & Wesley Horner, *Riparian Buffer Protection via Local Gov't Regulation, A Guide and Model Ordinance for PA Municipalities*. <https://conservationtools.org/guides/119-riparian-buffer-protection-via-local-government-regulation> (last visited Sept. 15, 2018).

⁴ *Id.*

2008, by outlining the process of applying for these incentives.⁵ The ordinance is designed to better consolidate the current regulations in order to streamline riparian buffer establishment and enable local landowners, in a non-threatening way, to increase their knowledge of the process.

The ordinance will address this problem by updating outdated ordinances and consolidating these regulations in a more user-friendly format in addition to clearly explaining incentives for local landowners to establish and maintain riparian buffers on their land. Extensive research has repeatedly shown that establishment and maintenance of riparian buffers in local areas increase that area's food production and wildlife habitat, as well as prevents flood damage and pollution from harmful runoff damage.⁶ Increased riparian buffer zones within the tri-county region will protect local agriculture, preserve our heritage and natural resources, as well as stimulate the local economy.⁷ These local benefits can only occur if local landowners are incentivized and provided with the current, consolidated knowledge of riparian buffer establishment and maintenance as provided in the proposed ordinance that will follow this narrative.

Now that the need for riparian buffers has been explained in the above introductory paragraphs, the outline of this narrative in preparation for the proposed ordinance will next cover the problem facing the tri-county region and will then explain why a new ordinance is needed to cover all water-ways in the area. This will be followed by an overview of successful solutions utilized by other jurisdictions, recommended solutions, and a conclusion.

⁵ Tri-County Regional Planning Commission Model Zoning Ordinance. <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5756f0e3746fb921225739a3/1465315557401/ModelZoningOrdinance.pdf>, Article 23, 23-1 to 23-8. (adopted April 24, 2008).

⁶ *Riparian Buffer Preservation*, Alliance for the Chesapeake Bay, https://conservationtools-production.s3.amazonaws.com/library_item_files/72/66/ripbuffer.pdf?AWSAccessKeyId=AKIAIQFJLILYGVD4AMQ&Expires=1537008371&Signature=u98b1GH%2BTTRHXcJsVuIWD0zyp%2F4%3D, (May, 2004).

⁷ The Economic Value of Riparian Buffers. American Rivers, http://americanrivers.org/wp-content/uploads/2016/05/AmericanRivers_EconomicValueRiparianBuffers-2016.pdf, (March, 2016).

II. THE PROBLEM FACING THE TRI-COUNTY REGION.

An important issue facing the tri-county region is the lack of riparian buffers as well as the lack of maintenance on, and removal of existing riparian buffers and the combined effect on floodplain management. Lack of riparian buffers and their removal has been proven to cause increased contamination of drinking water and pollution from pesticides and other runoff as well as incredible damage to agriculture caused by the flooding of fields and crops.⁸ Lack of riparian buffers and their removal has also decreased the economic value of homes in urban areas as well.⁹ In Dauphin, Perry, and Cumberland Counties, intermittent streams and creeks flow to the headwaters of the Susquehanna and Juniata rivers throughout both private and municipal land providing vital water-sources necessary for drinking-water, agriculture, and wildlife habitat.¹⁰ In fact, the Susquehanna River Watershed provides the Chesapeake Bay with about 50% of its fresh water.¹¹

On average, approximately 40% of the land within the tri-county region is made up of farmland.¹² As an example of damage caused by runoff, when excessive rains occur near agricultural areas lacking riparian buffers, fertilizer containing nitrogen, phosphorous, and potassium that were spread on the fields and lawns enter nearby streams.¹³ The nutrients

⁸ *Id.* at 1-5.

⁹ *Id.*

¹⁰ *Dauphin County Parks, Recreation, Open Space and Greenways Study*, Urban Research and Development Corp. <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/57435f18c2ea51905f5e1d9f/1464033049302/2009parksrecopengreen.pdf>, 2-5, (April 15, 2009), Perry County Comprehensive Plan, Perry County Planning Commission, <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5755b68e7c65e456376df26d/1465235086461/PBasicStudiesCh3.pdf>, 3-5, (June 2, 2014), and *Watershed Program*, Cumberland County, Pennsylvania (County Website), <https://www.ccpa.net/4628/Watershed>, (visited Sept. 15, 2018).

¹¹ Tri-County Planning Commission. *Element 6: Natural and Environmental Resources*. <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5745e76a8a65e22fcd2466/1464199025349/rmp-natural.pdf>. 63. (2010).

¹² The Center for Rural Pennsylvania. *Demographics – County Profiles*. http://www.rural.palegislature.us/county_profiles.cfm. Land in Farms (2012).

¹³ *Riparian and Wetland Buffers*. Guide/Model Regulations. Lehigh Valley Planning Commission. 9. (January 2011).

contained in this fertilizer continues to stimulate algae downstream in the water system.¹⁴ The algae then reproduces rapidly, choking out the natural vegetation vital for fish and other wildlife located deeper in the streambed.¹⁵ This also results in lowered oxygen levels within the water-system.¹⁶ As the excess algae dies, it becomes a toxic mixture of nutrients and chemicals, eventually choking out the natural ecosystem and ruining water quality miles downstream.¹⁷

Not only is the damage to individual landowners and farmers increased by lack of riparian buffers, but the region's natural resources, which account for more than 50% of its total land area, are threatened when its fields and woods are flooded, destroying food supplies and wildlife habitat.¹⁸ Furthermore, home values in suburban areas have been proven to fall by 26% when effects such as erosion and over-sedimentation clog nearby intermittent streams and creeks as compared to home values within riparian buffer zones.¹⁹ Based on these facts, it is absolutely necessary to encourage riparian buffer construction and maintenance in an area as closely intertwined with the local water-systems as the tri-county region.

III. A NEW ORDINANCE IS NEEDED TO ADDRESS ALL WATER-WAYS.

Existing state laws cannot adequately address this problem because they do not apply to the majority of the water-ways within Pennsylvania.²⁰ Also, the tri-county ordinance addressing riparian buffers is no longer current, establishes only technical stipulations and building

¹⁴ *Riparian and Wetland Buffers*. Guide/Model Regulations. Lehigh Valley Planning Commission. 9. (January 2011).

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Regional Growth Management Plan, 2040 Update*, Tri-County Regional Planning Commission.

<https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5a133bf6f9619a74f02ede48/1511209979361/2040RGMPExecSummary.pdf>, (June, 2017).

¹⁹ *Riparian Buffer Preservation*, Alliance for the Chesapeake Bay, https://conservationtools-production.s3.amazonaws.com/library_item_files/72/66/ripbuffer.pdf?AWSAccessKeyId=AKIAIQFJLILYGVDR4AMQ&Expires=1537008371&Signature=u98b1GH%2BTTRHXcJsVuIWD0zyp%2F4%3D, pg. 3, (May, 2004).

²⁰ John Theilacker & Wesley Horner, *Riparian Buffer Protection via Local Gov't Regulation, A Guide and Model Ordinance for PA Municipalities*. <https://conservationtools.org/guides/119-riparian-buffer-protection-via-local-government-regulation> (last visited Sept. 15, 2018).

restrictions, and many people within the area are likely not aware of its existence until they are restricted from receiving a building permit; sometimes on their own property.²¹ As such, many local landowners within the tri-county region likely have a negative view of riparian buffer regulations as restrictive and at worse, a government taking.

The current state regulation addressing riparian buffer establishment is applicable only to perennial or intermittent water sources within Exceptional Value (EV) or High Quality (HQ) Coldwater streams.²² Perennial water sources are those that flow throughout the year while intermittent streams are those that become seasonally dry when the groundwater table drops below the elevation of the streambed during a dry period.²³ Further defined, Exceptional Value (EV) water sources are those that meet the requirements of the Pennsylvania Department of Environmental Protection (DEP).²⁴ High Quality (HQ) water sources are those that contain surface waters having quality “which exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in accordance” with the regulation.²⁵ Essentially, the regulation itself establishes an area where land cannot be disturbed within a certain number of feet of these EV and HQ water sources.²⁶ For EV and HQ streams within the Commonwealth lacking a riparian buffer, the regulation requires one to be put in place within a certain amount of frontage along the water source that meets the requirements.²⁷

²¹ Tri-County Regional Planning Commission Model Zoning Ordinance. <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5756f0e3746fb921225739a3/1465315557401/ModelZoningOrdinance.pdf>, Article 23, 23-1 to 23-8. (adopted April 24, 2008).

²² 25 Pa. C.S. § 102.14 (2010) and *Riparian and Wetland Buffers*. Guide/Model Regulations. Lehigh Valley Planning Commission. 5. (January 2011).

²³ Michael Arthur, Demian Saffer, and Patrick Belmont, *Water: Science and Society*. <https://www.e-education.psu.edu/earth111/node/867>. (last visited September 22, 2018).

²⁴ 25 Pa.C.S. § 93.4b (1999).

²⁵ *Id.*

²⁶ *Riparian and Wetland Buffers*. Guide/Model Regulations. Lehigh Valley Planning Commission. 5. (January 2011).

²⁷ 25 Pa. C.S. § 102.14 (2010) and *Riparian and Wetland Buffers*. Guide/Model Regulations. Lehigh Valley Planning Commission. 5. (January 2011).

The problem is that EV and HQ streams make up only about 30% of the water-ways in Pennsylvania, leaving the other 70% unaccounted for.²⁸ In the tri-county region, only twenty-six intermittent and perennial streams are classified as being HQ and only five are classified as EV.²⁹ Every other stream is not covered under the current regulations and therefore does not require a riparian buffer. Because of this, local county governments have a responsibility to their municipalities to establish ordinances needed to protect their local water-ways and have legal authority to do so under the Pennsylvania Municipalities Planning Code (MPC), in effect since 1969.³⁰ The MPC has been updated several times and enables municipalities to implement land use planning through comprehensive community plans and zoning ordinances.³¹ The Tri-County Planning Commission does have a model ordinance containing a section on building permits in riparian areas, but this does not fill in the gap left by state regulations or incentivize the local population to encourage riparian buffer construction or maintenance.³² In keeping with the intent of the MPC, this newly proposed ordinance will not only provide an updated and easy to follow technical guide for establishment and maintenance of riparian buffers, but will also provide a detailed list of the incentives available as well as how to apply for them.

IV. JURISDICTIONAL APPROACHES TO ADDRESSING RIPARIAN PROTECTION.

Riparian buffer protection initiatives most often are addressed by jurisdictions through regulations or incentive approaches, or both. Such approaches can be found at the federal, state,

²⁸ John Theilacker & Wesley Horner, *Riparian Buffer Protection via Local Gov't Regulation, A Guide and Model Ordinance for PA Municipalities*. <https://conservationtools.org/guides/119-riparian-buffer-protection-via-local-government-regulation> (last visited Sept. 15, 2018), and 25 Pa.C.S. § 102.14. (PCSM Requirements, 2010).

²⁹ Tri-County Planning Commission. *Element 6: Natural and Environmental Resources*. <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5745e76a8a65e22fcd2466/1464199025349/rmp-natural.pdf>. 63. (2010).

³⁰ Pennsylvania Municipalities Planning Code. Act of 1968, P.L. 805, No. 247 as reenacted and amended. <http://mpc.landuselawinpa.com/MPCCode.pdf>. Eighteenth Ed. (February 2005) and *Riparian and Wetland Buffers*. Guide/Model Regulations. Lehigh Valley Planning Commission. 5. (January 2011).

³¹ *Id.*

³² Tri-County Regional Planning Commission Model Zoning Ordinance. <https://static1.squarespace.com/static/56dc3f9cb654f9876576bab7/t/5756f0e3746fb921225739a3/1465315557401/ModelZoningOrdinance.pdf>, Article 23, 23-1 to 23-8. (adopted April 24, 2008).

and local municipal levels. This section considers the regulatory and incentive approaches pursued at each governmental level, as well as how local municipalities in Pennsylvania have addressed riparian protection.

A. REGULATORY APPROACH.

The impact that proper management of riparian zones, or lack thereof, can have on the sustainability of localities, regions, and even countries, can potentially be immense. Many governmental bodies have introduced and implemented a multitude of legal regulations that either directly or indirectly address the protection and improvement of riparian buffers and floodplain management. Such regulations that at a minimum tangentially serve as a purpose for riparian zone protection can be found at the federal, state, and, most commonly, the local municipal level.

1. FEDERAL REGULATION.

Other than those relating to wetlands, there are no national programs directly addressing riparian zone protection. With that said, there exists a number of federal regulatory programs that pertain to certain riparian area protections. A federal regulatory program that has an ancillary association with the protection and vitalization of riparian zones is the Clean Water Act (CWA). The CWA “establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters.”³³ The CWA indirectly addresses riparian protection areas by requiring states and the U.S. Environmental Protection Agency (EPA) to identify waters not meeting state water quality standards and to develop Total Maximum Daily Loads (TMDL).³⁴ A TMDL represents the total amount of a pollutant a water

³³ *Summary of the Clean Water Act*, United States Environmental Protection Agency, (last updated on March 29, 2018), <https://www.epa.gov/laws-regulations/summary-clean-water-act> (accessed Sept. 18, 2018).

³⁴ 33 U.S.C. § 1251 et seq. Sec. 303(d); A TMDL is the “maximum amount of a pollutant that a water-body can receive and still be in compliance with state water-quality standards. After determining TMDLs for impaired waters,

body can contain and still meet water quality standards.³⁵ As it relates to a TMDL, riparian buffers help to directly improve sediment, nutrients, bacteria, and aquatic life standards.³⁶

Other, even seemingly unrelated federal regulations protecting riparian areas, provide for riparian zone benefits. The federal Endangered Species Act (ESA) regulates the use of land in areas that provide habitats for threatened plant or animal species.³⁷ Because riparian areas provide habitat for a plethora of plant and animal species, riparian zones concerns have in some cases become a subject addressed through the ESA.³⁸

2. STATE GOVERNMENT REGULATION.

State governments have addressed riparian buffer protections through regulatory programs as well. Many of these regulatory programs employed by state governments are addressed through three categories: statewide shoreline or riverfront protection; forest practices acts; and special area protection.³⁹

a. Statewide Shoreline or Riverfront Protection

A number of states have dedicated attention to the importance of riparian protection through shoreline or riverfront protection legislation. An example of such effort can be found in Massachusetts through its 1996 Rivers Protection Act (RPA), which established a state-level permit system for development activities within a riverfront area.⁴⁰ Under the RPA, a permit for proposed development in riverfront areas is granted if it was demonstrated that the development

states are required to identify all point and nonpoint sources of pollution in a watershed that are contributing to the impairment and allocate reductions to each source in order to meet the state standards.” *Riparian Areas, Functions and Strategies for Management*, p. 229.

³⁵ *Riparian Forest Buffer Implementation Plan 2006-2010*, Virginia Riparian Forest Panel June 2007, Virginia Department of Forestry, p 15. http://www.dof.virginia.gov/infopubs/RFB-Imp-Plan-2006-2010_pub.pdf (accessed November 28,2018).

³⁶ *Id.*

³⁷ 16 U.S.C.A. § 1531

³⁸ *Riparian Areas, Functions and Strategies for Management*, p. 229.

³⁹ *Id.* at. 235-240.

⁴⁰ *Id.* at 235; M.G.L.A. 131 § 40.

would provide no significant adverse effects on water supplies, wildlife, or flood and pollution prevention.⁴¹ Additionally, the RPA provided that in order to receive the permit, there must not exist any reasonable economic alternatives for the proposed development that would provide less adverse effects to the riverfront.⁴² New Hampshire, under its Comprehensive Protection Act, designates shorelands within 250 feet of public waters for special protection for use and development through established statewide minimum standards.⁴³ Similarly, Wisconsin enacted a shoreline zoning program which regulates property uses within certain proximities to lakes or a stream or floodplain.⁴⁴

b. Forest Practices Acts

Since 1972, at least 40 states and U.S. territories have established some form of forestry best management practices through riparian forestlands legislation.⁴⁵ States such as California, Montana, and Minnesota have regulations limiting the amount of partial timber harvest within specifically defined riparian management zones, generally within “100 feet of perennial streams,” as well as rules addressing the building of roads and road crossings, and replanting and harvest unit dimensions, among others.⁴⁶

c. Special Area Protection

Several state legislatures have identified specific locations of riparian areas as being of importance and thus established them as special protection areas.⁴⁷ California’s Delta Protection Act of 1992 (CDPA) is an example of such sort of special protection area legislation. It establishes special planning requirements within the delta of the Sacramento and San Joaquin

⁴¹ M.G.L.A. 131 § 40.

⁴² *Id.*

⁴³ N.H. Rev. Stat. § 483-B:2.

⁴⁴ WI ADC § NR 115.01.

⁴⁵ *Riparian Areas, Functions and Strategies for Management*, p. 235.

⁴⁶ *Id.*

⁴⁷ *Id.* at 238.

Rivers, in an attempt to “[p]rotect, maintain, and, where possible, enhance and restore the overall quality of the Delta environment, including . . . agriculture, wildlife habitat, and recreational activities,” and “[i]mprove flood protection . . . to ensure an increased level of public health and safety,” among other goals.⁴⁸ The CDPA explicitly states its focus on maximizing the efficacy of riparian zones within its designated special protection area by declaring a priority to “[p]reserve and protect riparian and wetlands habitat, and promote and encourage a net increase in both the acreage and values of those resources on public lands and through voluntary cooperative arrangements with private property owners.”⁴⁹ Similarly, but on a larger scale, state governments have combined efforts with the federal government to protect special protection areas, potentially most notably through the 1983 Chesapeake Bay Agreement (CBA), which has the purpose of protecting and restoring the Chesapeake Bay estuary.⁵⁰ In an effort to reduce water pollution, the executive council of the CBA instituted directives in 1994 to protect riparian buffer areas along the Chesapeake Bay.⁵¹

3. LOCAL MUNICIPAL GOVERNMENT REGULATION.

Local government land-use regulations are far more common than statewide or special area use regulations as it relates to riparian zones. In many states, statutes authorize local governments to regulate land-use within their jurisdiction. Such municipalities often provide regulations addressing riparian protection within states where regulatory riparian protection is lacking, or even absent, at the state level. An example of such arrangement can be found in

⁴⁸ West's Ann.Cal.Pub.Res.Code § 29702.

⁴⁹ West's Ann.Cal.Pub.Res.Code § 29760(b)(6).

⁵⁰ Members of the 1983 Chesapeake Bay Agreement (CBA) include Maryland, Pennsylvania, Virginia, the District of Columbia, EPA, among others. A number of member states of the CBA have themselves developed programs for riparian protection of the special protection areas of the Chesapeake Bay outside of the guidelines required in the CBA.; *Riparian Areas, Functions and Strategies for Management*, p. 238.

⁵¹ *Id.*

Pennsylvania, where, as mentioned above, its state laws allow “municipalities to adopt land use regulations to protect riparian buffers whether or not state regulations apply.”⁵²

B. PENNSYLVANIA MUNICIPALITY APPROACHES TO RIPARIAN PROTECTION.

“Pennsylvania’s local governments have approached riparian buffer protection through zoning ordinances, subdivision and land development ordinances, storm-water management ordinances, and floodplain ordinances.”⁵³ Local municipalities in Pennsylvania have found support for the enactment of regulatory riparian protection ordinances through the Pennsylvania Municipalities Planning Code (PMPC).⁵⁴

Examples can be found in a number of Pennsylvania local municipalities. Montgomery County has developed a countywide model for riparian corridor conservation districts.⁵⁵ Lycoming County has an aquatic buffer zone ordinance that prohibits disturbance of aquatic buffer zone resources in all developments.⁵⁶ Kennett Township in Chester County has fully adopted riparian buffer regulations.⁵⁷ The Kennett Township Zoning Ordinance provides for the “conservation of woodland and riparian resources . . . through resource identification, management planning, and development limitations.”⁵⁸ Similarly, Kennett Township also has a SALDO which prohibits land disturbance within any riparian buffer and prohibits woodland

⁵² Pennsylvania Municipalities Planning Code, 1987 Pa. SB 535; Theilacker, Wesley R. Horner, and Andrew M. Loza, *Riparian Buffer Protection via Local Regulation: A Guide and Model Ordinance for Pennsylvania Municipalities*, p. 1, ConservationTools.org, Pennsylvania Land Trust Association, (2014). https://conservationtools.org/library_items/1273-Riparian-Buffer-Protection-via-Local-Regulation-A-Guide-and-Model-Ordinance-for-Pennsylvania-Municipalities (accessed Sept. 21, 2018).

⁵³ John Theilacker, Wesley R. Horner, and Andrew M. Loza, *Riparian Buffer Protection via Local Regulation: A Guide and Model Ordinance for Pennsylvania Municipalities*, p. 8.

⁵⁴ *Id* at 5.

⁵⁵ Allan W. Flenner, *Municipal Riparian Buffer Regulations In Pennsylvania--Confronting The Regulatory Takings Doctrine*, pp. 218-219, Dickinson Journal of Environmental Law & Policy, (1998); Montgomery County, Pa., Countywide Model, Riparian Corridor Conservation District (1995) (providing for the restoration and conservation of riparian corridors).

⁵⁶ Lycoming County Zoning Ordinance, § 5220(D)(1) (Jan. 1, 1996).

⁵⁷ See Kennett Township Ordinance 50; Kennett Township Ordinance 46.

⁵⁸ Kennett Township Ordinance 50, § 1414.

disturbance or any other land disturbance within fifteen feet of the outermost limit of any wetland or streambank.⁵⁹

Upper Salford Township in Montgomery County adopted a Riparian Corridor Conservation Overlay in 1999 establishing an overlay district along waterways and wetlands.⁶⁰ Similarly in Montgomery County, Horsham Township passed a Riparian Corridor Preservation Ordinance in 1998.

Warwick Township in Lancaster County included a riparian buffer easement provision within its storm water ordinance in order to control land-use along riparian corridors.⁶¹ The easement is incorporated into the deed of all newly developed property and in some cases is also written as a separate specific agreement between the landowner and township.⁶² Radnor Township in Delaware County instituted the Riparian Buffer Conservation Ordinance in 2003 which was designed to protect streams, wetlands, pond edges, lake shore or any area of hydric soil.⁶³ With the township being mostly developed, the ordinance imposes flexible setbacks for established homes and regulates any further development of larger properties in the township by establishing a mandatory buffer length.⁶⁴

V. EFFECTIVENESS OF EXISTING RIPARIAN PROTECTION GOVERNANCE.

Of the many variety of laws that address riparian area protection, few recognize the importance that protection of such areas provide. In most cases, they indirectly are considered under water-quality protection or habitat management. Thus, the direct effect that riparian zone protection has on many facets are either not recognized or not acknowledged. On federal lands,

⁵⁹ Kennett Township Ordinance 46, § 516.

⁶⁰ Stream Corridor Protection Ordinance, Upper Salford Township, Montgomery County, ARTICLE XVIII RCC § 1801.

⁶¹ Warwick Township Storm Water Management Ordinance, Ordinance No. 262 Art. III § 270-36 (revised 2014).

⁶² *Id.*

⁶³ Radnor Township Ord. No. 2003-22 ARTICLE XVIII § 280-89.3 (2003).

⁶⁴ *Id.* § 280-89.6.

uses of riparian areas are not singled out for special consideration by statute or regulation. Uses of riparian areas on private lands are addressed, if at all, as a matter of local land-use regulation or through a mix of incentive programs.⁶⁵

Federal statutes provide very little guidance for federal land managers when conflicts between riparian area protection and permissible land uses arise. “Only if a federal agency proposes an activity in or affecting a riparian area that would jeopardize threatened or endangered species or violate water-quality requirements is the protection of riparian values clearly required.”⁶⁶

The protection of riparian areas currently under private ownership has been deemed especially challenging. “Striking examples of state and local programs that provide significant protection of riparian areas are relatively few in number.”⁶⁷ A good amount of states have shown willingness to address and regulate timber harvesting on private lands in riparian areas, though they have not shown nearly the same willingness to restrict other agricultural activities, except in some areas with demonstrated water-quality problems.⁶⁸ More commonly the preference has been to induce change, primarily in farming practices, through incentives provided by programs such as the Conservation Reserve Program (CRP).⁶⁹

VI. RECOMMENDATIONS FOR ADDRESSING RIPARIAN PROTECTION CONCERNS.

Article V of the Pennsylvania Municipal Planning Code grants municipalities the power to control the development or maintenance of developed areas through regulatory or incentive-based approaches to protect riparian zones. In order to address the problem of riparian protection,

⁶⁵ Riparian Areas, Functions and Strategies for Management, p. 293.

⁶⁶ *Id.*

⁶⁷ *Id.* at 292.

⁶⁸ *Id.*

⁶⁹ *Id.*; 16 U.S.C. § 3831.

a successful ordinance will necessarily incorporate several important approaches, including effective incentives and regulations.

A. INCENTIVE APPROACH.

Increasingly, the directive of inducing private landowners to preserve and or vitalize riparian zones has been taken upon by government bodies at the federal, state, and local level. Incentives that may be provided to private landowners in return for their attention to riparian buffer concerns on their property often include “direct payments to landowners not to develop riparian lands, payments to encourage use of environmentally compatible practices, payments or tax benefits for placing a conservation easement on the property, funding for restoration or demonstration projects, stewardship education and technical assistance, and outright purchase of the lands.”⁷⁰ Successful ordinances include a number of different methods that serve both as incentives to landowners for riparian protection, and as an additional vehicle to increase the visibility of riparian protection to the public.

1. COST-SHARING PROGRAMS.

In return for making conservational improvements or utilizing environmentally beneficial practices of land management, landowners receive a share of the associated costs under cost sharing programs. An example of such arrangement can be found under the Environmental Quality Incentive Program included in the Federal Agricultural Improvement and Reform Act of 1996, where a landowner may submit a conservation plan addressing environmental concerns, and up to 75 percent of the costs accumulated during the contract period may be reimbursed.⁷¹

Cost-share programs may greatly increase the likelihood that private landowners not only are more willing to consider participation in riparian protection action, but also will lead to a

⁷⁰ *Riparian Areas, Functions and Strategies for Management*, p. 244.

⁷¹ 16 U.S.C.A. § 3839aa-5

higher likelihood of continuous participation. In Pennsylvania, difficulties in allocation of the general fund by municipalities may lead to a majority of this funding needing to come from outside sources. Funding sources in the tri-county may be found in such grants as the Southeast PA TreeVitalize Watersheds, PA Department of Conservation and Natural Resources (DCNR), and PA Department of Environmental Protection (DEP) Growing Greener.⁷² Establishment of a private investment vehicle to assist with this purpose is also a potential viable means for this funding.

2. TAX INCENTIVES.

A significant portion of states provide tax incentives to land owners for their participation in protecting riparian zones. Virginia authorizes local governments to exempt “riparian buffers” from property taxation.⁷³ Similarly, Idaho provides tax credit incentives to landowners equal to up to half of the costs associated with fencing riparian zones to manage livestock grazing and erosion control.⁷⁴

As it relates to riparian ordinances adopted at the municipal level, any tax incentives may have to come from the state level implementation. There does exist potential methods for property tax incentives to be introduced at the municipal level in Pennsylvania, though.

The Homeowner Tax Relief Act allows school districts to reduce property taxes by lowering your property tax bill through a homestead or farmstead exclusion.⁷⁵ “Under a homestead or farmstead property tax exclusion, the assessed value of each homestead or

⁷² *Riparian Buffer Planner’s Portfolio*, Issue 10, Delaware County Planning Department, (June 2017).

⁷³ Va. Stat. § 58.1-3666; a riparian buffer under this statute is defined as an area of trees, shrubs or other vegetation, subject to a perpetual easement permitting inundation by water, that is (i) at least 35 ft in width, (ii) adjacent to a body of water, and (iii) managed to maintain the integrity of stream channels and shorelines and reduce the effects of upland sources of pollution by trapping, filtering, and converting sediments, nutrients, and other chemicals.

⁷⁴ Id. Stat. § 63-3024B.

⁷⁵ The Homeowner Tax Relief Act, Act 72 of 2004; *Homestead/Farmstead Exclusion Program*, Chester County Pennsylvania, <https://www.chesco.org/254/Homestead-Farmstead-Exclusion-Program>, (Accessed December 1, 2018).

farmstead is reduced by the same amount before the property tax is computed.”⁷⁶ Inclusion of this or other municipal property tax assessment reductions may necessitate a secondary ordinance addressing its application to a riparian protection ordinance.

B. REGULATORY APPROACH.

The success of riparian protection and/or floodplain management ordinance will consist of several elements in its regulations. First, the ordinance will explicitly state the importance of maintaining a functional riparian system.⁷⁷ Second, the ordinance will define a specified buffer area where no permanent structures are authorized and define which structures may be authorized through permit granting.⁷⁸ The buffer zone areas should be determined by local government agencies based on ecological information available.⁷⁹

Third, a successful ordinance specifies the retention of trees and percentage of land to be covered by certain vegetation within the area, and also provides for mitigation of unavoidable impairments to the riparian/floodplain areas, including “requiring restoration activities to offset structures that constrain flowage.”⁸⁰ Consideration of whether to direct mitigation or open space offsets required from the development of areas outside the riparian/floodplain zone is an important concern.⁸¹

An example of a successful regulatory riparian/floodplain zone management approach can be found in Howard County, Maryland. The regulations developed by the county prohibit developers from storing or discarding building materials and other debris into riparian/floodplain areas.⁸² Similarly prohibited are any clearing, excavating, altering drainage, impervious paving,

⁷⁶ *Id.*

⁷⁷ James M. McElfish, Jr., *Nature-Friendly Ordinances*, Environmental Law Institute, p. 116, (2004).

⁷⁸ *Id.*

⁷⁹ *Id.*; *See also Conservation Thresholds for Land Use Planners*, Environmental Law Institute, (2003).

⁸⁰ *Id.*

⁸¹ *Id.* at 117.

⁸² *Id.*

or placement of structures in riparian/floodplain areas except in limited circumstances which require authorization by the county's Department of Planning and Zoning.⁸³

VII. IMPORTANT POLICY CHOICES NECESSARY FOR ORDINANCE ADOPTION.

The economic benefits of riparian buffers must at least consist of a magnitude comparable to their costs for any such ordinance to be implementable and effective. Also, any ordinance that provides strong protection for riparian buffers will be successful only to the extent that the rights of property owners are respected. It is essential that an ordinance addressing riparian buffer protection balances the regulating of private landowner uses within riparian areas with the enticements available to induce private landowners to participate in such regulations.

Potentially just as important as this balancing act is the need for proper communication with private landowners. Communication with the public regarding the reciprocal benefits of riparian area protection is essential, but it is likely that any such attempts of communication will fall upon deaf ears if it cannot be established that participation by private individuals will at least amount to an economically equivalent return. Inherent in the expectation that landowners may recognize that their participation in riparian protection arrangements will at a minimum return a value comparable to their investment requires an express showing that the rights of property owners are not being infringed upon.

A preliminary step is to develop a public information campaign to explain the benefits of a riparian buffer ordinance, the restrictions of the buffer ordinance, and procedures for seeking variances. Good communication with property owners is essential to reduce the likelihood of opposition based on irrational fears and misunderstandings regarding the purposes and outcomes associated with the ordinance. Riparian buffers may be thought of as a small investment that yields large returns, though often many ordinances address only single-issue concerns affected

⁸³ *Id.*

by riparian buffers and likely will lose public support if such singular issue is not markedly improved by the ordinance. Ordinances that address multiple beneficial functions of riparian buffer protection and identify the realizable economic benefits available to individuals, enjoy a wider and stronger base of support. It is essential that riparian buffer ordinances assume a multifunctional approach that provides tangible expectations of beneficial outcomes for the public, and such potential benefits are clearly and widely expressed to the public. “To reach landowners, clear and concise informational materials should be prepared to inform them of the requirements of the proposed ordinance, the benefits of buffers, and the fact that the ordinance respects their rights as landowners.”

An example of successful public communication regarding ordinance adoption can be found through the process utilized by Radnor Township in Pennsylvania in implementation of its Riparian Buffer Conservation Ordinance. The township initiated an initial public hearing allowing citizens the opportunity to express their concerns regarding the potential impact of the proposal. With this feedback, the township revised the ordinance to address these concerns, and subsequently held another public hearing before adopting the ordinance.

Likewise, an ordinance that incorporates clear and concise language and fosters collaboration between the municipality and local business and developers are most successful. Horsham Township’s Riparian Corridor Preservation Ordinance is very specific in how it defines clearly the types of water bodies and watercourses that are covered by the overlay district.

Accordingly, the township has found that the specific and detailed language of the ordinance has been beneficial in preventing legal challenges. Warrick Township’s Riparian Buffer Easement provision has experienced less resistance due to the township’s active approach in engaging developers and businesses. Early intervention in the planning stage of land

development has been found by the township to be a key strategic approach to increase acceptance of the easement by developers. The township identifies properties containing riparian areas and then works with the developer in the early planning stages to protect and potentially restore the riparian zone.

VIII. HOW THE ORDINANCE WILL ADDRESS THE RIPARIAN PROTECTION ISSUE.

This ordinance will solve the problem of both maintenance on existing riparian buffers and lack of riparian buffers by educating and incentivizing local landowners throughout the tri-county region. It will also expound upon and explain the technical aspects of how to create and maintain these riparian buffers in order to maximize their efficiency and bring profitable rewards to the landowner and the surrounding areas impacted by waterflow through and around these riparian buffers. It will address the “takings” issue, which may understandably cause local landowners to fear for their property rights.

As mentioned briefly in the preceding paragraphs, economic benefits to urban areas include increased price premium for properties adjacent to or within riparian zones with buffers to be upwards of 26%.⁸⁴ The higher home values correlated with homes closer to watersheds in their community.⁸⁵ In addition, flood protection afforded by riparian buffers has also been found to increase home values in residential areas. For example, proximity to a stream can decrease a home’s value by 4% to 12% if it is within a FEMA flood zone.⁸⁶ The proposed ordinance will help local municipalities in the tri-county region continue to meet the requirements of Pennsylvania’s Stormwater Management Act and MS4 (municipal separate storm water system) program by preventing runoff such as trash and industrial waste from entering streams and then

⁸⁴ The Economic Value of Riparian Buffers. American Rivers, http://americanrivers.org/wp-content/uploads/2016/05/AmericanRivers_EconomicValueRiparianBuffers-2016.pdf, 11, (March, 2016).

⁸⁵ Id.

⁸⁶ Id.

flowing to the Susquehanna and Juniata Rivers.⁸⁷ In addition, riparian buffers established by this ordinance can lower flood insurance premiums in the tri-county region by helping local municipalities meet at least two of the requirements established by FEMA’s Community Rating System; reducing flood damage to insurable property and encouraging a comprehensive approach to floodplain management.⁸⁸

Evidence shows that more people are recognizing the increased economic value riparian buffers can provide. For example, in a survey conducted by American Rivers, in association with the University of Maryland, homeowners in residential, single-family urban communities stated they were willing to pay \$5 to \$47 per household for policies that promoted riparian buffers to protect local watersheds.⁸⁹

Besides increased economic benefits, social benefits include community enhancement and area beautification.⁹⁰ Riparian buffers can also create opportunities for recreation and improve the aesthetics of stream corridors.⁹¹ Both communities and private land owners in the tri-county region can benefit from erosion control and shade for both themselves or their cattle.

In regard to the “takings” issue, the Commonwealth court has consistently held to a “reasonableness” or “as applied test,” in that “if the impact of the regulations were to deny the property owner of all reasonable use of the land within which the riparian buffer is situated, then a regulatory takings claim would be sustained.”⁹² So, if strict compliance with the ordinance is

⁸⁷ Stormwater PA. Regulations. <http://www.stormwaterpa.org/swm-regs.html>. Green Treks Network, Inc. (2012).

⁸⁸ FEMA. National Flood Insurance Program Community Rating System. <https://www.fema.gov/national-flood-insurance-program-community-rating-system>. (last visited September 26, 2018) and *Floodplain and Riparian Area Preservation*. Dauphin County Comprehensive Plan. <https://www.dauphincountycompplan.org/floodplain/>. (last visited September 26, 2018).

⁸⁹ *Id.* at 9.

⁹⁰ The Economic Value of Riparian Buffers. American Rivers, http://americanrivers.org/wp-content/uploads/2016/05/AmericanRivers_EconomicValueRiparianBuffers-2016.pdf, 10-14, (March, 2016).

⁹¹ *Id.*

⁹² Letter from Fronefield Crawford, Jr., LLC, to John Theilacker, Associate Director for Municipal Assistance, Brandywine Conservancy, and Andrew Loza, Executive Director, Pennsylvania Land and Trust Association (May 5, 2016) (used with permission of all parties).

so costly to the private land owner than the benefit gained from its implementation, the ordinance provides authority for the granting of modifications to its provisions through application for a use variance with the burden of proof on the landowner.

IX. FINANCING OF RIPARIAN PROTECTION ORDINANCE

An obvious statement would be that the implementation of an effective riparian protection ordinance is possible only if proper funding is available. Any costs that may be associated with incentives provided to landowners such as tax incentives or cost sharing programs, or costs associated with the enforcement of certain regulations, must be offset by an equal inflow of revenue for a municipality. Sources of such funding often come in the form of grants, increases in tax revenue from tax increases or the introduction of fees, or a transfer of funds from the municipalities general fund for use of the ordinance.

As mentioned above, in Pennsylvania grants are available through several different agencies, such as Southeast PA TreeVitalize Watersheds, PA Department of Conservation and Natural Resources (DCNR), and PA Department of Environmental Protection (DEP) Growing Greener.⁹³

Deriving revenue from tax increases or fee introduction is another possible source for funding, but must be carefully considered, as overburdensome programs may lead to a negative connotation for taxpayers and have the unwanted consequence of limiting willingness to property owners or citizens to participate in the program. A potential option may be to increase property taxation for all land-use of a riparian buffer zone while at the same time offering incentive programs that will allow landowners who do participate and follow the protection requirements set forth by ordinance to be able to reduce their tax liability to the same or lower levels prior to the tax increase. Such approach will likely increase buy-in and participation by landowners. The

⁹³ *Riparian Buffer Planner's Portfolio* (June 2017).

increase in tax revenue from those who refuse to participate may offset the losses in revenue from those incentive programs provided to participating landowners. Also, in such a scenario, it is not likely that negative consequences to property value or attractiveness for development would be any more than minimal. Another tax consideration option may include reducing the municipal tax assessment of the participating landowner. While in the short-run the tax revenue may decrease, in the long-run, when taking into account a projected increase in property value due to the effects of effective riparian land conservation previously stated, the cumulative outcome would likely be a net gain.

Another possible source of funds may come from some sort of transfer from the municipalities general fund into the implementation and enforcement of the riparian protection ordinance. Because it can be shown that riparian protection can deliver short, mid, and long term environmental, economic, and social positive effects, there should exist a very compelling argument for the use of a portion of the general funds for riparian protection purposes.

X. CONCLUSION

In summary, this new ordinance will provide the tri-county region with a clearer and more current technical guide and road map to incentives that is lacking under the current model ordinance addressing riparian buffers. The new ordinance is designed using best practices from other jurisdictions and has been written with an increased focus on incentivization rather than regulation. Incentivization through cost-shares and tax incentives will encourage participation throughout the region. Under the authority of the Pennsylvania Municipalities Planning Code, the new ordinance will fill in the gaps left by current state regulations and apply to the remaining waterways that are not considered to be Exceptional Value (EV) or High Quality (HQ) water-sources.

The ordinance also seeks to educate private landowners, both urban and rural, to the benefits of riparian buffers through advertisement and community involvement. The end state is that riparian buffers will be established and protected throughout the tri-county region, adding economic and social benefits for years to come.

**RIPARIAN BUFFER CREATION AND PRESERVATION
MODEL ORDINANCE**

BOARD OF SUPERVISORS
_____ TOWNSHIP,
_____ COUNTY, PENNSYLVANIA

ORDINANCE NO. ____ - ____

Section 1. Declaration of Purpose.

The Municipality finds and declares as follows:

(1) Conserving, protecting and restoring natural riparian resources are best applied through the implementation of scientifically supported processes such as the establishment and maintenance of riparian buffers.⁹⁴

(2) Reducing the entry of detrimental substances, including nutrients, sediment, organic matter, pesticides and other harmful substances that reach watercourses, wetlands and surface and subsurface water bodies to maintain and improve water quality are best achieved through the establishment and maintenance of riparian buffers.⁹⁵

(3) Reducing the entry of detrimental substances by restricting development and uses of detrimental

⁹⁴ Brandywine Conservancy and Pennsylvania Land Trust Association. *Model Riparian Buffer Protection Overlay District. Proposed Regulations for Use in a Municipal Zoning Ordinance.* (2nd Ed.), 1. ConservationTools.org. (Mar. 11, 2016).

⁹⁵ *Id.* at 2.

substances in riparian areas that intercept surface water runoff, wastewater, subsurface flow and deep groundwater flows from upland sources are essential to the economy and environment of a riparian area.⁹⁶

(4) Mitigating and preventing concentrated flows of storm water runoff across riparian areas and securing increased channel and bank stabilization that avoids stream bank erosion in both agricultural, urban and rural riparian areas is best achieved with the establishment and maintenance of riparian buffers.⁹⁷

(5) Reducing flooding and soil loss as well as adverse aquatic health impacts due to changes in the temperature of receiving waters as a result of storm water runoff are scientifically proven to occur with the establishment and maintenance of riparian buffers.⁹⁸

(6) Enhancing in-stream processing of nutrients and pollutants such as pesticides and reducing the downstream movement of pollutants to prevent destruction of wildlife habitat are best achieved through the establishment and maintenance of riparian buffers.⁹⁹

(7) Improving and maintaining the safety, reliability

⁹⁶ *Id.*

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

and adequacy of the water supply for domestic, agricultural, commercial, industrial and recreational uses along with sustaining diverse populations of aquatic flora and fauna are enhanced through the establishment and maintenance of riparian buffers.¹⁰⁰

(8) Conserving headwater areas, groundwater recharge zones, floodways, floodplains, springs, seeps, streams, wetlands, woodlands, prime wildlife habitats and other features that provide recreational value or contain natural amenities, whether on developed or undeveloped land are benefits of riparian buffers.¹⁰¹

(9) Integrating with floodplain, steep slope, woodland protection and other ordinance requirements that regulate environmentally sensitive areas to minimize hazards to life, property and riparian features are essential to a thriving riparian economy.¹⁰²

(10) Conserving scenic and recreational areas within and adjacent to riparian areas is scientifically proven to be a benefit of the establishment and maintenance of riparian buffers.¹⁰³

¹⁰⁰ *Id.*

¹⁰¹ *Id.*

¹⁰² *Id.*

¹⁰³ *Id.*

(11) Providing for education, incentive, and funding programs are essential for establishment of riparian buffers in the tri-county region.

(12) Implementing the recommendations for water quality protection in Dauphin County's adopted comprehensive plan regarding floodplain and riparian area preservation are accomplished through implementation of this ordinance.¹⁰⁴

(13) Article I, Section 27 of the Constitution of the Commonwealth of Pennsylvania, The Pennsylvania Clean Streams Law (35 P.S. §691.1, et. seq.) and Article VI of the Pennsylvania Municipalities Planning Code (53 P.S. §10601 et. seq.) provides the legal authority for this ordinance.¹⁰⁵

Section 2. Definitions.

"Applicant." A landowner who has filed an application for subdivision or land development or for a zoning or building permit that will result in land disturbance, including a landowner's heirs, successors and assigns or the equitable owner of property with the owner's permission. The term shall also

¹⁰⁴ Dauphin County Comprehensive Plan. *Floodplain & Riparian Area Preservation*. <https://www.dauphincountycompplan.org/floodplain/>. (last visited on Oct. 21, 2018).

¹⁰⁵ Brandywine Conservancy and Pennsylvania Land Trust Association. *Model Riparian Buffer Protection Overlay District. Proposed Regulations for Use in a Municipal Zoning Ordinance*. (2nd Ed.), 1. ConservationTools.org. (Mar. 11, 2016).

include a person applying to the department for a permit or variance or a person applying to become a participant.¹⁰⁶

"Department." The entity determined by the Municipality to be responsible for enforcement of this ordinance.

"Expert." A person determined by the department as having the knowledge, skill, certification and training to determine the technical and scientific requirements necessary to properly apply and enforce this ordinance.

"Forested riparian buffer." A type of riparian buffer that consists predominantly of native trees, shrubs or herbaceous plants that provide a minimum of 60% uniform canopy coverage.¹⁰⁷

"Impoundment." A water body that is enclosed within artificial limits. The term includes a dam or lock.¹⁰⁸

"Land disturbance." Any activity that exposes soils, alters topography or alters vegetation.¹⁰⁹

"Municipality." The governing body adopting this ordinance.

"Participant." An applicant who has voluntarily applied to

¹⁰⁶ *Id.* at 3.

¹⁰⁷ *Id.*

¹⁰⁸ *Impoundment.* Dictionary.com, LLC, <https://www.dictionary.com/browse/impoundment>. (last visited November 30, 2018).

¹⁰⁹ Brandywine Conservancy and Pennsylvania Land Trust Association. *Model Riparian Buffer Protection Overlay District. Proposed Regulations for Use in a Municipal Zoning Ordinance.* (2nd Ed.), 3. ConservationTools.org. (Mar. 11, 2016).

the Municipality to take part in the establishment and maintenance of a riparian buffer on their land and has been approved by the Municipality as having satisfied the requirements in this ordinance to receive the incentives under this ordinance.

"Riparian." Belonging or related to the bank of a water body, river, stream, wetland, lake, pond or impoundment.¹¹⁰

"Riparian buffer." A vegetated area, including trees, shrubs and herbaceous vegetation that is adjacent to a water body.¹¹¹

"Water body." Any natural or manmade pond, lake, wetland, impoundment or watercourse. The term shall exclude a pond or facility designed and constructed solely to contain stormwater, or a swimming pool.¹¹²

"Watercourse." Any channel of conveyance of surface water having a defined bed and banks. The term shall include a stream, river, brook or creek, whether natural or artificial, with perennial, intermittent or seasonal flow. The term shall exclude a channel or ditch designed and constructed solely to carry stormwater.¹¹³

"Wetland" or "Wetlands." Those areas inundated or saturated by surface water or groundwater at a frequency and duration

¹¹⁰ *Id.*

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

sufficient to support, and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, ponds, lakes, and similar areas. The term shall include an area so delineated by the National Wetlands Inventory of the U.S. Fish and Wildlife Service and all lands regulated as wetlands by the Pennsylvania Department of Environmental Protection (PADEP) or the U.S. Army Corps of Engineers (ACE). In the event there is a conflict between the definitions of these agencies, the more restrictive definition that defines the term most expansively shall apply.¹¹⁴

Section 3. Applicability.

(a) Application. This ordinance shall apply to all areas considered riparian within the jurisdiction of the Municipality.

(b) Exception. This ordinance shall not apply to existing primary or accessory uses on private and public areas considered riparian within the jurisdiction of the Municipality, including but not limited to all agricultural uses and research related to agricultural uses, buildings, fences, lawns, gardens, utility lines, roads, driveways, sidewalks, bikeways, decks, piers,

¹¹⁴ *Id.*

water, septic or sewage supply facilities and their related appurtenances.¹¹⁵

Section 4. Applicant Participation.

(a) Applicant Participation. All creation and maintenance of riparian buffers under this ordinance shall be voluntary and shall include any private landowner in a rural, agricultural and urban area. An applicant wishing to establish riparian buffers on the applicant's land shall be provided incentives in accordance with Section 8 if the applicant becomes a participant.

(b) Department Publication. The department shall publish the benefits of riparian buffers in local newspapers, agricultural magazines, local bulletins and the department or Municipality's publicly accessible internet website to increase the knowledge of how to construct riparian buffers and the incentives available under Section 8 to encourage a property owner to become a participant. The publications shall include a telephone number for the department.

(c) Survey and explanation of costs. The department shall send an expert to the location of the applicant desiring to become a participant in order to survey the area on which to

¹¹⁵ *Id.* at 5.

establish the riparian buffer and explain the costs and establishment process in accordance with sections 5 and 7.

(d) Department certification. The department shall confirm the applicant's riparian buffer is in compliance with sections 5 and 7 one year after conducting the survey and explanation of costs under subsection (c) and shall certify that the applicant has become a participant and is eligible to receive the incentives under section 8.

Section 5. Riparian Buffer Delineation.

(a) General Rule. The area on which to establish the riparian buffer on the applicant's property in section 4(c) shall be designated by the expert as:

(1) An area that begins at each edge of a water body and shall extend landward a minimum width of 100 feet, measured horizontally on a line perpendicular to the nearest edge of the water body, or as reviewed and approved by the department expert.¹¹⁶

(2) Where a floodplain extends greater than 100 feet from the water body, the riparian buffer area shall extend to the outer edge of the defined 100-year floodplain, or as determined by the department expert.¹¹⁷

(b) Exception. Wetlands and other water bodies not located

¹¹⁶ *Id.*

¹¹⁷ *Id.*

along a watercourse, where the wetland or other water body is greater than 5,000 square feet in area, shall have a minimum buffer width of 50 feet, measured from the edge of the wetland or other water body around the entire perimeter.¹¹⁸

Section 6. Permits, permitted uses and variances.

(a) Uses as matter of right. The following uses are allowed in riparian areas as matter of right:¹¹⁹

(1) Conservation of soil, vegetation, water, fish and wildlife.

(2) Private wildlife sanctuaries and woodland preserves.

(3) Outdoor recreation including nature study, hiking, horseback riding, swimming, camping, trapping, hunting, fishing, shell fishing and cross-country skiing where otherwise legally permitted.

(4) The control of noxious weeds if the control does not involve drainage or fill.

(5) Maintenance and repair of existing ditches, watercourses, farm ponds, utilities and roadways, providing

¹¹⁸ *Id.*

¹¹⁹ Adopted in part from Jon Kusler, *Model Ordinances for Regulating Wetlands; Riparian Habitats; Stream Buffers*, Association for State Wetland Managers, (2009), https://www.aswm.org/pdf_lib/model_ordinance_1209.pdf, (accessed October 20, 2018).

the maintenance and repair does not involve the expansion or related improvements into previously unimpacted areas.

(6) The enhancement or restoration of riparian areas is less than one acre and not associated with a development proposal.

(b) Expressly prohibited uses. The following activities or practices are expressly prohibited in riparian buffer areas regardless of participant status:

(1) Removal or disturbance of vegetation in a manner that is inconsistent with erosion and sedimentation control and riparian buffer protection.

(2) Storage or discharge of a hazardous or noxious material, except those used during emergencies for the treatment or maintenance of a public sewer or public water treatment facilities.

(3) Use of fertilizers, pesticides, herbicides or other chemicals, except:

(i) where permitted by a valid conservation plan, forest management plan or approved planting and maintenance plan as provided for under Section 6; and

(ii) for selective herbicide application by a qualified professional to control noxious weeds and invasive species of plants in riparian buffers.

(4) Motor or wheeled vehicle traffic in an area not designed to accommodate adequately the type and volume of vehicular movement.

(c) Uses permitted by conditional use approval; Uses requiring permit.

(1) The following uses or activities are permitted by conditional use approval, granted by the department, in a riparian buffer area:¹²⁰

(i) Structures that cannot be located anywhere except within the riparian buffer. The structures shall provide for the minimum practicable disturbance of the riparian buffer by minimizing size and location and by taking advantage of co-location, if possible. The department may have sole discretion in the determination of classification of structures under this category.

(ii) Road crossings, when perpendicular to the stream or buffer, bridges, culverts, utilities and impoundments.

(iii) Provision for paved trails and related trail access when determined by the department to result in disturbance to existing trees and shrubs.

¹²⁰ Adopted in part from *Id.*

(iv) Storm-water conveyance structures and outfalls.

(2) Uses requiring permit. The following uses in riparian areas are prohibited without a permit from the municipality:

(i) Filling, excavation, dredging, clear-cutting, grading or excavation, construction, removal of peat, sand or gravel, alteration of the water level or water table, disturbance of surface drainage characteristics, sediment patterns or flood retention characteristics or any other alteration or use of a riparian area not allowed by subsection (a) are prohibited without a permit from the department.

(ii) Any participant proposing to carry out a prohibited use, prior to the commencement of the operation shall notify the department, on a form provided by the department, of the proposed use with sufficient information to enable the department to determine whether the proposed use is a use permitted as of right as determined by subsection (a) or a use requiring a permit of this subsection. The department's determination shall be issued in writing within 30 days of submission of the notification under

this section on a determination by the department that the application is complete.¹²¹

(d) Conditional use approval. A conditional use approval may be evaluated and determined outside of the permit required uses under subsection (c) (2) or the prohibited uses of subsection (b) at the sole discretion of the department. The application for and the process for applying for a conditional use may be determined by the department outside of the requirements of subsection (e), (f), (g) or (h) of this section. Approval for a conditional use shall rest with the department without regard for any subsection of this section or any other requirements set forth in this ordinance.

(e) Information required of permit applicant. The department shall develop and make available riparian area permit application forms on the department's publicly accessible Internet website. An applicant seeking a permit for a regulated activity within a riparian area determined by this ordinance shall fill out and submit this form to the department. All applications shall include, at a minimum, the following information in writing or on maps or drawings in the form prescribed by the department:

(1) Name, address, telephone number and e-mail address of permit applicant.

¹²¹ Adopted in part from *Id.*

(2) A sketch map and description of the riparian area on the project site or area that may be impacted by the proposed activity.

(3) A description of the proposed activity including the type of proposed activity, its dimensions and distance from any road or water body.

(4) A description of all grading, filling and vegetation removal proposed by the project permit applicant including an estimate of the dimensions of the area that will be affected.

(5) An explanation why the proposed activity cannot be located at an upland location.

(6) A description of all measures proposed to reduce or compensate for project impacts.

(7) The lot size and size of any adjacent parcels owned by the project applicant.

(8) A description of proposed restoration or riparian vegetation for all surfaces affected by the project.

(9) A description of the construction sequencing and timetable for any proposed activities including description of future phases of projects.¹²²

(f) Riparian management plan. The department may require that a permit applicant under subsection (c) (2) submit a

¹²² Adopted in part from *Id.*

riparian management plan to the department. The riparian management plan shall be consistent with the following requirements:¹²³

(1) A description of all conservation and land management techniques that will be used to conserve and restore the riparian area.

(2) A list of specific activities that will be carried out over time, including who will carry out the activities and how the activities will be carried out.

(3) A description of professional and personnel resources that will be committed to monitoring and managing the riparian area.

(4) A list of specific construction methods that identify and protect riparian habitat that is to be left unaltered.¹²⁴

(g) Compensatory mitigation plan. The department may require that the permit applicant under subsection (c) (2) submit a compensatory mitigation plan developed to achieve no net loss of riparian area functions, values and acreage. The compensatory mitigation plan shall also include, at a minimum:¹²⁵

(1) A description of how long-term replacement of riparian functions, values and acreage will take place that

¹²³ Adopted in part from *Id.*

¹²⁴ Adopted in part from *Id.*

¹²⁵ Adopted in part from *Id.*

reestablishes as nearly as possible the original riparian area in terms of type, geographic location and setting.

(2) Plans for any selected clearing and maintenance.

(3) The restoration of vegetation indigenous to the site or plant community.

(4) Periodic monitoring of mitigation features.

(5) Maintenance and replacement of damaged plants.

(6) A proposal for posting a performance bond or other financial assurances.

(h) Variances. The zoning Hearing Board of the municipality shall issue variances. The department may issue a waiver of variance provisions to a participant where provision requirements will otherwise deny the participant all economic use of an entire property. The department shall take into account existing uses, reasonably anticipated future uses, market values and sales for comparable properties, taxes, special assessments and other factors.¹²⁶

(i) Permit application fee. A fee as determined by the municipality by resolution shall be established.

(j) Right to appeal denial of permit authorization. Within 30 days following denial of a permit authorization, a permit applicant may appeal the denial decision. An appeal must be made

¹²⁶ Adopted in part from *Id.*

to the appropriate municipality department. Any decision made by the municipality department shall be final.

Section 7. Buffer Restoration and Planting Requirements.

(a) Maintenance. A landowner certified to be a participant under section 4(d) shall continually maintain the riparian buffer on the participant's property with a diverse mix of locally adapted native species of canopy trees, understory trees, shrubs and herbaceous plants so as to constitute a forested riparian buffer in accordance with guidance from the department expert. The expert shall inspect the participant's riparian buffer once a year to ensure proper maintenance under this section and to annually certify that the participant is eligible to receive the incentives under section 8.¹²⁷

(b) Restoration. Restoration of a riparian buffer shall occur as follows:

(1) Restoration plantings shall be planted at a density sufficient to provide a minimum of 200 trees per acre at canopy closure. The following tree planting and spacing standards shall apply at installation:

(i) Seedlings - 10-foot spacing with approximately 435 seedlings per acre protected by 5-

¹²⁷ Brandywine Conservancy and Pennsylvania Land Trust Association. *Model Riparian Buffer Protection Overlay District. Proposed Regulations for Use in a Municipal Zoning Ordinance.* (2nd Ed.), 7-8. Conservation Tools.org. (Mar. 11, 2016).

foot tree shelters.

(ii) Bare root trees or container trees that are at least 6 feet in height for either - 12-foot spacing with approximately 300 trees per acre. Tree shelters, wraps or other proven methods shall be required to prevent damage from antler rubbing.

(iii) Tree shelters shall be maintained at all times and removed when the tree reaches 1½ - 2" caliper. To reduce competition from grasses and invasive plants, vegetation around tree shelters shall be sprayed or otherwise effectively controlled annually for a minimum of 4 years.¹²⁸

Section 8. Cost-Share and Municipal Property Tax Incentives.

(a) Cost-share grant. A cost-share grant shall be provided by the municipality to a participant to assist a participant in the riparian buffer costs associated with actions stated in subsection (b) of this section. A cost-share grant may apply to a participant subject to all requirements or limitations provided in this ordinance. A cost-share grant provided to a participant may be contingent on participation and adherence to the requirements set forth through this section and this ordinance.

¹²⁸ *Id.*

(b) Eligible costs. A cost-share grant may reimburse any of the following costs:

(1) Permanent fencing to protect a riparian buffer.

(2) Costs to establish or enhance permanent vegetative cover in a riparian buffer, or to provide temporary cover until permanent cover is established. Costs may include costs for mulch, fertilizer, seed, seedling trees, and other necessary materials.

(3) Costs to shape, smooth or prepare the riparian buffer before establishing a permanent vegetative cover.

(4) Costs for land removed from agricultural production to install a riparian buffer.

(c) Design, construction, and maintenance standards. A cost-share grant may not reimburse riparian buffer costs unless all of the following conditions are met:

(1) The riparian buffer system complies with sections 5 and 7, and all of the following:¹²⁹

(i) Most recent version of Natural Resources Conservation Services (NRCS) technical guide critical area planting standard.¹³⁰

(ii) Most recent version of NRCS technical guide fence standard 382.¹³¹

¹²⁹ DESIGN, CONSTRUCTION, AND MAINTENANCE STANDARDS adopted in part from Wis. Adm. Code § ATP 50.83 §3 (2018).

¹³⁰ USDA-NRCS. CONSERVATION PRACTICE STANDARD. Critical Area Planting Standard 342. (August 2016).

(iii) Most recent version of NRCS technical guide field border standard 386.¹³²

(iv) Most recent version of NRCS technical guide filter strip standard 393.¹³³

(v) Most recent version of NRCS technical guide access control standard 472.¹³⁴

(vi) Most recent version of NRCS technical guide mulching standard 484.¹³⁵

(vii) Most recent version of NRCS technical guide riparian forest buffer standard 391.¹³⁶

(2) The participant agrees to maintain the riparian buffer for 10 years.

(d) Cost-share grant reimbursement amount calculation.

Reimbursements provided to participants for an action taken under subsection (b) and satisfying requirements of subsection (c) shall be calculated as accounting for one half or 50% of the initial cost assumed by the participant. All costs assumed by a participant associated with the eligible costs of subsection (b)

¹³¹ USDA-NRCS. CONSERVATION PRACTICE STANDARD. Technical Guide Fence Standard 382. (January 2014).

¹³² USDA-NRCS. CONSERVATION PRACTICE STANDARD. Technical Guide Field Border Standard 386. (January 2017).

¹³³ USDA-NRCS. CONSERVATION PRACTICE STANDARD. Technical Guide Filter Strip Standard 393. (January 2017).

¹³⁴ USDA-NRCS. CONSERVATION PRACTICE STANDARD. Technical Guide Access Control Standard 472. (April 2016).

¹³⁵ USDA-NRCS. CONSERVATION PRACTICE STANDARD. Technical Guide Mulching Standard 484. (June 2016).

¹³⁶ USDA-NRCS. CONSERVATION PRACTICE STANDARD. Technical Guide Riparian Forest Buffer Standard 391. (January 2013).

that were incurred subsequent to the initial cost shall be reimbursable at one quarter or 25% of the costs assumed by the participant during the period determined by subsection (c) (2). All costs that may be reimbursed to a participant subsequent to the initial costs of subsection (b) shall apply only to maintenance and continued performance of activities under subsection (b) that meet the requirements of subsection (c) for the period determined by subsection (c) (2).

(e) Municipal property tax incentive. A participant that meets the requirements of this ordinance may be provided a reduction in the participant's municipal property tax payment and municipal property tax assessment. The percentage amount of reductions for municipal property tax payment and municipal property tax assessment for a participant shall be determined by the appropriate department of the municipality. A prospective municipal property tax payment or assessment reduction is only available to the participant through the participant's meeting of subsections (b) and (c) and all other requirements of this ordinance. The reduction is only for the period determined in subsection (c) (2).

(f) Cost-share grant and municipal property tax reduction revocation. Any cost-share grants or municipal property tax reduction provided under terms of this section may be discontinued or revoked for failure to adhere to the

requirements set forth in this section or any other requirements set forth in this ordinance. Any discontinuation or revocation of cost-share grants or municipal property tax reductions assumed in subsections (a) or (e) may occur at any time during the applicable 10-year period determined by subsection (c) (2). A determination of discontinuation or revocation of cost-share grants or municipal property tax reductions rest solely in the discretion of the department deemed appropriate by the administering municipality. The department deemed appropriate by the administering municipality may inspect the participant's performance in meeting the requirements under subsection (a) and (e) and all other appropriate requirements under this ordinance at the discretion of the inspecting department.

Section 9. General Repeal.

All other ordinances or parts of ordinances are repealed insofar as they are inconsistent with this ordinance.¹³⁷

Section 10. Severability.

The provisions of this ordinance are severable. If any sentence, clause or section of this ordinance is for any reason found to be unconstitutional, illegal or invalid, the unconstitutionality, illegality or invalidity shall not affect

¹³⁷ General Repeal Provisions, 101 Pa.C.S. § 19.61.

or impair any of the remaining provisions, sentences, clauses or sections of this ordinance. It is hereby declared to the intent of the Board of Supervisors of _____ (municipality) that this ordinance would have been adopted had the unconstitutional, illegal or invalid sentence, clause or section not been included herein.¹³⁸

Section 11. Effective Date.

This ordinance shall become effective 30 days after enactment.¹³⁹

Section 12. Enactment.

ENACTED AND ORDAINED THIS _____, DAY OF _____, 20____.

[Signature Block]

¹³⁸ Jennifer Breneman and Tyler Semler, *Tiny Homes Model Ordinance*, pg. 61. <https://widenerenvironment.files.wordpress.com/2018/01/tiny-homes2017.pdf>. (last visited October 28, 2018).

¹³⁹ *Id.*