

Principles of Riparian Zone Protection

Principle 1: Support of the Environment: Protection of the riparian zone is widely recognized as one of the most important things that we can do to maintain our local environment. **Riparian protection is conservation in action.**

Principle 2: The Danger Zone: Every building that suffers flood damage or is in danger of being undermined by stream bank erosion is located in the Riparian Zone. As a result of the “Buyer Beware” policy in effect in Ohio, this means that all damage to such buildings and all protection or remediation costs are usually the sole responsibility of the landowner. **Riparian protection keeps people out of the Danger Zone.**

Principle 3: Protection of Property Values: Nobody’s property values are maintained if their house or garage is in danger of being flooded or is about to collapse into a stream channel due to streambank erosion. “Green” properties with a water view from a safe distance are the properties with the highest values. The communities in Northeast Ohio that have the most park like settings are the communities with the highest property values. **Riparian protection keeps property values high.**

Principle 4: Downstream Liability: The loss of riparian zone function increases stream flow and erosive forces in downstream areas. The Storm Water Phase II Program is one mechanism that clearly communicates this fact to communities. In this new era, failure to avoid riparian zone function losses, after being duly warned of the consequences, exposes a community to damage claims from downstream landowners. **Riparian protection helps keep communities out of court.**

Principle 5: Compliance with Ohio EPA’s Storm Water Permits Program:

Permit Requirement (Section 3.2.5.1.3)

Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State or local law.

5 Reasons to Use Setbacks

1. Help the Environment
2. Protect Property Owners
3. Maintain Property Values
4. Avoid Downstream Liability
5. Comply with Your Storm Water Permit

Permit Requirement (Section 3.2.5.2.3.1)

Policies and ordinances that provide requirements and standards to direct growth to identified areas, **protect sensitive areas such as wetlands and riparian areas**, maintain and/or increase open space (including a dedicated funding source for open space acquisition), **provide buffers along sensitive water bodies**, minimize impervious surfaces, and minimize disturbance of soils and vegetation.

A Northeast Ohio Regional Task Force reviewed these requirements and endorsed the passage of the riparian/wetlands setback ordinances as the best method of complying with the requirements. Every other scenario requires that losses to riparian or wetland functions be remediated, either at the landowner’s or the community’s expense. Remember, even with the ordinances in place, the community must provide for the remediation of any disturbances allowed by any granted variances. **Riparian protection helps communities obey the law!**

Functions of the Riparian Zone

The system of rivers, streams, and other natural watercourses within the Community contributes to the health, safety, and general welfare of the residents of the Community. The specific purpose and intent of the riparian regulation is to regulate uses and developments within riparian setbacks that would impair the ability of riparian areas to:

Reduce flood impacts by absorbing peak flows, slowing the velocity of floodwaters, and regulating base flow.

Assist in stabilizing the banks of watercourses to reduce bank erosion and the downstream transport of sediments eroded from watercourse banks.

Reduce pollutants in watercourses during periods of high flows by filtering, settling, and transforming pollutants already present in watercourses.

Reduce pollutants in watercourses by filtering, settling, and transforming pollutants in runoff **before they enter watercourses.**

Provide watercourse habitats with shade and food.

Reduce the presence of aquatic nuisance species to maintain a diverse aquatic system.

Provide habitat to a wide array of wildlife by maintaining diverse and connected riparian vegetation.

Benefit the Community economically by minimizing encroachment on watercourse channels and the need for costly engineering solutions such as dams, retention basins, and rip rap to protect structures and reduce property damage and threats to the safety of watershed residents; and by contributing to the scenic beauty and environment of the Community, and thereby preserving the character of the Community, the quality of life of the residents of the Community, and corresponding property values.

RIPARIAN AREAS WHAT GOES WRONG WITH STREAMS

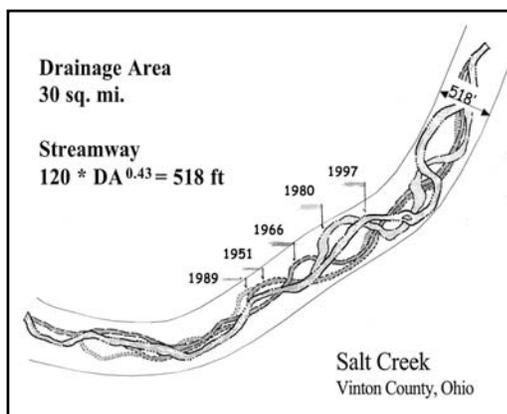
The riparian zone is that land area necessary to maintain a healthy stream or river. Healthy streams have good water quality and maintain enough of the "natural" stream attributes to allow them to function properly. When the natural attributes of streams are reduced or eliminated property related problems begin to occur. These problems are usually expensive to either correct or just simply stabilize. In the following material, some of the "natural" attributes are identified and guidance is provided on how to deal with variance requests to infringe on or eliminate the natural attributes.

- I) Natural Attribute: Sinuosity: This means that natural streams and rivers have many turns and curves in them. The picture below shows the documented path of one stream in Ohio.

Guidance: All streams and rivers will erode their banks and in the process try to create curves and bends in their flow path. This cannot be prevented without costly engineering and construction practices. It is also a fact that man has never built anything that does not need to be maintained and eventually replaced. This means that it is much cheaper in the long run to maintain an adequate sized riparian area along the streams and rivers.

If any of the riparian area is to be given up through a variance, two things should be considered.

- 1) Will there be enough riparian area left for the stream to move back and forth?
 - A) Situation: The stream already has a well developed curvature and the variance is requested on the outside of a bend. Allowing a variance to get closer to the stream may be acceptable to natural stream function. This assumes that the other necessary natural attributes will still be maintained.
 - (a) It is also necessary to provide enough room for manmade streambank stabilization to be installed and maintained, outside the remaining protected riparian area, if the stream continues to cut toward the planned structure. For example, if a building is planned for the outside of a meander bend, the variance should require that the building be no closer than 15 feet to the edge of the remaining protected riparian area. This allows room to construct a vertical retaining wall if it is needed in the future. This will allow for a 3 foot wide vertical structure and another 12 feet for construction access and work area between the planned building and the protected riparian area. If a sloped streambank and riprap is used, even more space will be needed between the planned structure and the protected riparian area.
 - (b) If a variance allows a structure to be built on the edge of the remaining riparian area and streambank stabilization is later required, the construction will have to take place in the riparian area and most likely in the stream itself. This will then force the stream to move over and will result in unnatural erosion in another location.
 - B) Situation: The stream already has a well developed curvature and the variance is requested on the inside of a bend. It is predictable that as the stream meanders it will move back over the inside of the bend. Variances should not be given that allow structures to be built on the inside of the stream or river meander bend.



- II) Natural Attribute: Flood plains: Floodplains are areas that allow for out of bank flow. This helps to alleviate property damage, filter the flood waters, support the vegetation needed to both support the aquatic system and facilitate the removal of pollutants from the water and the environment in general.

Guidance: Variances should not be allowed if they will remove the floodplain areas.

- III) Natural Attribute: Shade: Unnatural water temperature is a source of pollution. This is called Thermal pollution. It is critical to keep the water in stream or river shaded as much as possible. The smaller the water body the more important shade is.

Guidance: Variances should not be given if the result is little to no shade for the water. This usually means that enough room needs to be provided on both sides of the stream to allow the crown width of at least medium sized tree. This is commonly considered to be 25 feet on both sides of the stream. It is also important that the trees actually be along the stream and they are expected to live after the construction period is over.

- 1) It is understood that a constantly moving stream will remove trees from the bank. By allowing room for mature trees on both sides of the stream the water will be better able to maintain the required temperatures.
- 2) It is also natural that a stream that erodes outward on one side will also be depositing material on the other side. The deposited material allows new plants to grow closer to the water and will also provide shade.

IV) Natural Attribute: Food: The aquatic life system needs an adequate food source in order to stay healthy. This food source needs to be within natural limits. Trees and other woody plants growing adjacent to the stream are the source of this food. The minimum area needed for this is commonly considered to be 25 feet on both sides of the stream.

Guidance: Variances should not be given if the result is the removal of streamside vegetation.

- 1) If a variance is permitted that results in the removal of vegetation, the Ohio EPA stream mitigation requirements of replacing 1.5 lineal feet of vegetation for every 1 lineal foot of vegetation removed should be a variance permit requirement.

V) Natural Attribute: Habitat: Good water quality requires adequate aquatic habitat. Habitat is plants, pools and riffles, and places for aquatic organisms to take shelter during high velocity stream flows.

Guidance: Variances should not be given if the result is the removal of trees, woody plants and other vegetation.

- 1) As a stream moves back and forth it exposes the roots of woody plants to the water. This provides shelter for aquatic organisms.
- 2) If a variance is permitted that results in the removal of vegetation, the Ohio EPA stream mitigation requirements of replacing 1.5 lineal feet of vegetation for every 1 lineal foot of vegetation removed should be a variance permit requirement.

Guidance: Variances should not be given if the result is straightening of the stream.

- 3) Straightening a stream generally removes the pools of deeper water that the aquatic organisms need during low flow periods and accelerates erosion.

V) Natural Attribute: Oxygen: Oxygen is required for desirable living organisms (fish and aquatic bugs). Straightening a stream removes riffles that provide oxygen to the water that the aquatic organisms require to survive.

Guidance: Variances should not be given if the result is a stream being straightened or relocated.

- 1) If a variance is given for this, it should be a variance requirement that the entire reach of the stream affected by the work be designed and reconstructed using stream restoration and bioengineering design techniques. This may well require that the stream reconstruction area be extended beyond the boundaries of the property in question.

Guidelines for Considering Riparian Setback Variances

The riparian zone includes the area where the watercourse interacts with the land. It includes the areas that are subject to periodic flooding and stream bank erosion. Infringements into this zone are at risk from the naturally occurring effects of stream flow. Infringements also act to reduce the ability of the watercourse to dissipate energy and manage pollutant loads. This reduction results in increased stress on downstream lands and this often results in increased costs to other landowners. The effect of any application for a riparian setback variance must be weighed against the potential risks to all landowners.

The Community Zoning Board shall have the exclusive power to order the issuance of variances from the terms of any official controls including restrictions placed on nonconformities. Variances shall only be permitted when they are in harmony with the general purposes and intent of the official control, in cases where there are practical difficulties or particular hardship in the way of carrying out the strict letter of any official control, and when the terms of the variance are consistent with the community's comprehensive plan. The Zoning Board shall consider the criteria set forth below when passing upon a variance request:

1. Has the applicant demonstrated a hardship? Hardship means that the property cannot be put to a reasonable use under conditions allowed by the Zoning Ordinance. Economic considerations alone do not constitute a hardship.
2. Are there exceptional circumstances, unique to this property, which were not created by the landowner?
3. Can the variance be granted without upsetting the purpose and intent of the Zoning Ordinance?
4. Can the variance be granted without altering the essential character of the surrounding area?
5. Is the variance requested the minimum variance that would alleviate the hardship?

The Zoning Board must make an affirmative finding on all of the criteria listed above in order to grant a variance. The applicant requesting a variance has the burden of proof to show that all of the criteria listed above have been satisfied. A variance shall not be granted for a use that is not permitted under this Ordinance.

The Zoning Board may impose conditions upon a variance that relate to the purposes and objectives of this Ordinance. If conditions are imposed, the variance shall not be effective until the conditions are fully complied with. A conditional variance shall be in effect only as long as the condition is complied with. If a condition is not complied with, the Zoning Board at its next meeting with public notice may revoke the variance and the Community may pursue any and all enforcement remedies available to it.

Are there exceptional circumstances, unique to this property that were not created by the landowner?

An example of an exceptional circumstance that IS caused by the landowner is the splitting of an existing parcel such that one or more sublots cannot be built on without a setback variance. Variances for property splits that precede the date of this ordinance may be considered. Avoidance of rights of way, such as for power lines, is an example of an exceptional circumstance that is not created by the landowner.

Can the variance be granted without upsetting the purpose and intent of the Zoning Ordinance?

The “Public Purpose” section of the ordinance identifies seven considerations for protecting the ability of riparian areas to function properly. The applicant for a variance must demonstrate that these elements are either not affected by the variance or will be mitigated to a reasonable degree. Some considerations include:

1. Does the variance request extend into the active floodplain where it may affect the reduction of flood impacts by causing a reduction in the absorption of peak flows, or by reducing the stream’s ability to slow the velocity of floodwaters? If so, the applicant must demonstrate how they plan to mitigate any loss of floodplain storage or the velocity retarding effects of any woody vegetation that is to be removed. If the variance does not affect the active floodplain, there will be no mitigation required regarding this Purpose.
2. If the variance request does extend into the active floodplain, measures must be taken to insure that stream bank stability is not impaired so as to result in bank erosion and downstream transport of sediment. The applicant must demonstrate how channel stability will be maintained during and after construction. If the variance does not affect the active floodplain, there will be no mitigation required regarding this Purpose.
3. If the variance request does extend into the active floodplain, measures must be taken to offset the loss of vegetation that acts to reduce the pollutants in the watercourse by filtering, settling, transforming, and absorbing pollutants already present in the watercourse. The applicant must demonstrate how this function is to be maintained. If the variance does not affect the active floodplain, there will be no mitigation required regarding this Purpose.
4. One purpose of the riparian area that is to be protected is the reduction of pollutants in runoff before it enters the watercourse. Any variance request to disturb riparian vegetation must include a provision to collect and route the runoff that would have been treated by the disturbed area to a water quality pond or other suitable storm water quality improvement treatment option.
5. Woody vegetation along a stream channel provides for cooling of the watercourse through the effects of shading. Plant materials also offer a food source for aquatic organisms. It is important to maintain at least minimal coverage of the watercourse. While it is important to maintain as much woody vegetation in the stream’s riparian area as is possible, leaving at least one row of trees or other woody vegetation at the top of the bank will minimize impacts on this function. The removal of vegetation beyond the first row at the top of the bank can be permitted when necessary without seriously compromising this function of the riparian zone.
6. Vegetated riparian areas perform an important habitat function for a variety of plants and animals. Maintaining integrated habitat corridors is an objective of the effort to maintain and protect riparian areas. The applicant must address the impacts of their request for a variance from the required setbacks and describe measures to be taken to reduce those impacts.

Answers to Questions Commonly Raised Regarding Riparian Setback Ordinances

1. Early reviews will act to set precedents for future decisions. It is important to track the reasons that any variances are granted and to document how the effects of the grantings have been minimized.
2. The Community needs to track the variances granted as well as the reasons associated with the grantings. Any mitigation efforts also need to be documented. This information should be submitted to Ohio EPA as part of the Community's Annual Storm Water Management Report.
3. There are, as of yet, no definitive maps of the setback requirements. The city engineer must make the determination on a case-by-case basis until a definitive map is created.
4. Variances cannot be granted for the relocation/redirection of streams to accommodate a building project.
5. All tributaries are protected by the setback requirements. It is becoming increasingly recognized that the smaller tributary streams are the most in need of protection.
6. While there are many ramifications involved with redevelopment projects, the most basic is to restrict any additional loss of riparian area functioning. Ideally, redevelopment will help to recover previous losses. Practically speaking, this is not always feasible. During redevelopment, no structures should be built in areas where they would be subject to flooding or to bank erosion by a stream that naturally shifts its banks over time. Additional setbacks that serve to protect the riparian zone can be varied if adequate mitigation is provided.
7. The cutting of trees in the riparian area is prohibited by the setback ordinance. Any tree cutting that is essential requires a variance or a special permit from the community.