

The Role of Community Planning in Riparian Corridor Protection

Chapter 6 Includes:

- Planning Policy Tools
- Master Plans
- Regulatory Measures
- Resource Protection Overlay Zones
- Natural Features Setback Standards: Buffer Width Options
- Site Design & Review Standards
- Pre-Application Conference: Setting the Stage for Development
- A Model Site Plan Review Process for Water and Natural Resource Protection
- Map of Existing Resources & Site Analysis
- Design Measures for Riparian Corridor Protection
- Southeast Michigan Model Ordinances for Riparian Resource Protection
- Riparian Corridor Problems and Protection Measures
- Non-Regulatory Options for Protecting Riparian Corridors
- General Guide to Waterfront Laws
- Summary

Any river is really the summation of the whole valley. To think of it as nothing but is to ignore the greater part.

Hal Borland

The Role of Community Planning in Riparian Corridor Protection

Riparian corridors represent a natural resource that offers communities an opportunity to balance the need for growth with environmental preservation. Local governments that plan for the establishment of riparian corridors as community assets can create many benefits for their community. Using innovative site design standards, developers can preserve natural areas and riparian corridors as integral components of a development. These natural features can then be used to market quality of life benefits such as access to open space, and scenic views, to prospective residents. The result is often a win-win situation for the environment, the developer, and the community as a whole. In addition, preserving riparian corridors contributes to the health, safety, and welfare of residents of the community.

Maximizing community assets related to river corridors requires good community planning.



The conservation and management of riparian corridors can benefit from proactive community planning, sensible regulatory measures, and appropriate development design standards. In Michigan, local governments play a major role in riparian corridor management. Community home rule means that the major responsibilities and choices for implementation of riparian protection and restoration initiatives rest at the local level.

Tools such as local master plans, zoning ordinances, and subdivision regulations can be used to address conservation and management needs of riparian corridors, as well as guide sustainable and profitable development within communities. Non-regulatory tools such as public education and innovative land preservation approaches may also be used by communities to protect and restore local riparian areas.



Friends of the Rouge Fall Bug Hunt Volunteers

Planning Policy Tools

Prior to addressing riparian corridor protection in local plans and ordinances, the community's riparian corridors should be inventoried and mapped (See Chapter 3 for more information on mapping riparian corridors). Inventory and map data should then form the basis for subsequent plans, policies, and ordinances designed to protect riparian corridors at the local level. Making riparian inventory and map data available to community members early in the process will clarify the location of riparian corridors, and allow property owners who may be affected by riparian regulations to understand how they may be impacted. Such efforts may assist community leaders in building public support for riparian corridor protection. In addition, mapped inventories of riparian resources may help communities understand how river corridors transcend community boundaries and make the case for a multi-community approach to protecting riparian corridors on a watershed basis.



Rouge Workgroup
(Photo Credit: Fred Cowles)

Master Plans

The Master Plan is the official document that sets forth policies to guide future land use and development in the community. It provides the legal basis for zoning and land use decisions. A community's master plan can be used to establish both the basis for preservation of riparian corridors and justification for related ordinances.

Communities interested in protecting riparian resources should include goals, policies, and objectives for protecting riparian buffers and corridors in their Master Plan. Riparian corridor protection provisions may also be listed in the Master Plan's implementation chapter. Master Plans should also include an inventory and map of riparian corridors and associated resources identified throughout the community. The riparian corridor map may be presented as a stand-alone piece with descriptive text or as a component of the Future Land Use map.



Presentation on the Cold Water Springs Nature Area Master Plan during Johnson Creek Day in 2005. (Photo Credit: Johnson Creek Protection Group)

Example Goals for Community Master Plans

Adapted from: Wetland Stewardship for Local Governments: Master Plan as a Basis. Clinton River Watershed Council

Goal: To the maximum extent possible, preserve existing riparian corridors and the hydrological systems that they support so that these ecosystems can continue to perform their vital functions of providing terrestrial and aquatic habitat for plants and wildlife, flood and stormwater storage, runoff attenuation, water quality protection, shoreline and stream bank stabilization, aesthetics, and recreation.

Goal: Enhance and restore existing riparian corridors that have suffered degradation.

Goal: Recognize the natural capacity and limitation of riparian lands to support development.

Policies pertinent to riparian preservation should address:

Land Use Intensity: The intensity of development on the land is dependent on the natural capability of the land to support various degrees of development.

Natural Resource Capability: All development respects the natural characteristics of riparian corridors and their constraints.

Site Design Policies: These policies provide model development principles that can be applied to site designs to reduce the impact of development on riparian areas.



Oakland Township Green Infrastructure Design Charrette

Park and Recreation Plans

Adapted From: *The Town Planner's Toolbox*.

From: *Guidance for Communities in the Connecticut River Watershed*.

Suggested Allowable Uses for Riparian Corridors

Encourage park and recreation areas with minimal structural development; non-motorized trails; forestry practices that use riparian best management practices (BMPs). Encourage passive use of land for recreation and nature appreciation. Maintain wetlands, flood plains, seeps, and bogs in their natural condition.

Suggested Prohibited Uses for Riparian Corridors

All uses that present a higher potential for pollution. Campgrounds other than dispersed forested tenting sites should be excluded because of their tendency toward deforestation and soil compaction. Towns may wish to guide use of ATVs and mountain biking to less sensitive locations since these higher impact uses can contribute to vegetation loss and erosion within the riparian zone. Buildings that do not depend on proximity to water should be sited outside a riparian buffer.



Early morning nature walk along Johnson Creek.
(Photo Credit: Michael Carr)



Buffer Area in Firefighter's Park in Troy, MI.
(Photo Credit: SEMCOG)

Allowable & Unallowable Uses in the Stream Buffer Zone

Use	Allowed	Denied
Footpaths	60	8
Utility Line Crossings	52	5
Water Dependent Uses	45	10
Bike Paths	30	15
Stormwater BMPs	28	10
Home Additions/Decks/Gazebos	10	55
Maintenance for Flood Control	Often Allowed	
Pumphouses	Restricted	
Sewage Treatment Plants	Restricted	
Golf Courses	Restricted	
Campground	Restricted	
Timber Harvesting	Restricted	
Hydropower	Restricted	
Roads/Bridges	Restricted	
Athletic Fields	Restricted	
Playground Equipment	Restricted	
Compost/Yard Waste	Unrestricted	
Landscaping	Unrestricted	
No Uses Permitted (30%)		
No Uses Denied (15%)		

Percentages of buffer programs that specifically allow or deny a given use. The "Restricted" and "Unrestricted" entries refer to other stream buffer uses that are not commonly addressed in local ordinances. (Source: Heraty, 1993)

Reprinted with permission from "Site Planning for Urban Stream Protection" (Schueler, 1995)

Park and Recreation Plans

Park and Recreation Plans can adopt the goals, policies, and objectives for riparian protection that are listed in the community master plan, or include its own park and recreation-specific recommendations for riparian corridor management. Content may focus on defining appropriate and inappropriate recreational uses for riparian areas located within parks. Park and Recreation Plans may also provide guidelines for proper construction and maintenance of river access points, and rules and regulations for public access as these topics relate to potential impacts on riparian buffers.

Regulatory Measures

A zoning ordinance provides the authority to regulate private use of land by creating land use zones and applying development standards in the various zones or districts.

Adopting a comprehensive local ordinance, or series of local ordinances designed to reduce the adverse effects of common human activities on riparian resources will better enable implementation and enforcement of the goals, policies, and objectives for riparian protection set forth in the Master Plan.

Ordinances and regulatory measures for riparian corridor protection should focus on encouraging the use of various riparian conservation techniques. Zoning ordinances might include two important riparian conservation tools: overlay zones and natural feature setback standards for rivers, lakes, floodplains, and associated riparian corridors and buffers.



Resource Protection Overlay Zones

Overlay zones can be used to apply special restrictions to areas with unique conditions such as rivers, lakes, floodplains, and associated riparian corridors and buffers. Parcels included within these zones retain their underlying zoning classification but are subject to additional requirements specified in the overlay zoning ordinance. It is important to note that if enacted correctly, riparian conservation zoning is not a “taking” because it doesn’t inherently reduce development density or alter allowable uses otherwise specified. In preparing an overlay zone, it is first necessary to identify the geographic limits of the areas to be included. A riparian corridor map inventory is a critical component of the overlay process. The purpose for the zone and any use restrictions or development requirements must also be clearly stated.



Communities may sign environmentally sensitive areas included in their resource protection overlay zones.

The adoption of an overlay district can accomplish any of the following, depending upon how it is structured:

1. Require all parcels within the zone to be inventoried.
2. Alert developers that the parcel contains potentially significant resources, and development of the site would be subject to special restrictions.
3. Allow the community to identify priority protection areas that a developer must refrain from developing or develop with minimal site disturbance.

Parcels falling within a riparian overlay zone may be inventoried on a lot-by-lot basis or via a comprehensive survey. During the inventory process it is important that the full ecological significance of a parcel in relationship to its surroundings is considered. Communities are encouraged to adopt riparian-based conservation overlay zones that can be used to direct development away from sensitive riparian areas, require significant riparian buffers, and be coupled with conservation easements or land donations to preserve riparian lands in perpetuity.

Natural Features Setback Standards: Buffer Width Options

A natural features setback establishes a minimum setback (buffer width) from natural features to prevent physical harm or destruction of the feature. This ordinance recognizes the relationship that terrestrial and aquatic ecosystems have to one another and should be applied to both small streams and larger rivers. Each community establishes buffer width standards at their discretion. In general, the wider the buffer the greater the number of ecological functions the riparian zone will provide. Communities may choose to establish fixed or variable width buffers or a combination of the two.

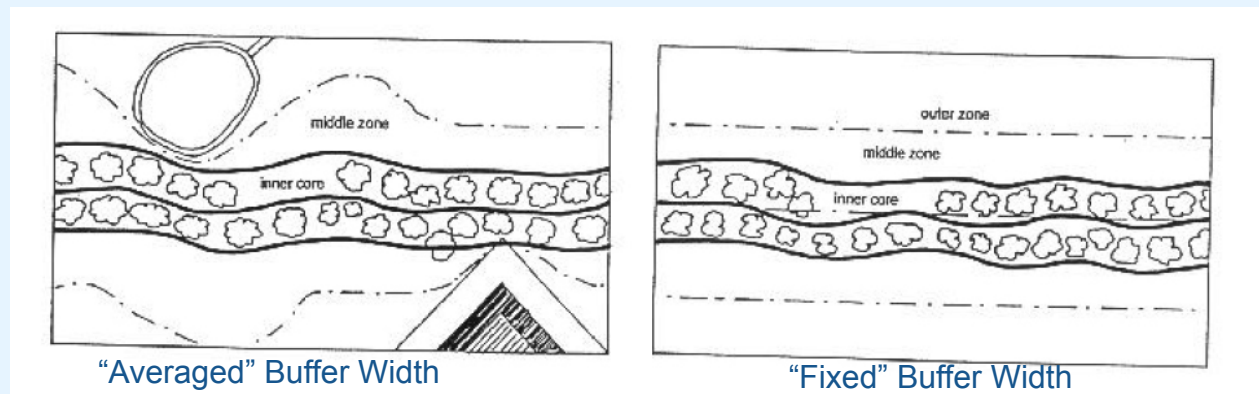
Fixed-width Buffer

The community can establish a fixed-width riparian buffer similar to a utility right-of-way, whose width is determined before construction begins. The fixed width should be determined by selecting a distance that protects the community's most desired riparian functions. Fixed-width buffers are simplest to administer but may be ecologically inadequate in many situations.

Variable-width Buffer

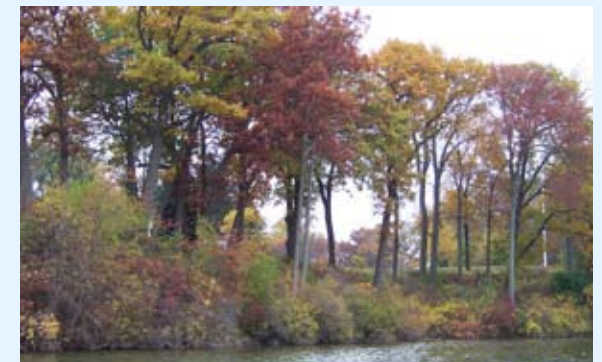
While more difficult to administer, adopting a variable width buffer ordinance provides communities the opportunity to tailor riparian protection to the land, and eliminates a cookie-cutter approach to buffer management. Variable-width buffers are more ecologically-based, and address site-specific conditions such as slope and intensity of land use. Because the goal of variable-width buffers is to account for ecological variation in every stream and parcel, they require more site evaluation than fixed-width buffers.

Stream Buffer: Averaging in the Middle Zone



(Reprinted with permission from "Site planning for Urban Stream Protection" (Schueler, 1995))

Communities may opt to enact a combination of fixed and variable-width buffer standards by determining a standard width, and specifying criteria for expanding or contracting the buffer. Often this is achieved through buffer averaging that allows exceptions to the fixed-width standard to account for the 100-year floodplain, steepness of slope, adjacent wetlands, critical habitat, stormwater ponds, limited lot size, and pre-existing structures.



Fall colors along a well-vegetated portion of the Lake Angelus shoreline. (Photo Credit: Oakland Land Conservancy)

Site Design & Review Standards

Riparian zoning ordinances, regulatory measures, and design standards should guide the placement of development, not prohibit it. When possible, specific sustainable site design, construction methods, and review standards should be outlined in the community's ordinances and other regulatory documents. This will help make the community's expectations for riparian preservation clear, and provide development professionals with a greater degree of certainty in the development and permitting process. Communities may enforce the riparian conservation techniques presented in their planning and regulatory documents by right or by special exception.

The site plan development and review process provides a forum for communities and developers to discuss possible development approaches, and for communities to determine developer compliance with riparian (and additional natural and water resource) protection provisions specified in community planning and regulatory documents.

Community residents tour a CSO basin construction site.
(Photo Credit: SEMCOG)

Pre-Application Conference: Setting the Stage for Development

Communities can facilitate quality decision-making and collaboration by holding a pre-application conference with the developer. At the meeting, staff or consultant planners, engineers, and local officials familiarize the applicant with the policies and procedures of the community, and discuss the vision of the community as it relates to the piece of land in question. A site visit may also be scheduled early in the review process to assess and discuss the environmental sensitivity of the property, and to help the developer save time and expense designing around it. This is a good opportunity to discuss the value of riparian buffers and the reasons to implement site design measures for riparian corridor protection.



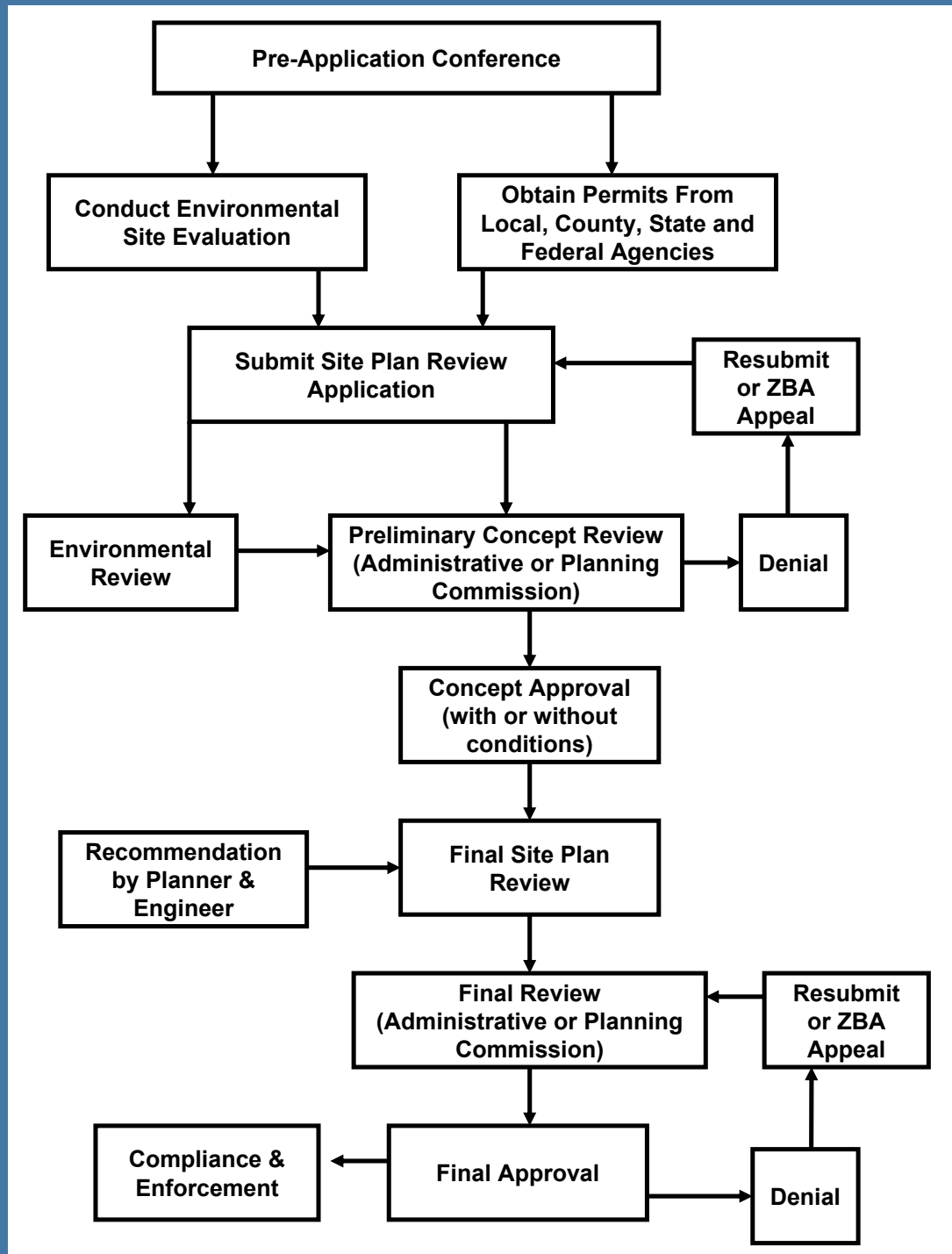
Potential Ordinances and Regulatory Measures for Riparian Corridor Protection

1. Resource Protection Overlay Zones
2. Natural Feature Setbacks
3. Storm Water Ordinance
4. Impervious Surface Limitations
5. Soil Erosion and Sedimentation Control
6. Steep Slope Regulations
7. Trees & Woodland Protection Ordinance
8. Native Vegetation Ordinance
9. Establishing Wildlife Corridors & Greenways
10. Controls on Docks and Other Water Dependent Structures

Site Plan Review Process

A Model Site Plan Review Process for Water and Natural Resource Protection

The following diagram outlines a model process that may be used to guide actions during site plan development and review. Not every step of the process may be necessary with every site plan decision; however the model process illustrates potential steps a community can take that may have a positive impact on the quality of decision-making.



During the site plan review process, careful consideration should be given to the potential impacts a proposed development may have on adjacent water resources and associated buffers.

(Photo Credit: SEMCOG)

Map of Existing Resources & Site Analysis

The most important documents to have in place for the pre-application conference are professional land surveys and GIS maps that delineate the property's riparian resources and related natural features. These documents should be used to guide ecologically-sound decisions regarding site-appropriate development design measures for riparian protection.

The following elements should be included in the land survey and/or GIS maps of the property. It may be useful to distribute this list to the applicant prior to the conference.

Proposed Development Information

- Available infrastructure (existing utilities)
- Special districts (resource overlay)
- Site topography (2-foot contours or less)
- General construction zone, building location, and orientation
- Professional tree and natural features survey
- Site improvements, building locations, and conceptual stormwater management plan
- Pre-development drainage area delineation (total area tributary to site)

Natural Features

- Sensitive headwaters area
- Lake, river, or stream
- Wetlands (note acreage, type, functional values of wetland)
- Floodplain
- Groundwater recharge and discharge areas
- Landmark trees
- Woodlands and tree rows
- Wildlife corridors
- Fragile land (high erosion areas)
- Unique geological features
- River valley features (bluffs, terraces, ravines)
- Sloped land
- Endangered or protected species present
- Wellhead protection area
- Natural drainage pathways
- Soil types

Heritage Features

- Designated agricultural/orchard area
- Human pathway/trail connection
- Cultural features
- Historic features
- Viewsheds or vistas

Site Description

- Property boundaries
- Existing zoning
- Master plan designation
- Current land use
- Adjacent property zoning
- Adjacent property land use
- Legal history (easements/deed restrictions)



This Clinton River Trail pedestrian bridge, over the Clinton River in Rochester Hills, represents an important heritage feature.

Based on the information gathered and discussed at the pre-application conference, the community may require the applicant to submit a professional environmental survey as part of the preliminary site plan preparation. At this time, the applicant should investigate necessary permits. Permits should be secured after preliminary site plan review and prior to final site plan approval. During site plan review, the community's staff planner or planning consultant, and planning commission should thoroughly review the proposed plan to evaluate potential impacts on riparian and related natural resources. The community should be mindful of opportunities to minimize environmental damage and leverage opportunities presented by the development project.



Conventional Subdivision Layout
(Conservation Design Forum, 2003)

Design Measures for Riparian Corridor Protection

The following elements represent a menu of design measures for riparian and natural resource protection that communities may choose to encourage or require developers to incorporate during the site plan review process.

Conservation Subdivision or Open Space Regulations:

- Can require a developer to prepare a natural features inventory on proposed project sites.
- Can require a certain percentage of total parcel acreage to be retained as open space.
- Can reference minimum buffer widths for riparian corridors and identify upland areas adjacent to riparian corridors as preferred green space designated for low-impact residential recreation activities.
- Can advocate cluster development that concentrates construction on land with less conservation value, and allows owners of house lots in the development to share undivided ownership of the portion of the property remaining in a scenic and natural condition.
- Can advocate lot averaging standards for retention of riparian resources and natural features on smaller sites.

Lot Size & Density Regulations:

- Provide flexible lot size and density standards to guide development away from a stream buffer or other sensitive land.
- Provide developers with density bonuses for land-conserving design and density and disincentives to actively discourage land-consuming layouts.

Minimum Frontage & Road Setback Regulations:

- Provide flexibility in frontage and road setback standards to minimize development intrusion on riparian buffers.



Conservation Subdivision Layout
(Conservation Design Forum, 2003)

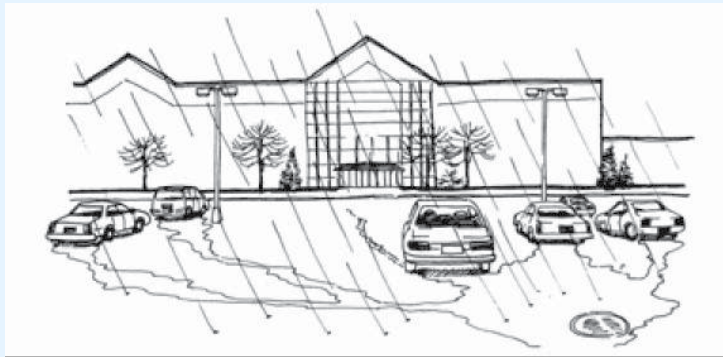
Impervious Surface Reduction Regulations:

- Limit land disturbance and grading.
- Set standards that limit the overall area of impervious surfaces and suburban lawns.
- Encourage developers to use alternative materials that allow rain and snowmelt to soak in rather than run off, such as porous pavement, bioretention areas, filter strips, and/or vegetated swales.
- Set guidelines for designing roads, sidewalks, driveways, and other parking areas to minimum width standards.

Stormwater Management Guidelines:

- Regulate erosion control before, during, and after construction.
- Encourage developers to retain natural vegetation already at work protecting waterways.

- Create a variable-width, naturally vegetated buffer system along all perennial streams that also encompasses critical environmental features such as the 100-year floodplain, steep slopes, and wetlands.
- Limit clearing and grading of forests and native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.



- Promote forested buffers as part of stormwater management planning.
- Allow the pollution removal effectiveness of buffers and infiltration devices to be credited in stormwater plans and calculations.

Wastewater Management Specifications:

- Include erosion and sedimentation control, stormwater management, landscaping, and provisions for special investigative studies.

Conventional Stormwater Conveyance System
(Photo Credit: Carlisle/Wortman Associates, Inc.)

Alternative Stormwater Conveyance System
(Photo Credit: Carlisle/Wortman Associates, Inc.)



Important Planning & Regulatory Elements of a Local Riparian Corridor Protection Program*

- Provide ample set-backs for sanitary facilities on corridor areas
- Preserve a native vegetative buffer strip immediately adjacent to the watercourse. The wider the buffer strip, the greater the water quality protection and habitat value
- Establish structural setbacks from rivers and streams
- Regulate road placement adjacent to the riparian corridor
- Restrict clearing, construction, and development within the 100-year floodplain
- Zone areas adjacent to riparian corridors for low intensity development
- Establish minimum lot size, frontage, and width requirements
- Include reference to floodplain, soil, and sedimentation controls administered by other agencies in corridor regulations
- Screen new structures with native vegetation
- Limit industrial use along riparian corridors and regulate through special use permits subject to pre-designated standards
- Limit the amount of impervious surfaces allowed adjacent to the corridor
- Clearly outline appropriate and inappropriate use of riparian corridors (recreational activities, water access, etc.)
- Promote intergovernmental coordination of regulations among communities along the river corridor

* Adopted From Michigan Wetlands - Yours to Protect

Southeast Michigan Model Ordinances for Riparian Resource Protection

The model ordinances listed here are intended to provide language and ideas that southeast Michigan communities can incorporate when developing their own ordinances. The sidebar of community resources provides additional references that address planning for riparian corridor and natural resource protection at the local level.

Storm Water Management Ordinance

- Canton Township
- Salem Township
- Washtenaw County
- Wayne County

Floodplain, Watercourse and Wetland Protection

- West Bloomfield Township
- Ann Arbor Township

Natural Features Setback Ordinance

- Waterford Township

Soil Erosion and Sedimentation Control

- Novi



Riparian Corridor Problems and Protection Measures

Comprehensive conservation and management of riparian corridors requires that communities address the following factors in their planning and ordinance documents:

Riparian Corridor Protection Measure	Problem	Action Steps	Applicable Planning & Regulatory Tools
Erosion & Sedimentation	<p>Removing or reducing riparian buffer vegetation leads to bank erosion and associated sedimentation of surface waters. Erosion and sedimentation seriously impact water quality and aquatic ecosystems. Much of the erosion and sedimentation problem is associated with construction sites. With an anticipated 390,000 new and replacement households in the SE MI region by 2025, removal of riparian vegetation and associated erosion and sedimentation are serious threats to our resources.</p>	<p>Ensure that the agency responsible for enforcing soil erosion control permits has proper funding to administer regular inspections, and enforce permit compliance, if not conducted by the County.</p> <p>Educate riparian property owners on how they can prevent soil erosion on their property and report non-compliance.</p>	<p>Incorporate a riparian buffer system into master plans and zoning ordinances to prevent erosion and sedimentation into aquatic systems.</p> <p>Link development approvals to compliance with soil erosion protections.</p> <p>Reduce or limit the amount of impervious surfaces around the water resource through mechanisms such as overlay zoning.</p> <p>Assure that all erosion control permit requirements have been satisfied before issuing the local occupancy permit.</p>
Habitat Protection	<p>Riparian corridors provide high-quality habitat for a wide variety of wildlife, and often serve as protective corridors that facilitate wildlife movement and allow access to critical terrestrial and aquatic resources in urbanized landscapes. Land use that compromises the width and quality of riparian corridors can have far-reaching repercussions on local wildlife populations.</p>	<p>Inventory riparian corridors for native and non-native vegetation species.</p> <p>Advocate the use of native riparian vegetation and backyard conservation programs to riparian property owners.</p> <p>Contact a local land conservancy to discuss options for maintaining high-quality riparian corridor areas in perpetuity.</p>	<p>Advocate for a multi-community, watershed-based, riparian corridor greenway initiative in the community master plan.</p> <p>In the community master plan, include goals, policies, and objectives to remove invasive species from riparian corridors.</p> <p>Encourage use of native vegetation in the riparian planting guidelines of local zoning ordinances and prohibit use of invasives.</p> <p>Establish and require minimum riparian buffer widths in site design standards and development regulations.</p>



Riparian Corridor Protection Measure	Problem	Action Steps	Applicable Planning & Regulatory Tools
<p style="text-align: center;">Stream Corridor and Floodplain Protection</p>	<p>Riparian vegetation plays an especially critical role in protecting water quality and preventing flood damage to properties located adjacent to streams and floodplains.</p>	<p>Conduct a stream corridor inventory to identify opportunities to mitigate impacts of existing or future development on stream corridors and floodplains.</p> <p>Educate residents on the benefits of protecting stream corridors and floodplains and provide a mechanism to report those not complying with floodplain or stream buffer ordinances.</p> <p>Actively strive to achieve and maintain the natural land use in riparian zones.</p> <p>Advocate the use of native plants in stream corridor and floodplain restoration projects.</p>	<p>Incorporate measures into community master plans and ordinances to protect 100-year floodplain areas such that no building encroachments should be allowed that will significantly impact flood storage capacity, water quality, or wildlife habitat.</p> <p>Adopt a buffer ordinance for stream corridors. The wider the buffer, the more protective it will be. Many communities have adopted 25 foot buffers; however wider buffers may be more protective of very sensitive features. This buffer should be extended to include adjacent sensitive areas where present.</p> <p>Advocate the use of a variety of conservation development techniques to protect the ecological integrity of stream corridors and floodplains including: cluster development, transfer of development rights, land acquisition, land purchase, or conservation easement.</p> <p>Include an assessment of the impact of riparian areas as part of the site plan review process.</p>

Volunteers removed invasive garlic mustard from areas bordering Johnson Creek. This event was sponsored by Visteon as part of Johnson Creek Day in 2005.

(Photo Credit: Johnson Creek Protection Group)



Pebble Creek Stabilization Project

(Photo Credit: Wayne County Department of Environment)

Riparian Corridor Protection Measure	Problem	Action Steps	Applicable Planning & Regulatory Tools
Watershed Management	Riparian corridors do not stop at municipal boundaries. Riparian corridors are often most effectively managed at the watershed level through multi-municipal partnerships coordinated to address concerns specific to upstream and downstream portions of the riparian corridor.	<p>Contact neighboring communities concerning interest in watershed-wide and subwatershed planning for protecting and managing riparian corridors.</p> <p>Engage in watershed and subwatershed planning and implementation.</p>	Local government ordinances that regulate private development should be protective of riparian corridor quality and quantity.
Public Education and Participation	Local riparian protection programs will not be successful without the support of the public. Public education and participation programs provide communities with an opportunity to build support and stewardship within their jurisdiction for riparian corridor protection initiatives.	<p>List environmental education mechanisms that could be used within the community. Identify and prioritize opportunities for each mechanism.</p> <p>List environmental education partners with expertise in riparian corridor stewardship.</p> <p>Provide public education workshops that promote the identity and value of riparian corridors within the community and provide information on how citizens can become involved in riparian protection and stewardship activities at the local level.</p>	<p>Provide goals, policies, and objectives within the community master plan that advocate raising public awareness about the importance of a local riparian corridor protection program.</p> <p>Provide language in the master plan that advocates supporting the efforts of the local watershed councils.</p>

Riparian Corridor Protection Measure	Problem	Action Steps	Applicable Planning & Regulatory Tools
<p>Wetland Protection</p>	<p>Wetland health and function are intricately linked to the presence of riparian buffers. Wetland buffers function to maintain water quality by filtering stormwater run-off, preventing shoreline erosion control, and providing food and nesting habitat for wetland-dependent species. Impacting the integrity of riparian buffers can have far-reaching negative impacts on wetland systems.</p>	<p>Inventory and map the wetlands in your community.</p> <p>Identify wetland buffer restoration needs within the community.</p> <p>Educate residents about the benefits of wetlands and associated buffer zones and provide a mechanism to report non-compliance with the wetland and wetland set-back ordinance.</p>	<p>Include goals, policies, and objectives for preserving and restoring wetland buffer zones within the community master plan.</p> <p>Establish a wetland protection ordinance or set-back ordinance to protect wetland buffers.</p> <p>Provide a list of recreational activities that are acceptable within riparian buffer zones in the community's recreation plan.</p>



Volunteers Participate in the Rouge Rescue in 2002
(Photo Credit: Friends of the Rouge)



Benthic Sampling Volunteer Training in Superior Township
(Photo Credit: Friends of the Rouge)

Non-Regulatory Options for Protecting Riparian Corridors

Communities can also employ a number of non-regulatory tools to promote riparian corridor protection at the local level.

Public Education

Successful implementation of a riparian corridor protection program will require community support. Involving the community in educational programs that provide instruction on the tools and techniques most appropriate for riparian corridor management can garner support for riparian protection, as well as facilitate corridor-friendly land use practices on privately-owned land.

Communities are encouraged to emphasize the following riparian conservation topics:

- Native landscaping education
- Riparian corridor management Education
- Downspout disconnection



Community members gather to support the launch of a public education poster for the Rouge Green Corridor.

Educate homeowners about the value of riparian resources. Emphasis should be placed on conveying the message that individual resident's conservation practices can have a positive, lasting effect on the region's riparian areas and water resources. Inform residents that activities such as unintentional encroachment, dumping, vegetation removal, or altering drainage can reduce buffer function.

Reduce Mowing

Encourage road agencies to avoid mowing vegetation in riparian buffers where roads are close to streams. Excessive mowing of riparian buffers and adjacent upland areas reduces the buffers ability to moderate stormwater run-off and keep trash, road pollutants, and excessive sediment out of the community's waterways.

Land Purchase or Conservation Easements

Work with a local land trust to acquire riparian development rights through purchased or donated conservation easements. An easement should include both the streambank and adjacent riparian buffer.

Guidance on timber harvesting, land conversion, construction, or road building within the buffer can be written into the easement. A conservation easement need not require the landowner to provide public access, and it can offer significant tax advantages.

Provide Recognition for BMPs

Recognize landowners who do maintain buffers: designate annual "watershed friendly residence, business, and development" awards from the planning commission, and provide publicity.

Land Protection Tax and Credits

Communities can also consider providing property tax incentives for landowners who set aside buffers, and can acquire especially sensitive waterfront lands for public space.



Students learn about benthic organisms found in the Rouge River.
(Photo Credit: Friends of the Rouge)

Model Zoning Ordinance Language for Riparian Protection

Source: *Conservation Design Resource Manual: Language and Guidelines for Updating Local Ordinances*. Northeastern Illinois Planning Commission and Chicago Wilderness. March 2003. 102pp.

The [Municipality or County] recognizes the importance of riparian buffers that preserve, provide access to, or otherwise serve as necessary adjuncts to natural areas by protecting streams, lakes, and wetlands. Buffers include, but are not limited to, areas of predominantly deeply rooted native vegetated land adjacent to channels, wetlands, or lakes for the purpose of stabilizing banks, reducing contaminants including sediments in storm water that flows to such areas. The function of the buffer is to create a transition to the area targeted for protection. The buffer absorbs and withstands the impact of harming activity. For this reason, the ongoing healthy function of the buffer must be assured. Accordingly, the harmful activity cannot be allowed to overpower the buffer. Natural areas and buffers shall be preserved on the site, including, without limitation, native vegetation, wetlands, natural floodplain storage, or other valuable environmental and biological resources.

- A. An area designated for natural area and buffer protection purposes may be:
 - 1. preserved or restored to its natural state
 - 2. designed and intended for the passive use and/or enjoyment of residents of the proposed development
 - 3. preserved in order to expand and extend the usefulness of existing preserved open space and natural areas
- B. Dedicated buffers and natural areas shall be designed and located to conserve significant natural features located on the site.
- C. Dedicated natural areas shall be interconnected with open space areas, greenways, and trails on abutting parcels where possible and appropriate.

Summary Guiding Principles for Protecting Riparian Corridors at the Local Level

Communities should strive for a balance between protecting riparian habitat and water quality and changing land use patterns, leading to a more sustainable region.

Communities should have natural features inventories performed and use this information to update master plans, zoning, and other ordinances.

Communities should work with other communities to develop greenway plans that connect valuable riparian habitat areas.

Communities should encourage preservation and restoration of riparian buffers through set-back and floodplain ordinances, and soil erosion and sedimentation standards.

Communities should incorporate native plants into riparian landscape practices and should require it as part of their site plan review process.

Communities and developers should work to promote and facilitate innovative design strategies such as open space or cluster developments that reflect the natural capacity of the land to support development, and conserve natural features such as riparian corridors.

Communities and businesses should work together to maintain riparian buffers and the natural drainage system when proposing and reviewing site plans.

Rights and Responsibilities of Riverfront Property Owners

General Guide to Waterfront Laws*

The rights of riparian land owners and the waters of Michigan are protected and regulated by a number of laws. Much of the general concepts for Michigan's water use laws developed through court cases and rulings given over the past 200 years. The State Legislature also has passed comprehensive laws, such as the Natural Resources and Environmental Protection Act, 1994, PA 451 which includes Part 301, Inland Lakes and Streams, and Part 303, Wetlands Protection. Both regulate certain uses of riparian areas. The Oakland County Drain Commissioner also has jurisdiction over certain drainage ways within Oakland County to minimize flooding and ensure conveyance of stormwater.

**Regulations about the use of water in the State are complex and continue to evolve. The information included here was gathered from a number of sources: Public Rights of Michigan Waters, published by the Law Enforcement Division of the State of Michigan, 1997; the Michigan Waterfront Alliance website, and the Michigan Lakes, Streams and Watersheds Association website. It should not be construed as legal advice, nor a comprehensive evaluation of the topics discussed.*

Jurisdictional Boundaries

There are several general concepts that form the basis for Michigan's riparian laws. Several are explained here:

- In general, the State of Michigan has jurisdiction over "navigable" waters, fish, and water-oriented construction operations, such as marinas, docks, canals, bridges, dredging, filling, and impoundments. The State uses the definition of navigable waters to determine if a lake or stream is public (navigable) or private (non-navigable). The definition of navigable has been developed through a series of judicial decisions, but there is significant uncertainty regarding the public or private character of most of the State's streams. Many streams are designated public or private after some type of litigation has been settled over the use of the stream by someone other than the riparian land owner.

- A riparian land owner (or Riparian) is one who owns land or property abutting water. The Riparian also owns the submerged lands adjacent to his or her property to the center of the lake or stream. However, a Riparian does not own the water, or in most cases, the fish. These are held in public trust for the benefit of all the people. The surface of a lake, whether open or frozen, is shared equally by all riparian property owners that abut the lake. They may fish or boat on any part of it.
- The Oakland County Drain Commissioner is given jurisdiction by municipalities to establish drainage districts and implement drain projects. Application is made by a community for both tasks. Once an application is made, it is evaluated by the Drain Commissioner's office and either accepted or denied. Natural drainage ways may be designated as a County Drain, and this designation may only cover portions of a natural stream, as opposed to the entire length of the stream. A drain also can be an underground pipe, retention pond, ditch or swale that conveys stormwater.

Rights of Passage within a Watercourse

If a stream is navigable, the public has the right to wade up a stream and fish, but cannot trespass on the uplands. However, if the stream is obstructed or in case of an emergency, the fisherman can make reasonable use of the upland to go around the obstruction or get help. An abutting property owner may not create obstructions to keep the public from wading, swimming or fishing a navigable stream. If the stream is not navigable, the public cannot wade up the stream, or access the stream by boat. Hunting, on the other hand, is a right that goes with land ownership and permission from the landowner is required.



Portions of the Shiawassee River may not be accessible during the hot summer months, when the high water mark is down.

Drawing Water for Irrigation

As indicated earlier, riparian land owners do not own waters adjacent to their lands, but do have the right to reasonable use of the water for their own purposes, including irrigation. However, the landowner cannot impair the water as it passes along or decrease the benefits of the water for other riparian landowners. Non-riparian owners are not entitled to similar water use rights, and extraction of water for their own purposes is considered trespassing against the rights of the riparian owner. Further, a riparian landowner cannot permit a non-riparian landowner to withdraw water.

Footbridges

The Inland Lakes and Streams laws do not allow property owners to structurally interfere with the natural flow of a stream, nor construct anything within the bottomland of a stream without a permit from the MDEQ. In addition, the Oakland County Drain Commissioner, who is charged with ensuring drainage of stormwater throughout Oakland County, prefers that homeowners refrain from constructing footbridges because of the possibility of debris collecting under these small bridges and obstructing the flow of the stream.



A footbridge over the Clinton River allows nearby residents entry into the Drayton Plains Nature Center.

What Waters Are Considered Navigable or Public?

Riparian Activities Requiring a Permit

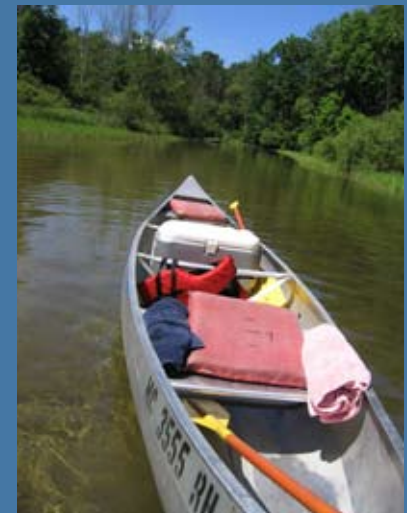
The Inland Lakes and Streams legislation describes activities where a riparian land owner must obtain a permit from the Michigan Department of Environmental Quality (MDEQ). These include the following:

- Dredge or fill bottomland (Bottomland is the area that lies below the ordinary high-water mark and may or may not be covered by water)
- Construct, enlarge, extend, remove, or place a structure on bottomland, such as a permanent dock. Seasonal structures for noncommercial recreational use do not require a permit as long as they do not interfere with the use of the water by others entitled to use the water or interfere with water flow.
- Erect, maintain, or operate a marina
- Create, enlarge, or diminish an inland lake or stream
- Structurally interfere with the natural flow of an inland lake or stream

A navigable inland stream is:

1. Any stream declared navigable by the Michigan Supreme Court
2. Any stream included within the navigable waters of the United States by the U.S. Army Corps of Engineers
3. Any stream that floated logs during the lumbering days, or a stream of sufficient capacity for the floating of logs in the condition which it generally appears by nature, notwithstanding there may be times when it becomes too dry or shallow for that purpose
4. Any stream having an average flow of approximately 41 cubic feet per second, an average width of some 30 feet, an average depth of about one foot, capacity of flotage during spring seasonal periods of high water limited to loose logs, ties and similar products, used for fishing by the public for an extended period of time, and stocked with fish by the State
5. Any stream which has been or is susceptible to navigation by boats for the purposes of commerce or travel

6. All streams meandered by the General Land Office Survey in the mid 1800's. Note that the Michigan Supreme Court designated the Rouge River navigable from its mouth to 15 miles upstream from the mouth. Navigable is not whether a boat can be used in a lake or stream, but is based on the "floating log" test, which was a very useful tool during logging days in Michigan. If a log can float down a waterway, then it is considered navigable, and usable for commerce, travel, and trade. Navigable waters are considered public, which brings with it rights for public use. Even though we do not use rivers to float logs to market any more, this standard is still used as the legal test to define public waters.



- Construct, dredge, commence, extend, or enlarge an artificial canal, channel, ditch, lagoon, pond, lake, or similar waterway where the purpose is ultimate connection with an existing inland lake or stream, or where any part of the artificial waterway is located within 500 feet of the ordinary high-water mark of an existing inland lake or stream.
- Connect any natural or artificially constructed waterway, canal, channel, ditch, lagoon, pond, lake, or similar water with an existing inland lake or stream for navigation or any other purpose. Wetlands and floodplains are regulated in a similar way through Part 303, Wetlands Protection, of the Natural Resources Environmental Protection Act, 1994 PA 451. This law specifically applies to wetlands connected to an inland lake, pond, river or stream, or a

wetland located within 500 feet of an inland lake, pond, river, or stream. Wetlands that are not connected and are greater than five acres in size are also protected, as are non-connected wetlands of any size that the MDEQ determines are essential for protection of the State's natural resources. The property owner must obtain a permit from the MDEQ for any of the following activities: deposit or permit the placing of fill material in a wetland; dredge, remove, or permit the removal of soil or minerals from a wetland construct; operate, or maintain any use or development in a wetland; drain surface water from a wetland. A guidebook, called the Permit and Licensing Guidebook, has been developed by MDEQ to explain the permit requirements for these activities. Refer to the MDEQ website or contact the Land and Water Management Division for more information.

Summary

Community planning plays an important role in the management of riparian resources. Planning policy tools include relevant background information, goals and objectives in community master plans, parks and recreations plans, and other planning documents. Master planning provides the legal basis for regulatory actions (such as zoning) and also provides a solid foundation and direction for non-regulatory community programs. Relevant regulatory measures to protect riparian corridors include resource overlay zones, natural features setbacks, and site design and review standards. A pre-application conference with developers is a useful way to influence site design without necessarily depending on regulatory measures. Pre-application meetings should include mapped information describing the natural resources of the site. Many design measures to reduce impacts on riparian resources may be employed, including open space cluster design, lot size flexibility, frontage and road setback requirements, impervious surface reductions, and stormwater and wastewater management. Other non-regulatory options for protecting riparian corridors include public education, reduced mowing, land acquisition, land protection, and best management practices.