

First Draft
For Review and Discussion Purposes Only
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Association of State Wetland Managers, Inc.

**MODEL ORDINANCES
FOR
REGULATING WETLANDS
AND
RIPARIAN HABITATS/STREAM
BUFFERS**

By Jon Kusler, Esq.
(518) 872-1804
jon.kusler@aswm.org

This is a discussion draft.
Please submit any comments, corrections or
suggestions to Jon Kusler by November 1, 2007.
Your help is much appreciated.

PREFACE

The goal of the following paper has been written to help communities protect and restore vulnerable wetlands and related riparian ecosystems by adopting or upgrading regulations including:

- Wetland regulations, or
- Riparian regulations, or
- Combined wetland, riparian area, and watercourse regulations.

These regulations may be adopted as “stand alone” ordinances or as part of broader ordinances.

The ordinances set forth herein are based upon

- The publications and web sites listed in the bibliography,
- Model wetland and riparian regulations listed in the bibliography,
- A web-based search of local wetland and riparian zone regulations, and
- The author’s experience over several decades working with wetland and floodplain regulations at all levels of government.

Much of the model language and most of the concepts have been extracted from other, existing ordinances.

The models must, of course, be tailored to local conditions and needs. We hope you find them useful. They are in draft form and any comments or suggestions are welcome.

Sincerely,

Jon Kusler

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PART 1: WHY SHOULD LOCAL GOVERNMENTS ADOPT WETLAND AND RIPARIAN AREA ORDINANCES?

Threats to Waters

Over the last two decades, an estimated 5,000 local governments have adopted regulations to protect and restore wetlands and/or riparian areas/stream buffers. In some instances the regulations have also addressed “watercourses”. Adoption has been motivated by:

- Worsening **nonpoint water pollution** including nutrients, sediment, pesticides, other toxic substances from stormwater, agricultural runoff, application of pesticides on upland areas, grading and filling, and other sources of pollution.
- Worsening **natural hazard losses** from flooding and erosion due to construction of residential housing and other activities in wetland and riparian/stream buffer areas and the destruction of flood storage and flood conveyance.
- EPA, state, and local regulations requiring communities to deal with both the quantity and quality of **stormwaters**.
- Loss of **fish habitat and recreational fishing** for salmon, trout, and a broad range of other fish species due to pollution, sedimentation, dewatering of rivers and streams, and increased water temperatures.
- Threats to **potable water supplies** by sediment, toxic chemicals, pesticides, excessive nutrients, and other pollutants. Over the last decade, the demand for water for domestic water supply, agricultural, industrial, commercial and recreational purposes has skyrocketed. These demands are projected to increase with added population and economic growth. Rising demands are faced with limited, fixed supplies.
- Threats to **endangered species** such as salmon due to pollution, destruction of habitat, and dewatering of rivers and streams.
- **Watershed management initiatives** which address flooding and stormwater management, navigation, recreation, water supply, and other goals.
- Community interest in providing **open spaces and greenways** as part of **comprehensive planning** and **smart growth** initiatives.
- **State statutes requiring that local governments adopt** wetland protection regulations. Such requirements are contained in shoreland and shoreline zoning statutes (e.g., Wisconsin, Minnesota, Maine, Washington), coastal zone management statutes (e.g., Virginia, California), wetlands and watercourse statutes (e.g., Connecticut), wetland protection statutes (e.g., Maryland), and comprehensive land planning and growth management statutes (e.g., Florida, Washington).
- **Gaps in state and federal** wetland regulations and other protection measures due to exempted activities (e.g. agriculture, certain types of dredging), court cases (e.g., SWANCC, Rapanos), and lack of adequate administrative and enforcement staff and budgets.
- **Advocacy and help** at the local level by citizen groups such as land trusts and watershed councils. These groups are working with local governments and landowners to protect wetlands and riparian/stream buffer areas. They are educating landowners and acquiring fee interests and conservation easements. They are undertaking mapping and planning. They are assisting local governments draft and publicize local regulations. They are reporting violations and commenting on local permits.

Watershed Context for Wetlands and Riparian Areas

In a typical U.S. watershed, some of the precipitation falls directly into water bodies. But, most falls onto the land. Some is lost to evaporation. Most runs off through sheet flow, channelized flow, and flow through wetlands and riparian areas (during high water and flood stages). Much of this precipitation is ultimately discharged into larger rivers and streams, lakes, reservoirs, and coastal waters. The quality and quantity of water in these larger water bodies is dependent upon what happens to the runoff along the way.

Wetlands and riparian areas not only convey runoff but greatly affect its quality and quantity. More specific functions of wetlands and riparian areas include:

- **Intercept pollutants before they reach other waters.** Wetlands and riparian areas intercept sediment, nitrogen, phosphorous, and a host of other non pollutants before they reach other water bodies.
- **Remove pollution from rivers, lakes, streams, coastal waters.** Wetlands in lakes, rivers, streams and estuarine waters remove sediment, debris, nutrients (e.g., denitrification) in both normal and high flows. Riparian areas remove sediments and pollutants from river and stream waters during high flows.
- **Convey flood waters from upstream to downstream areas.** Both riverine wetlands and riparian areas act as flood conveyance areas. Most lie within “floodways” on FEMA flood maps.
- **Store flood waters and stormwaters.** Both wetlands and riparian areas store flood waters, reducing downstream flood heights and velocities.
- **Stabilize river and creek banks and provide erosion control.** Riverine wetlands and riparian areas reduce the velocity of river flows, stabilizing river and creek banks. Riparian vegetation also binds the soil, stabilizing banks and reducing erosion.
- **Provide recreation areas for biking, hiking, bird watching and other activities.** Wetlands and riparian areas provide bird watching and canoeing areas. Riparian areas provide hiking, biking, bird watching and other recreation.
- **Provide natural crops such as timber and hay.** Both wetlands and riparian areas produce timber. Wetlands provide cranberries and saltmarsh hay. Riparian areas produce high bush blueberries and many other fruits.
- **Provide educational opportunities.** Both wetlands and riparian areas provide educational opportunities including research areas for primary and secondary schools, colleges, and universities.
- **Protect water supplies including water supply reservoirs.** Both wetlands and riparian areas protect potable water supplies by intercepting sediment, bacteria, and other pollutants before they can reach such waters and (in the case of wetlands located in streams and lakes) removing pollutants from waters..
- **Shade rivers, creeks, and streams, reducing water temperatures.** Vegetation in both riverine wetlands and riparian areas shade rivers, creeks, and streams, reducing water temperatures and protecting fish.
- **Provide fish spawning and feeding habitat.** River, stream, lake, and coastal/estuarine fringe wetlands provide fish spawning, feeding, and resting areas. Riparian habitat provides fish spawning and feeding areas during periods of high water.

- **Provide food chain support.** Both wetlands and riparian zones provide detritus and other food chain support for fish, shellfish, frogs, salamanders, and a broad range of other species.
- **Provide habitat for endangered species such as salmon.** Wetlands and riparian areas provide habitat for a broad range of endangered plants and animals.
- **Provide habitat for many other song birds, waterfowl, amphibians, etc.** Wetlands and riparian areas are the principal habitats for many other types of song birds, waterfowl, amphibians, and reptiles.
- **Provide wildlife corridors.** Wetlands and riparian areas provide wildlife corridors for frogs, salamanders, fish, reptiles, deer, bear, elk and a broad range of other species. These corridors are essential to wildlife breeding and feeding and permit the movement of animal in response to seasonal and longer term changes in precipitation and vegetation.

Wetland and Riparian Systems

Wetlands and riparian areas form the transitional areas between waters and uplands. They share many features.

- Both provide a range of similar functions. See description above.
- Both contribute to base flows of streams.
- Both are often dependent upon the hydrology of adjacent waters.
- Both are subject to erosion and flood hazards although not to the same degree or in the same proportions.
- Both are threatened by ditching, fills, dikes, grading, vegetation removal and channelization.

There are, of course, also differences:

- Location. Riparian areas occur primarily along rivers and streams although they are also found along lakes, reservoirs, and coastal waters. Wetlands occur more broadly in the landscape. They occur adjacent to coastal and estuarine waters, lakes and reservoirs, and rivers and streams. They are also found in depressions, on slopes (seeps in mountainous areas), in permafrost areas, and in other areas of high ground water or poor drainage.
- Degree of flooding/saturation. Many wetlands (e.g., coastal, estuarine, lacustrine, river fringe, depression, slope) are flooded or saturated much of the year. In contrast, most riparian habitats (particularly in the west) are flooded only in the spring or fall or during periods of high rainfall.
- Flooding and erosion hazards. Riparian areas are often subject to severe erosion and flooding hazard, damaging or destroying houses, bridges and other structures. Some but not all riverine, lake, and ocean/estuary fringe wetlands are also subject to waves, deep inundation, and high velocity flows.

- Habitat. Both wetlands and riparian areas provide significant habitat functions although the types of habitat differ. Waterfowl utilize open water wetlands. Fish such as trout and salmon are found in many cold water rivers and streams and associated riparian habitat (during floods). Salamanders and frogs breed in vernal pools.
- Availability of maps. Wetland maps (National Wetland Inventory) exist for much of the Nation. Unfortunately, there are no comparable maps for riparian areas although streams are shown on USGS planimetric and topographic maps and in USGS and other hydrologic inventories.
- Assessment methods. The assessment and modeling tools applied to wetlands are, in general, biologically-related such as HGM and IBI models. Hydrologic and hydraulic models are more often applied to riparian areas including floodplain and floodway analytical models (e.g., HEC, TR20) and stream stability models (e.g., Rosgen).
- Protection efforts. Many efforts have been adopted at federal, state, and local levels to protect wetlands; fewer efforts have been made to protect riparian areas although public land management agencies in the West (U.S. Forest Service, Bureau of Reclamation, Bureau of Land Management) some states, and some local governments have riparian area protection programs.

PART 2. REGULATORY APPROACHES

The U.S. Fish and Wildlife Service estimates that more than 50% of the wetlands have been lost nationally with much greater percentages in some states. Destruction and degradation of wetlands and riparian zones by channelization, drainage, fills, grading, grazing, vegetation removal and other activities has been widespread over the last century.

Nationally, flood and erosion losses also continue to rise due to increased development in floodplains and increased runoff due to urbanization and more intensive use of rural lands.

To stem these losses, thousands of local governments in the East, Midwest, and far West, have adopted wetland protection ordinances. Local governments in the semi-arid West have favored riparian protection ordinances because they have large numbers of streams but fewer wetlands.

These efforts supplement the federal Section 404 program and state public water, wetland, and river and stream protection efforts.

Wetland Protection Ordinances

Wetland protection ordinances adopted by cities, counties, towns and villages take two principal forms:

- Stand-alone ordinances; and
- Regulations adopted as part of broader resource protection or comprehensive planning efforts.

Most of the communities adopting stand-alone ordinances are in states specifically authorizing and in some instances requiring communities to adopt wetland regulations such as the states of Connecticut, Massachusetts, Maryland and Virginia.

However, many other communities have adopted wetland protection provisions as part of broader resource regulation or comprehensive planning efforts. These include communities in Wisconsin, Minnesota, Maine, and Washington which have adopted wetland regulations as part of broader shoreland or shoreline zoning efforts. These include communities in California which regulate wetlands as part of coastal zone management efforts. They include communities in Florida, Washington, California and other states which regulate wetlands as part of comprehensive planning or smart growth initiatives.

Some communities also provide partial protection of wetlands through the adoption of floodplain or floodway and floodplain restrictions, water setbacks for structures, restrictions on wetland vegetation removal, and restrictions on the use of septic tank and soil absorption systems for the disposal of wastes in high ground water areas.

The essential elements of stand-alone and combined wetland regulations are the similar (see description below): statement of goals and objectives; definition of regulated wetlands; incorporation of wetland maps into the regulations (most instances); definition of regulated activities; requirements that regulated activities be undertaken only with a permit; statement of uses permitted as of right; standards and criteria for issuance of permits; and, penalty and

enforcement provisions. These provisions may be incorporated into a single ordinance with a stand-alone approach or integrated into a broader comprehensive planning, coastal zone management, floodplain management or another type of ordinance with a combined approach.

There are advantages and disadvantages with both “stand alone” and “combined” approaches. Stand alone ordinances are easier to understand because wetland-related provisions are in one place. On the other hand, combined approaches tend to better integrate wetland protection into broader planning, zoning, and subdivision control processes and this may provide more comprehensive protection.

Riparian Protection/ Stream Buffer Ordinances

An increasing number of cities, towns, and counties have adopted riparian protection/stream buffer or stream setback ordinances. This is particularly true in the semi-arid West. There are relatively few wetlands in semi-arid regions except for some wetlands along rivers and streams and slope wetlands in the mountainous areas. In semi-arid areas, riparian areas along rivers, creeks and streams serve many of the same functions as wetlands in the East, Midwest, and far West. See report from the Committee on Riparian Zone Functioning and Strategies for Management, Riparian Areas: Functions and Strategies for Management, Water Science and Technology Board, National Academy Press, Washington, D.C. 2002. This report documented the importance of these areas and called for a national riparian protection program.

Some communities with wetland regulations in the Midwest and East are also adopting riparian regulations because protection of wetlands alone is not enough to protect community water resource systems. River and stream corridors must be more broadly protected.

Riparian area ordinances are similar to wetland ordinances in many respects. Like wetland regulations, they can be adopted as

- Stand-alone regulations; or
- As part of broader regulations.

Stand-alone regulations include “riparian habitat”, “stream setback”, “stream buffer” and various river and stream corridor protection ordinances. Riparian protection regulations adopted as part of broader regulations, like their wetland counterparts, include floodplain ordinances, stream setbacks, minimum lots sizes, restrictions on vegetation removal as part of shoreland zoning, scenic and wild river protection, combined wetland and riparian area; “sensitive area”; and comprehensive planning and zoning regulations.

Critical elements of both stand alone and combined riparian area regulations are similar to those for wetland areas such as statement of goals and purposes and definition of regulated riparian areas.

PART 3: TYPICAL ORDINANCE COMPONENTS

Wetland and riparian area ordinances usually include the following sorts of provisions although the level of detail and the order of presentation of these provisions differ from ordinance to ordinance.

Finding of Fact

Wetland and riparian protection ordinances usually begin with findings of fact. Findings help explain to the public, landowners, and regulatory agencies why the ordinance is necessary. Findings also help guide the local regulatory agency evaluating permit applications.

Findings typically summarize the functions of wetlands or/and, riparian areas in the regulating unit (e.g., city, town, county), what has been happening to such areas, and what needs to be done to protect and restore such areas.

Purposes, Goals

Almost all ordinances also contain a statement of goals. This section of an ordinance, like the findings of fact, helps the regulatory agency evaluate permits by establishing general goals for issuance of permits. It also helps the public and landowners understand the reasons for adoption of the ordinance.

Many wetland ordinances in recent years have stated a no net loss of wetland functions, values, and acreage goal as well as more specific goals. See the model ordinances below.

It is to be noted that purposes and goals often emphasize not only protection of wetland functions and values but protection of activities from flooding, erosion and other natural hazards and the prevention of increased hazards on other lands.

Regulatory Authority

Ordinance typically reference the state statute or statutes pursuant to which they have been adopted. This statute may be a wetland protection, shoreland or shoreline zoning, coastal zone management, grading and erosion control, subdivision control, comprehensive zoning, or other statute. In some states a community may also adopt regulations pursuant to constitutional or statutory "Home Rule" powers. See, e.g., *Lovequist v. Conservation Commission of Dennis*, 379 Mass. 7 (1979).

Definitions

All ordinances contain a "definitions" section. Key terms such as "wetland" and "riparian area" are defined here. These definitions are of great importance because they define the scope of the regulations. Some of the most important terms include:

"Wetland". Local governments have adopted a wide variety of definitions for the term "wetland" Local governments must typically adopt the wetland definition contained in any state enabling act authorizing the adoption of regulations. But many enabling acts and implementing

regulations are silent with regard to the definition of wetland and local governments are then able to choose the definition they wish. In recent years, local governments have increasingly adopted the definition of wetland utilized by the Section 404 program. This helps provide consistency in federal, state, and local regulations.

“Riparian Area”. Local governments have also adopted a variety of definitions for “riparian area”. Some define it in terms of a horizontal distance from a water body. Others reference vegetation characteristics.

“Regulated” Activities. The definition of regulated activities is also an important portion of the ordinance because it determines what activities are and are not regulated. Local ordinances typically regulate filling and drainage in wetland or riparian areas. However, ordinances also exempt some activities from regulation such existing nonconforming uses, routine maintenance of ditches, construction of wetlands for stormwater storage or tertiary treatment of wastes, and certain agricultural or forestry activities.

Lands to Which the Ordinance Applies

All ordinances formally identify the lands and waters to which an ordinance applies although how this is done differs. Approaches for identifying lands to which an ordinance applies include:

Wetland ordinances usually incorporate wetland maps as part of the regulations such as National Wetland Inventory Maps, state wetland maps, or local wetland maps. Ordinances also provide a verbal description of regulated wetlands (see definitions above) and provide that, in case of dispute over wetland boundaries, the verbal description combined with on-the-ground information gathering prevails over map because this is typically more accurate. A few communities not only regulate wetlands in general but establish particularly tight standards for “prime wetlands” by actually listing the wetlands by name. See Amherst, New Hampshire wetland ordinance at <http://www.amherstnh.gov/acc/WetlandsAssessment/WetlandOrdinance>

Riparian area and stream setback ordinances most commonly adopt a horizontal distance measurement from the high water mark or top of the bank of a river or stream (e.g., 100 feet--300 feet) to identify lands to which the ordinance applies. Some communities have, alternatively, prepared riparian area maps which are then adopted by ordinance. Some ordinances incorporate FEMA, state or local floodplain maps or some combination of flood maps and horizontal distance measurements to identify regulated riparian areas. Ordinances may also designate regulated riparian areas in terms of particular rivers, creeks and streams or stretches of such rivers, creeks, and streams.

Delineation

Because wetland and riparian area maps are typically at relatively small scale and contain inaccuracies or may not totally coincide with wetland definitions, ordinances often provide that landowners may request field investigations applying wetland definitions on the ground. See discussion in mapping above. Such field “delineations” prevail over maps if there is a dispute. Maps are only used to determine that an area is, in general, a wetland or riparian area. Some ordinances also allow landowners to contest maps and propose revisions in boundaries by submitting requests for clarification or proposed changes. Typically a landowner must submit a

technical report to support any proposed changes. The regulatory agency evaluates the landowners proposal as part of the field delineation.

Activities Permitted as of Right

Both wetland and riparian area ordinances typically list a variety of low impact, open space activities as of right. These activities do not require a permit as long as certain minimum standards are met. All other regulated activities require a permit.

Permit Requirements

This section typically requires a permit from a designated body (e.g., planning commission, board of adjustment, conservation commission) for all “regulated” activities within the regulated areas (see above). Typically ordinances require permits for all filling and drainage within regulated wetlands/riparian areas. But, as indicated above, ordinances may also set forth partial exemptions for alterations to wetlands created for stormwater storage or tertiary treatment of wastes, maintenance of drainage ditches, agricultural uses, and existing nonconforming uses.

Wetland and/or Riparian Boards or Commissions

Legislatures in some states such as Massachusetts and Connecticut have authorized local governments to create conservation or environmental commissions to issue wetland permits. Such specialized boards or commissions bring more expertise to bear in wetland permitting than a planning commission or board of adjustment. In Massachusetts implementation of state wetland regulations is delegated to municipal conservation commissions. For example, the Needham, Massachusetts conservation law provides, in part (see web page which provides, in part, (<http://www.town.needham.ma.us/ConCom/Index.htm>):

The Needham Conservation Commission is a seven-member volunteer board appointed by the Board of Selectmen to protect the Town’s wetland resource areas. The Commission administers the Massachusetts Wetlands Protection Act and Regulations and the Needham Wetlands ByLaw (Article 6) and regulations. The Commission also oversees the Town’s conservation lands including Ridge Hill Reservation.

In states where such commissions are not specifically authorized, local governments have nevertheless, in some instances, created advisory committees to advise Boards of Adjustment, Planning Commissions, or local legislative bodies in the issuance of permits for wetland or riparian areas. For example, Clifton Park, New York regulations provide, in part, (<http://www.cliftonpark.org/ecommunity/envconcom/wetlands.htm>):

It is the intent of the town that there be a review board whose purpose is to provide input to the applicants and appropriate federal, New York State and local government agencies to ensure that local concerns for streams and wetlands are addressed in the planning and implementation of projects within the town.

This review board shall be the Town of Clifton Park Environmental Conservation Commission (ECC) which shall review applications for wetlands and stream disturbance permits submitted to local, New York State or federal governmental bodies and provide input thereto.

Standards and Procedures for Special Permit Uses

Ordinances set forth standards for issuance of wetland or riparian area permits. Increasingly, local government regulations contain “sequencing” standards similar to those required for federal Section 404 permitting. With sequencing a permit applicant must (1) avoid impact, (2) minimize impacts if avoidance is not possible or practical, and (3) provide compensatory mitigation if impacts remain after minimization. Ordinances also typically set forth conditions which may be attached to permits.

Some ordinance set forth more specific provisions for particular types or subtypes of wetlands or riparian areas. For example, the wetland bylaw regulations of the Town of Sturbridge, Massachusetts sets forth both general standards for all types of areas and more specific standards. See

http://www.town.sturbridge.ma.us/Public_Documents/SturbridgeMA_ByLaws/I0071F05D.0/TOS%20Regs%202004%20adopted.pdf. Ordinances set forth separate permit application procedures and standards including hearing requirements for:

- 5.1 Banks
- 5.2 Bordering Vegetated Wetlands
- 5.3 Land Under Waterbodies and Waterways
- 5.4 Land Subject to Flooding
- 5.5 Riverfront Areas
- 5.6 Vernal Pools
- 5.7 Habitat for Rare Wildlife

Compensatory Mitigation

Some local ordinances set forth more detailed standards and procedures for mitigation (compensation) of wetland and riparian losses. These provisions may include guidance with regard to: use of various mitigation techniques (e.g. restoration, creation, enhancement); inkind and out of kind compensation; onsite and offsite compensation; mitigation ratios; monitoring requirements; and other requirements. The regulatory board or commission may be authorized to require a wetland or riparian management plan and/or a compensatory mitigation plan.

Some local ordinances also establish standards for the use of mitigation banks.

Evaluation of compensatory mitigation proposals often requires considerable expertise in wetland restoration, creation, and enforcement which may be lacking at the local level. Local governments, therefore, often seek assistance from state wetland regulatory agencies, the Army Corps of Engineers, NRCS, or the Fish and Wildlife Service in evaluating compensatory mitigation proposals.

Non-conforming Activities

Typically ordinances allow existing, lawful activities in wetland and riparian areas to continue such as cranberry operations, roads, and houses. However, regulations often prohibit expansion of an activity and reestablishment of an activity after abandonment or destruction (e.g., the rebuilding of a house after destruction by fire or a storm).

Enforcement

Ordinances typically establish fines for violations. They may also authorize injunctions and restoration activities by the regulatory agency if a landowner fails to restore a wetland or riparian area altered in violation of the ordinance. The regulatory agency may also be authorized to charge the landowner for such restorations.

Judicial Review

Many but not all ordinances contain judicial review procedures. Often wetland statutes, zoning enabling acts and other land use control enabling acts specify the court to which appeals are to be taken.

PART 4: RECOMMENDATIONS FOR ADOPTION, ADMINISTRATION, AND ENFORCEMENT

Community and state planners and regulators have suggested to us the following “keys for success” in local adoption, administration, and enforcement of wetland and riparian ordinances:¹

- Work with community groups in developing, adopting and administering ordinances. The political and logistical support of community groups is essential. Groups may include:
 - Land trusts, watershed councils,
 - Hunting and fishing groups like duck clubs and local chapters of Ducks Unlimited and Trout Unlimited,
 - Local land use and water planners,
 - Individuals interested in and with expertise in wetlands (e.g. high school and college science teachers),
 - Local stormwater and floodplain managers, and
 - Private property owners, particularly those who are conservation leaders.
- Keep ordinances simple and understandable. Do not make the ordinances too long or complicated.
-
- Include a clear statement of legislative fact-finding and a clear statement of ordinance goals such as no net loss of function, value, and acreage.
- Address not only wetland or riparian area functions and values but natural hazards. Landowners and the public often understand public health and safety issues. Courts provide strong support for government efforts to prevent nuisances and protect safety.
- Tailor ordinances to local problems and needs. Model ordinances are useful as a starting point but need to be tailored to local needs. For example, grazing may be a problem in some areas but not others.
- Obtain and adopt by reference accurate and large scale wetland, riparian area, floodplain maps (if such are available) but realize that there are also financial limits to map accuracy and detail. Provide mechanisms in the ordinance for clarifying boundaries and addressing inaccuracies in maps.
- Establish coordinating mechanisms between various regulatory agencies and levels of government with jurisdiction over wetland or riparian activities. Establish referral procedures for permit applications and joint permit applications This can reduce duplication, reduce permitting times and improve the information available in processing permits.

¹ These recommendations are based upon discussions with many state and community planners and regulators over the last two decades.

- More specifically, tap various local, state, regional, and federal sources of data and expertise in evaluating permit applications by referring permit applications for comment and/or approval to local (e.g., Soil and Water Conservation Districts, municipal engineering departments), state (e.g., Department of Natural Resources, floodplain management) and federal (e.g., Corps of Engineers, U.S. Fish and Wildlife Service, NRCS) agencies. Tap also school teachers, college professors, others with local expertise.
- Provide in a ordinance general standards for activities but also provide some flexibility to deal with special situations and avoid takings issues (e.g., variance and special exception procedures).
- Shift much of the data gathering burden on individual permits to permit applicants.
- Provide the regulatory board or commission with authority to require wetland/riparian management plans and compensatory mitigation plans if such plans are needed. This will depend upon the size of the project, type of project, amount of wetland and riparian area affected, functions of the affected areas, and whether onsite or offsite mitigation is proposed and other factors. Additional fact-finding and planning are often needed for larger projects, projects in particularly sensitive areas, and projects with severe potential impacts (e.g., potential for toxic spills), and, projects where offsite mitigation and/or active management of wetlands or riparian areas is proposed or needed.
- Form local conservation commissions or other expert boards or commissions to help develop regulations, issue or comment upon permits.
- Provide landowners with incentives such as density bonuses and development right schemes.
- Coordinate regulations with property tax, sewer and water assessment, road building, acquisition, and other policies.
- Be prepared to purchase lands in some instances (e.g., rare and endangered species habitat) to provide a higher degree of protection than can be afforded through regulations alone, public access (e.g. a trail or boardwalk), or restoration. Purchase of easements or fee can also help avoid “takings” problems.

PART 5. MODEL WETLAND PROTECTION ORDINANCE

INTRODUCTION

A community may adopt a wetland protection ordinance as a free-standing ordinance or as part of a broader set of regulations. The latter may take the form of coastal zone management, shoreland, floodplain regulation, comprehensive zoning, or other types of regulations. The following model wetland ordinance is designed as a stand-alone regulation but can be separated into various sections and incorporated into a broader ordinance.

Whatever approach is taken, the most critical provisions are the “meat” of a wetland ordinance :

- Definition of wetland,
- Definition of regulated activities, and
- Standards for issuance of permits and conditions which may be attached to permits.

These provisions can be set forth with varying degrees of specificity and detail. The following model ordinance is quite detailed but could be simplified if a community wishes.

Definition of Regulated Wetland

Local governments have adopted a broad range of definitions for wetlands. These include definitions based upon hydric soils (e.g., Connecticut), definitions related to the 100 year floodplain (e.g., Massachusetts), definitions based on vegetation (New York), and definitions based upon or a combination of soils, vegetation, and hydrology (many states and communities).

Increasingly local governments are adopting the federal Section 404 wetland definition because this facilitates coordination with the Section 404 program and allows, in some instances, a single boundary delineation in the field for federal and local regulations. The Section 404 definition is included in the model ordinance below.

However, other definitions have advantages as well. Communities using National Wetland Inventory (NWI) maps as regulatory maps may best utilize the US Fish and Wildlife Service definition of wetlands because this definition has been used by the Service in preparing the maps. This definition is somewhat more inclusive than the Corps of Engineers wetland definition and includes more small rivers and streams and other less frequently flooded areas.

Whatever definition is adopted, a local government typically also needs to provide “boundary delineation” procedures to allow the local regulatory agency to more precisely define regulatory boundaries at the request of landowners or other agencies. See ordinance below.

Definition of Regulated Activities

The definition of regulated activities is also critical because it defines what gets regulated and what does not. Most local regulations define regulated activities to include a broad range activities which may destroy or damage wetlands such as drainage, filling, grading, and vegetation removal. However, many ordinances also contain partial exemptions for existing buildings and uses, agriculture, maintenance of public facilities, and emergency measures.

Standards for Issuance of Permits and Conditions Which May be Attached to Permits

Ordinances typically set forth both general standards (e.g., no net loss) and more specific standards (e.g. mitigation ratios) for issuance of permits. Many ordinances also set forth conditions which may be attached to permits.

MODEL WETLAND PROTECTION ORDINANCE

Section 1: Findings of Fact

The legislative body of(*local government name*) determines that that:

Many of the wetlands of.....(*local government name*) have already been lost to drainage and fills. This has increased downstream water pollution, flooding, and erosion and the loss of habitat. This ordinance has been adopted to conserve and protect remaining wetlands and water resources.

- Wetlands and associated buffers function to:
 - Provide flood conveyance and storage;
 - Provide stormwater detention and stormwater purification;
 - Provide living, breeding, nesting and feeding environments for many forms of wildlife including waterfowl, shorebirds, salamanders, frogs, and deer;
 - Provide linkages between aquatic systems (lakes, rivers, etc.);
 - Maintain potable water supplies;
 - Treat polluted surface/subsurface waters through biological degradation and chemical oxidation;
 - Prevent additional nonpoint pollution of waters by providing buffers;
 - Serve as nursery grounds and sanctuaries for fish; and,
 - Provide recreation areas for fishing, boating, hiking, bird watching, photography and other recreation uses.
- Activities in wetlands and associated buffers are often subject to flood, erosion, and subsidence and exacerbate hazards on other lands.
- Further loss of wetland and wetland buffer quality and quantity is contrary to the public health, safety, and general welfare.

Section 2: Purposes

The purpose of this ordinance is to protect health, safety, and general welfare of the residents of(*local government name*). More specific goals include:

- Protect the quality and quantity of all waters;
- Achieve no net loss in the quantity, quality, and biological diversity of wetlands and associated buffers;
- Avoid direct or indirect impacts from activities that destroy or diminish the quantity, quality and biological diversity of wetlands and adjacent buffers;

- Reduce the expense to the city for flooded roads, sewer, and water and for disaster and flood assistance;
- Provide an ecologically sound transition between wetlands and upland areas;
- Replace wetland and buffer functions, values, and acreage where avoidance of activities is not practical and all practical measures have been taken to reduce impacts;
- Minimize impacts to existing land uses and lots by preventing increases in flood, erosion, and other natural hazards due to destruction of wetland and buffer areas; and
- Incorporate wetland protection into the..... (*local government name*) land use planning and management and development approval procedures.

Section 3: Authority

This ordinance has been adopted pursuant to and in accordance with(*statutory cite*).

Section 4: Definitions

“Board” means the (*Specify one: Wetland Review Board, Board of Adjustment, or Planning Board. Note, the local government must choose the board it wishes to authorize to issue wetland permits. Permits are typically be issued by the Board of Adjustment or Planning Board if state statutes do not specifically allow the creation of a separate wetland or environmental board with regulatory powers such as a conservation commission.*).

“Buffer” means the area surrounding a wetland that helps maintain the wetland’s functional integrity and furnishes protection against the impacts to the wetland from activities in adjacent upland areas.

“Compensatory mitigation” means the replacement of wetland acreage, function, and value to compensate for losses.

“Creation” means a human activity bringing a wetland into existence at a site in which it did not formerly exist.

“Enhancement” means the manipulating the physical, chemical or biological characteristics of a wetland to increase or improve specific functions or to change the growth stage or vegetation present.

“Floodplains” mean areas subject to periodic inundation when a river, stream, or other watercourse overflows its banks. They are relatively flat areas or lowlands adjoining the channel of a river, stream or watercourse or other body of water. They include but are not limited to those mapped by the Federal Emergency Management Agency shown as flood hazard areas on the(*name of municipal government*) Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency for the administration of the National Flood Insurance Program numbered and dated.....

“Floodway” means the channel of any rivers, stream or other watercourse and the portions of the adjoining floodplain required to carry a discharge flood without raising flood waters and velocities more than a defined amount.

“National Wetlands Inventory Maps (NWI)” are a series of maps produced by the U.S. Fish and Wildlife Service showing the general location and classification of wetlands. Some wetlands, particularly smaller wetlands, are not shown on these maps. In addition the criteria used for mapping wetlands in the NWI does not fully coincide with the definition of wetland provided below. The definition of wetland provided below and field surveys provided by the Board or provided by a permit applicant and reviewed and approved by the Board shall provide the basis for more specific and accurate designation of wetlands and wetland.

“Ordinary High Water Mark” means the point of the bank or shore up to which the presence and action of surface water is so continuous as to leave a distinctive mark such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation, or other easily recognized characteristic.

“Regulated Activities” means all activities in regulated wetlands and associated buffer areas which involve filling, excavation, dredging, clear-cutting, dumping, excavation, changing of drainage, grading, placing of objects in water, excavation or any other alteration or use which will damage or destroy a wetland or associated buffer area.

“Restoration” means manipulating the physical, chemical or biological characteristics of a site to achieve a former condition with improved wetland functions, values, and acreage.

“Riparian Area”. The area adjacent to rivers, streams, creeks, washes, arroyos, and other bodies of water or channels having banks and bed through which waters flow at least periodically. These areas are subject to periodic flooding and are generally characterized or distinguished by a difference in plant species composition or an increase in the size and/or density of vegetation as compared to upland areas.

“Watercourses” mean rivers, streams, intermittent streams, ditches, brooks, channels, lakes, ponds, manmade ponds, estuarine waters, swamps, bogs, vernal pools, playas, and all other bodies of water, natural or artificial, intermittent or permanent, public or private which has defined banks and water at least a portion of each year. These areas are typically shown on the United States Geologic Survey topographic maps of the community.

“Wetlands”. Wetlands are areas and waters that are inundated or saturated by surfacewater or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions. Wetlands generally include but are not limited to lands and waters meeting this definition and otherwise often referred to as swamps, marshes, bogs swamps, wetland meadows, ephemeral and tributary streams vernal pools, banks, reservoirs, ponds, lakes, and lands under water bodies. The primary ecological parameters for identifying wetlands include hydric soils, hydrophytic vegetation, and hydrologic conditions reflecting temporary or permanent inundation or saturation. *(Note, we are utilizing the Corps of Engineers regulatory wetland definition here but have added an additional explanatory sentences. A community may wish to substitute its own definition.)*

“Wetlands Delineation” means the establishment of wetland boundaries.

Section 5: Wetland Review Board

(Note, this is an optional section. Appointment of a local wetland review board can enhance local expertise in reviewing wetland permit applications. Some states specifically authorize conservation commissions (e.g., Massachusetts) to adopt wetland and related regulations. Others do not specifically authorize separate commissions with regulatory powers. In such instances a community may, nevertheless, form an advisory wetland review board to make recommendations on individual permit applications to the planning commission or board of adjustment which issues the actual wetland permits. The wetland review board may also provide input to the community governing body or boards on other wetland issues.)

The Council of.....(local government *name*) shall appoint a Wetland Review Board (hereafter referred to as the Board) of not more than eight but not less than four members for terms to be specified by the Council. The Board may issue, deny or conditionally issue wetland permit applications on forms provided by the Board and consistent with the standards, goals, and criteria set forth in this ordinance. *(Note, the ordinance should vest permitting powers in the Board of Adjustment or Planning Commission if the Wetland Board is to be advisory only.)*

The Board may also advise the Council with regard to wetland policies and activities and may help the Council undertake the following activities.

- The mapping and delineation of wetlands, floodplains, and riparian buffers,
- The assessment of wetland functions and values,
- The location of wetland boundaries on the ground,
- The initiation of wetland or riparian area enforcement actions, and
- The acquisition of wetland and related wildlife or recreation areas.

Section 6: Wetlands Regulated by This Ordinance

All wetlands and associated buffer areas within the boundaries of..... (*local government name*) are subject to regulation by this ordinance. More specifically, wetlands subject to regulation include:

- All wetlands shown on National Wetland Inventory maps series.....(*specify series and date*) and associated 75 foot buffer areas. National Wetland Inventory maps delineate the general location and boundaries of wetlands. Copies of these maps are available for inspection in the office of the(*specify*). Mapped wetlands and regulations shall function as an overlay district to all other districts.
- All other wetlands and associated 75 foot buffer areas meeting the wetland definition criteria set forth above.

(Note: This ordinance as written applies to both mapped and unmapped wetlands. Many communities only regulate mapped wetlands. This ordinance also includes a 75 foot regulated buffer)

Section 7: Delineation of Wetlands and Buffers

Any property owner who believes that designation of an area as wetland or wetland buffer or the wetland boundary is incorrect may petition the Board to clarify or change the designation and/or boundary. All petitions for a clarification or change in designation shall be submitted in writing and shall include all relevant facts and circumstances which support the change. For proposed changes in boundaries, the petitioner shall provide expert proof that the designation is inconsistent with the definition of wetland provided in this ordinance and the delineation procedures provided by the 1987 Wetlands Delineation Manual of the U.S. Army Corps of Engineers.

The wetland buffer area shall be measured perpendicularly from the boundaries of a wetland.

Section 8: Permitted Uses

The following uses are permitted in wetlands and associated buffer areas, providing they do not alter the natural hydrology, destroy wetland functions and values, or increase flood or erosion hazards on other lands:

- Conservation of soil, vegetation, water, fish, shellfish and wildlife.
- Outdoor recreation including nature study, hiking, horseback riding, swimming, camping, boating, trapping, hunting, fishing, shell fishing, cross-country skiing where otherwise legally permitted.
- Grazing, farming, nurseries, gardening, forestry and harvesting of crops. However, road construction, erection of buildings, or relocation of wetlands or watercourses, clear cutting of timber, or the mining of top soil, peat, sand or gravel from wetlands shall require a permit as provided below.
- Providing recreational open space and other types of open space for adjacent residential, commercial, and industrial property including subdivisions.
- Controlling noxious weeds if the control does involve the drainage or fill of a wetland.
- Maintaining existing ditches, watercourses, farm ponds, utilities, roadways providing the activity does not involve the expansion of roadways, drainage ditches or related improvements into previously unimproved rights of way or portions of rights of way.
- Constructing for nature study and educational purposes trails, boardwalks, viewing platforms, information kiosks, and trail signs.
- Maintaining existing structures consistent with standards set forth in Section below.
- Emergency work necessary for protection of the public, health, or safety.

- Restoring wetlands not associated with any development proposal, providing such restoration does not affect more than one half acre.

Section 9: Activities Requiring a Permit

All activities in regulated wetlands and associated buffer areas involving filling, excavation, dredging, clear-cutting, dumping, excavation, changing of drainage, grading, placing of objects in water, excavation or any other alteration or use of a wetland not permitted by section 8 shall require a permit from the Board.

Section 10: Coordination With Other Regulatory Agencies

(Note, this is an optional section. It is designed to help coordinate regulatory reviews and maximize the use of available expertise. Some communities have developed more formal referral or joint permit processing procedures with other regulatory agencies.)

Upon receipt of a permit application, the Board shall coordinate with other planning and regulatory with jurisdiction or potential jurisdiction over the proposed activity. The Board may require that an applicant obtain other federal, state, or local regulatory permits needed for a proposed activity before applying for a wetland permit from the Board. The Board may also provide comments to other agencies in their permitting activities. The following activities may require additional state, federal, or local permits as well as a permit from the Board.

(Note, this section needs to be tailored to state laws and local needs. Additional permits which are required will depend upon the type of activity, the type of wetland affected, and the local government and state regulations in effect. Typical activities requiring a permit from other agencies include the following:)

- Construction of any dam regulated by..... (name of regulatory agency, statutory cite.)
- Construction, encroachment or placement of any obstruction within a stream channel, lake, or tidal water regulated by.....(name of regulatory agency, statutory cite)
- Diversion of water including withdrawals in excess ofgallons per day regulated by.....(name of regulatory agency, statutory cite.)
- Discharges of fills or pollutants into the waters of the state regulated by..... (name of regulatory agency, statutory cite.)
- The undertaking of any regulated activity in a floodplain or floodway regulated by.....(name of regulatory agency, statutory site.)
- The construction of septic tank/soil absorption fields in any wetland or buffer area requiring a permit from.....(name of regulatory agency, statutory site.)
- Any filling or grading requiring a permit from.....(name of regulatory agency, statutory site.)
- Any land use, building construction, or subdivision permit required from.....(name of the local regulatory agency, statutory site.)
- The discharge of fill or dredged material into wetlands and watercourses regulated by the U.S. Army Corps of Engineers pursuant to Section 10 of the Rivers and Harbor Act or Sections 404 and 401 of the Federal Clean Water Act, as amended.)

Section 11: Information to be Provided by the Permit Applicant

Individuals or public or private corporations seeking a permit for a regulated activity within a wetland or wetland buffer area shall apply for a wetland permit from the Board on a permit application form provided by the Board.

All applications shall include the following information in writing, in maps, or in drawings unless exempted in writing by the Board:

- Name, address, telephone number and e-mail address of owner and permit applicant (if different). This should include an appropriate engineer's or land surveyor's stamp if one has been used by the applicant;
- A description of existing uses of the property including any structures, fills, grading, or drainage;
- Photographs of the proposed project site showing the existing condition of the site;
- A description of the proposed activity including the type of proposed activity, its dimensions, distance from any road or water body, and when and how it will be carried out;
- An explanation why this activity cannot be located at an upland location;
- A description of all measures proposed to reduce or compensate for project impacts;
- A wetland map or boundary survey to identify which may be affected by the proposed activity;
- A sketch map showing the entire parcel of land owned by the applicant including lot sizes and property boundaries;
- A description of when the property was acquired and the price paid for the property;
- A description of the zoning classification and restrictions;
- A description of the vegetative cover of the affected area, including dominant species;
- The 100 year flood elevation and floodplain and floodway boundaries at the project site if FEMA or other flood maps are available for the area;
- The sites and specifications for all proposed drainage, filling, grading, dredging, and vegetation removal that may affect the wetland or buffer area;
- A description of any existing or proposed waste disposal or water supply including septic tanks and soil absorption field and distances to wetlands, wetland buffers and other water bodies;
- A description of restoration vegetation now in existence and proposed for all surfaces; and
- A description of the construction sequencing and timetable for any proposed activities including description of future phases.

The Board may require the permit applicant to submit additional information if the Board deems such information necessary to determine compliance of a proposed regulated activity with the standards and criteria set forth in this ordinance. Such information may include:

- More detailed site plans;
- Description of wetland ecological communities and functions;
- Description how the application will change, diminish, or enhance the ecological functions;

- Engineering reports and analyses where the proposed activity may be subject to flood or erosion hazards or increase such hazards of other types;
- Mapping or more detailed investigation of soil types where onsite waste disposal is proposed;
- Analysis of chemical or physical characteristics of any fill material;
- A stormwater management plan (if applicable);
- A wetland management plan; and
- A compensatory mitigation plan.

In the event that an application requires.....(*name of the community*) to incur additional expenses for technical assistance in the review of an application, the applicant shall pay the reasonable expenses incurred by the community. The applicant shall be notified of the expenses and shall deposit necessary funds prior to the cost being incurred by the community.

Section 12: Public Notice, Hearings

Any person filing a permit application shall give written notice thereof, by certified mail (return receipt requested) or hand delivered, to all abutters at their mailing addresses shown on the most recent applicable tax list of the assessors. The notice to abutters shall include a copy of the permit application or shall state where copies may be examined and obtained by abutters.

(Note, a community could also require a permit applicant to provide notice to others. For example, a permit applicant could be required to submit a copy of the permit application to the municipal engineer if any portion of the affected area is shown as a floodplain.)

No sooner than 30 days and not later than 60 days after receipt of a permit application and after notice the permit application has been published in one newspaper having general circulation in the area, the Board may hold a public hearing on the application unless the Board finds that the activity is so minor as not to affect wetland functions, values, or acreage or have impact upon public properties or the public at large. All hearings shall be open to the public.

Section 13: Standards and Criteria for Issuance of Wetland/Buffer Area Permits

The Board shall not issue or conditionally issue a permit unless it finds that the proposed activity will not, taking into account individual and cumulative effects, threaten health or safety, result in fraud, cause nuisances, impair public rights in public waters, threaten rare or endangered plant or animal species, violate pollution control standards, or violate other regulations. In addition, the Board shall not issue a permit unless it finds that

- The permit applicant has, to the extent practical, avoided wetland and buffer areas for the proposed activity;
- The permit applicant has, to the extent practical, reduced impacts to the wetland and wetland buffer. The height, width and length of structures will be limited to the minimum dimension necessary to achieve the desired functions;
- The proposed activity will not cause a net loss of wetland functions specified in Section 1 of this ordinance;

- The proposed activity will not cause a net decrease in wetland values or acreage, taking into account the cumulative adverse effects of past and reasonably anticipated future activities;
- The proposed activity will be set back a minimum of 25 feet from the top of the bank of any river, stream, creek, or arroyo. The Board may require a larger setback based upon flooding, erosion, pollution, endangered species, riparian or wetland functions and values, or other relevant factors;
- The proposed activity will, to the extent practical, avoid fragmentation of wetlands and the separation of wetlands from other wetlands, broader aquatic systems, and uplands by activities such as construction of dikes, levees, ditches, roads, structures, and other impediments to movement of water or biota;
- The proposed activity will not increase flood, erosion, subsidence or other hazard on other lands and the proposed activity will not, in itself, be subject to flood and erosion hazards;
- The proposed activity will not result in adverse modification of habitat for or jeopardize plant, animal, or other wildlife species listed as threatened or endangered by the U.S. Fish and Wildlife Service or (*State Wildlife Agency*); and
- The proposed activity will not violate other applicable federal, state, and local water quality, flood loss reduction, fill and grading, coastal zone management, stream protection, water supply protection, comprehensive zoning, sanitary code, and other statutes, regulations and ordinances.

The Board shall consider all relevant facts in making its decision on any application for a permit including but not limited to the following:

- The goals and purposes of the ordinance;
- The environmental impact of the proposed action including:
 - Infilling of the wetland or other modification of natural topographic contours,
 - Disturbance or destruction of natural flora and fauna,
 - Influx of sediments or other materials causing increased water turbidity and/or substrate alteration,
 - Removal or disturbance of wetland soils,
 - Reductions in wetland water supply,
 - Interference with wetland water circulation,
 - Damaging reduction or increases in wetland nutrients,
 - Influx of toxic chemicals and/or heavy metals,
 - Damaging thermal changes in wetland water supply, and
 - Destruction of natural aesthetic values.
- The impact of the proposed activity and reasonably anticipated similar activities upon flood flows, flood storage, and storm barriers,
- Threats to the proposed activity from flooding, erosion, hurricane winds, subsidence, soil limitations and other hazards;
- The impact of the use and existing and reasonably anticipated similar uses upon neighboring land uses;
- The adequacy of water supply and waste disposal for the proposed activity;

- Alternatives to the proposed action and alternative sites for the activity on the applicant's property or other properties;
- Whether all reasonable and practical measures have been taken to minimize the impact of activities; and
- The relationship between short-term uses and long term productivity of the site; and
- The consistency of the activity with local, state, and federal comprehensive land use plans and watershed plans.

The Board shall make written findings on any permit applicant stating the reason why the proposed permit is issued, denied, or conditionally issued or denied. The Board may consider the following in making its decision on the application:

- The application and supporting documentation,
- Public comments, evidence, and testimony,
- Reports or comments from other local, state, tribal, or federal agencies and commissions, and
- Comments on the application from regional planning agencies, soil and water conservation districts, or other regional organizations.

Section 14: Conditions Which May Be Attached to Permits

The Board may conditionally approve permits. The following sorts of conditions may be attached to permit approvals:

- Design measures to reduce project impacts;
- Relocation of the proposed activity to reduce project impacts;
- Compensatory mitigation measures to offset losses to wetland acreage, functions, and values;
- Flood and erosion loss reduction measures to prevent hazard losses to both proposed activities and activities on other lands. This may include a requirement that structures be elevated on piles, floodproofed or otherwise protected from hazards including flood heights, velocities, and erosion potential;
- Modification of waste disposal and water supply facilities to reflect flooding, high ground water, and erosion hazards;
- Inclusion in the deed for the property a warning that the property contains a wetland and/or wetland buffer area and that any activities in the wetland or buffer are subject to wetland, floodplain and other regulatory requirements;
- Deed restrictions, covenants, or execution of conservation easements regarding the future use of lands including but not limited to preservation of undeveloped areas and restrictions on vegetation removal;
- Set-backs for structures from a river, stream, or other water body of a distance appropriate for the proposed activity and the particular wetland area;
- Erosion control and storm water management measures;
- The clustering of structures or development;
- Erection of wetland area markers and signs including survey stakes delineating the boundary between wetland areas and adjacent lands;
- Long term monitoring and management requirements including control of exotic plant and animal species; and

- Other conditions necessary to protect wetland functions, offset losses, and prevent increased natural hazard losses in the community.

The Board may also require the development of a wetland management plan and/or a compensatory mitigation plan to comply with these standards and criteria. See Sections 13 and 14 below.

Section 15: Wetland Management Plans

The Board may require that a permit applicant submit a wetland management plan to the Board if the Board believes such a plan is needed to meet the goals and standards of this ordinance including conditions attached to the issuance of a wetland permit. In general, plans are need for larger projects involving the manipulation of water levels, control of exotic plant species, or mitigation measures. Such management plans may include the procedures and timing of the proposed project, water level manipulation, removal of exotic species, replanting (if necessary) and other active management activities over time. It may be combined with a compensatory mitigation plan as provided in Section 16 of this ordinance.

The plan shall be consistent with the following:

- The plan shall describe any long term management proposed for the site to minimize or compensate for project impacts, how this management is to be carried out, and who will undertake the management.
- Site development shall be fitted to the topography and soil so as to create the least potential for vegetation loss and site disturbance;
- Vegetation and soil removal shall be limited to the minimum amount necessary for the development of the site.
- Vegetation indigenous to the site or plant community shall be restored in areas affected by construction activities. Temporary vegetation, sufficient to stabilize the soil, may be required on all disturbed areas as needed to prevent soil erosion. New planting shall be given sufficient water, fertilizer and protection to insure reestablishment.

Section 16: Compensatory Mitigation

The Board may require that the permit applicant submit a compensatory mitigation plan developed by qualified professionals to achieve no net loss of wetland functions, values, and acreage if the Board believes such a plan is needed to meet the goals and standards of this ordinance including conditions attached to the issuance of a wetland permit. Compensatory mitigation may take the form of wetland and/or buffer area restoration, creation, or enhancement. Such plans shall include design, implementation, maintenance, and monitoring elements.

A mitigation plan shall:

- Describe any residual impacts to functions, values, or acreage;
- Identify riparian, wetland, and watercourse areas that are to be protected and those that will be impacted;
- Provide a plan for compensating for impacts;

- Describe proposed habitat manipulation activities in detail;
- Provide replacement of affected vegetation with appropriate plant species in ratios which will result in simulation of pre-alteration vegetation within five years;
- Specify construction methods;
- Provide for periodic monitoring of mitigation; and
- Provide for the posting of performance bonds or other financial assurances.

In general, compensatory mitigation shall be onsite and in kind. However, the Board may allow use of offsite and out of kind mitigation including the use of mitigation banks if such use will have net ecological benefits, will not cause nuisances, will not violate other laws, and will not result in fragmentation of the wetland ecological system. Use of mitigation banks will be allowed to compensate for impacts only where onsite measures are, in addition, applied to insure that flooding, water pollution, erosion, and other problems do not occur at the original site.

Where feasible, mitigation projects shall be completed prior to activities that will disturb wetlands. In other cases, mitigation shall be completed immediately following disturbance and prior to use or occupancy of the activity.

There shall be no introduction of any plant or wildlife into a mitigation project for any wetland or wetland buffer which is not native to the area unless authorized by a state or federal permit or approval.

In general the following ratios shall be provided for restoration, creation, and enhancement: 2:1 for restoration, 4:1 for creation, and 6:1 for enhancement. The Board may increase the ratios if uncertainties exist with regard to the success of the proposed mitigation, a significant period of time will elapse between impact and replication of wetland functions, the mitigation will result in reduced wetland functions relative to the wetland being impacted, or the impact was an unauthorized impact. The Board may decrease ratios if the proposed mitigation has a high likelihood of success, the proposed mitigation will provide functions and values significantly greater than the wetland being impacted, or the proposed mitigation is conducted in advance of the impact and has been shown to be successful.

In evaluating the adequacy of proposed compensatory mitigation, the Board shall consider:

- The risk of failure of the proposed mitigation project based upon the difficulty with which this type of wetland is restored, created, or enhanced, the experience and expertise of the individual or individuals proposing to carry out the mitigation, the proposed buffer and other protection measures, and the proposed management, monitoring and maintenance,
- The societal importance of wetland/buffer functions provided by the mitigation plan in contrast with the societal importance of the functions of the original wetland/buffer,
- Whether the proposed mitigation will require long term maintenance and, if so, the adequacy of any proposed maintenance,
- The need for long term monitoring and whether such monitoring will be provided, and
- Whether there will be offsite impacts of the proposed mitigation such as flooding or adjacent property.

Section 17: Variances

The Board may issue variances to the wetland and buffer requirements of this ordinance where the regulations will otherwise deny landowners all economic use of entire properties taking into account existing uses, reasonably anticipated future uses, market values and sales for comparable properties, taxes, special assessments, and other factors. The Board may issue a variance only for the minimum deviations from permit standards, conditions, or mitigation measures which will be consistent with not denying landowners all economic use of their entire properties. The Board shall not authorize variances for activities which will increase flood and erosion losses on other properties, pose threats to public health and welfare such as flash flooding, pollute potable water supplies, or otherwise cause nuisances. The Board shall also not issue a variance for activities which will violate other laws.

Section 18: Nonconforming Uses.

All uses and activities that were lawful before the passage of this ordinance but which do not conform with the provisions of the ordinance, may be continued but may not be expanded, changed, enlarged or altered without a permit as provided above. Nonconforming uses including but not limited to buildings shall not be enlarged or expanded to further encroach into the wetland. No nonconforming activity which has been discontinued for more than two years shall not be resumed. No nonconforming structure which has been destroyed or damaged for more than 50% of its value by flooding, wind, fire, or other natural or man-made force may be rebuilt only with issuance of a permit in conformity with the provisions of this ordinance

Section 19: Bonds and Insurance

Upon approval of the application and prior to issuance of a permit, the Board may require the permit applicant to file a bond with such surety in such amount and in a form approved by the Board.

Release of the bond or surety shall be conditioned on compliance with all provisions of these regulations and the terms, conditions and limitations established in the permit.

The Board may require the applicant to certify that it has public liability insurance against liability which might result from the proposed activity covering any and all damage which might occur within... (*specify*) years of completion of such operations, in an amount commensurate with the regulated activity.

Section 20: Inspections, Display of Permit, Revocations of Permits

Every permit issued pursuant to this ordinance shall allow the Board or its designated employee the right to inspect a project to determine compliance with conditions and the provisions of this ordinance. A permit applicant shall notify the Board at least five days before project construction is to begin. The permit shall be prominently displayed at the project site during the undertaking of the activities authorized by the permit. All permits shall be valid for a period of one year from the date of issuance unless the Board indicates otherwise. The Board may issue a Stop Work Order if it finds that the permittee is violating provisions of the permit or of other applicable laws, ordinances, and/or regulations. The Board may, on written notice to the

permittee, suspend or revoke a permit issued pursuant to this ordinance if the permittee has not complied with any term or condition of the permit or has failed to undertake the project in the manner set forth in the application.

Section 21: Enforcement and Penalties

Any person who commits, takes part in, or assists in any violation of any provision of this ordinance is guilty of a misdemeanor and may be fined not more than.....(*specify*) dollars for each offense and subject to imprisonment not exceeding.....(*specify*) days or both. Each violation of this ordinance shall be a separate offense, and in the case of a continuing violation, each day's continuance thereof shall be deemed to be a separate and distinct offense.

The (*community name*)..... shall have jurisdiction to enjoin a violation of this ordinance. All costs, fees, and expenses in connection with such action shall be assessed as damages against the violator. The zoning administrator and other governmental officials learning of a violation shall refer the violation to the City Attorney.

In the event of a violation the (*community name*) shall have the power to order restoration of the wetland area. If the responsible person or agent does not complete such restoration within a reasonable time following the order, the authorized local government shall have the authority to restore the affected wetlands to the prior condition and the person or agent responsible for the violation shall be held liable to the (*community name*)..... for the cost of restoration.

Section 22: Appeals

Appeal on actions of the Board shall be made in accordance with provisions of the General Statutes (*specify section*)

Section 23: Conflict and Severance

This ordinance shall be construed as not to conflict with any provision of local, state, or federal law. However, the provisions of this ordinance shall control if more restrictive than other local, state, or federal laws.

If any portion of this ordinance is held invalid or unconstitutional by a court of competent jurisdiction, all remaining provisions of the ordinance shall continue to be of full force and effect.

Section 24: Application Fees

At the time of a permit application, the applicant shall apply a filing fee of (*specify*)if the project will involve less than 5,000 square feet of disturbance to a wetland and/or buffer area and a filing fee of (*specify*).....if more.

The Board may also require an applicant to pay fee a for reasonable costs and expenses born by the Board including but not limited to verifying wetland boundaries, analyzing resource functions and values including wildlife evaluations, and hydrogeologic and drainage analyses.

PART 6. MODEL RIPARIAN AREA/STREAM BUFFER ORDINANCE

INTRODUCTION

A growing number of communities have adopted riparian area/stream setback ordinances. Such ordinances, like wetland ordinances, may be “stand-alone” ordinances or riparian ordinance provisions integrated into broader river protection and management, shoreland zoning, floodplain zoning, watershed management, or comprehensive planning and zoning regulations.

Critical portions of riparian ordinances are similar to those for a wetland ordinances and include:

- Definition of the regulated riparian area,
- Regulated activities, and
- Standards for issuance of permits and conditions which may be attached.

The Regulated Riparian Area

The definition of the regulated riparian area is, like the definition of wetland in a wetland ordinance, a critical feature of the ordinance because it determines the geographical scope of the regulations.

How should the regulatory riparian area be defined? Should it be confined to a narrow setback area along rivers and streams? Should it include broader riparian corridors? Should the setback or broader riparian corridor be the same for all streams and watercourses? If not, what distinctions should be made and how?

A community has three principal options for defining the regulated riparian area. These include:

- The community defines the riparian area to include lands and waters within a fixed, uniform distance from all rivers, streams, or other watercourses. For example a community may define the regulated riparian area to include all areas within 100 feet of the high water mark of rivers, streams or other watercourses. Definition of the riparian area to include a single, fixed, uniform distance has the advantages of simplicity and uniformity. It has the disadvantage in under-regulating some areas and over-regulated others because rivers, streams and associated riparian areas vary in characteristics including the width of the floodplain, vegetation, and sensitivity to various activities.
- The community may define the riparian area to include an all lands and waters within a number of different fixed distances of various categories of rivers and streams, depending upon the size of the stream, sensitivity to development of other factors. For example a community can define the regulated riparian area to include areas within 300 feet or large rivers and streams, 200 feet for middle-sized rivers and streams, and 100 feet for small creeks and watercourses.
- The community may define the riparian area to include all lands within a mapped floodplain or riparian area. Using maps to designate regulated riparian areas permits more careful tailoring of the area to the size and other characteristics of a river or

stream and adjacent floodplain and width of riparian vegetation. Riparian area maps may be based upon air photo interpretation of vegetation and/or flood and erosion maps. For example, a community may designate the regulated riparian area to include the full 100-year floodplain as shown on FEMA or other maps. Alternatively, it may include an area defined by soil maps or some combination of data sources.

How wide should the regulated riparian area be? The desired width of a riparian area depends, in part, upon the scientific characteristics of river, stream, and riparian areas including the width of the active floodplain, width of the band of riparian vegetation, and types and sensitivities of wildlife present. For example, a community with a large river and many smaller tributary streams may wish to use 100 year floodplain maps to establish the riparian zone for the larger river and use distance measurements (e.g. 100 feet, 75 feet) for smaller tributaries lacking such maps.

Another consideration relevant to the width of the riparian zone is restrictiveness of the regulations. If the riparian zone is to be an “inviolable” area, a narrower width may suffice than if a broad range of activities are to be permitted within the riparian area.

Whatever approach is taken, tight regulations are usually appropriate for the area immediately adjacent to a river, stream, creek, arroyo or wash because this area is subject to particularly high velocity flows, deep flooding, and severe erosion. Control of fills and grading and removal of natural vegetation is particularly important to protect flood conveyance and storage and prevent erosion and stream meander. It is also important to protect the water temperature of streams and is and to protect wildlife.

The Center for Watershed Studies in Maryland, recommends a three tiered management approach for riparian areas: streamside area, middle area, and outer area. The City of Suffolk, Virginia has adopted an ordinance with such a three area approach.

The ordinance which follows provides a variable riparian buffer for different sizes/types of rivers, streams, and watercourses.

Definition of Regulated Activities

As with the wetland ordinance, the definition of “regulated activities” is critical to the effectiveness of the ordinance. Typically, a riparian ordinance regulates any activity which will substantially impact the riparian zone including vegetation removal.

Standards for Issuance of Permits and Conditions Which May be Attached

As with a wetland ordinance, riparian ordinances set forth standards for issuance of permits. Often communities require a riparian vegetation management plan if a substantial riparian vegetation will be affected.

MODEL RIPARIAN AREA PROTECTION ORDINANCE

Section 1: Findings of Fact

The legislative body of(*community name*) determines that:

- Many of the riparian areas of.....(*community name*) have already been lost to drainage, channelization, levees, fills, grazing, and other activities.
- Destruction of riparian areas results in increased downstream water pollution, flooding, and erosion. Activities which damage or destroy riparian areas destroy riparian functions.
- Riparian areas function to:
 - Provide flood conveyance and storage which reduce downstream flood hazards by absorbing peak flows, slowing the velocity of flood waters, and regulating base flow;
 - Reduce the need for costly engineering solutions for flooding and erosion such as rip rap, retention basins, and dams;
 - Stabilize the banks of watercourses to reduce bank erosion and downstream transport of sediments eroded from banks;
 - Provide stormwater detention;
 - Provide living, breeding, nesting and feeding environments for many forms of wildlife by maintaining diverse and connected riparian vegetation including waterfowl, shorebirds, salamanders, frogs, and deer;
 - Treat polluted surface/subsurface waters in times of high flows through biological degradation and chemical oxidation;
 - Prevent additional nonpoint pollution of waters by providing pollution buffers;
 - Remove pollutants from urban stormwater;
 - Serve as nursery grounds and sanctuaries for fish during high flows;
 - Provide tree canopy to shade streams;
 - Provide high quality watercourse habitats with shade and food for fish and other wildlife;
 - Provide recreation areas for hiking, bird watching, biking, photography and other recreation uses;
 - Maintain potable water supplies in rivers and streams;
 - Maintain the base flows of streams;
 - Furnish scenic values and recreational opportunities; and
 - Reduce community flood, erosion, and other natural hazard losses.
- Activities in riparian areas are also often subject to flood, erosion, and subsidence hazards. Buildings, roads, and other infrastructure located in such areas are often damaged by floods and erosion, requiring emergency rescue and disaster assistance. Such structure and infrastructure also exacerbate hazards on other lands.

- Further loss of riparian buffer areas is contrary to the public health, safety, and welfare.

Section 2: Purposes

The overall goal of this ordinance is to protect and encourage the restoration of the riparian resources of(*community name*) in order to protect the public health, safety, and welfare. More specific goals include:

- Restore and maintain the chemical, physical and biological integrity of water resources;
- Achieve no net loss in the quantity, quality, and biological diversity of riparian areas and riparian area functions;
- Avoid direct or indirect impacts from activities that destroy or diminish the quantity, quality and biological diversity of riparian areas;
- Provide an ecologically sound transition between waters and upland areas;
- Replace riparian area functions and acreage where avoidance of activities is not practical and all practical measures have been taken to reduce impacts;
- Prevent increases in flood, erosion, and other natural hazard losses due to destruction of wetland and buffer flood conveyance, flood storage, and erosion control functions, acreages and values;
- Incorporate riparian area protection into the.....(*local government name*) land use, planning and development approval procedures; and

Section 3: Authority

This ordinance has been adopted pursuant to and in accordance with(*statutory cite*).

Section 4: Definitions

“Board” means the (*Select one: Riparian Area Review Board, Board of Adjustment, Planning Board*). (*Note the local government must choose the board/commission it wishes to authorize to issue permits. Permits must typically be issued by the Board of Adjustment or Planning Board if state statutes do not specifically allow the creation of a separate board with regulatory powers such as a conservation commission.*).

“Compensatory mitigation” means the replacement of riparian area acreage, function, and value to compensate for losses.

“Creation” means a human activity bringing a riparian area into existence at a site in which it did not formerly exist.

“Enhancement” means the manipulating the physical, chemical or biological characteristics of a riparian area to increase or improve specific functions or to change the growth stage or vegetation present.

“Floodplains” mean areas subject to periodic inundation when a river, stream, or other watercourse overflows its banks. They are relatively flat areas or lowlands adjoining the channel

of a river, stream or watercourse or other body of water. They include but are not limited to those mapped by the Federal Emergency Management Agency shown as flood hazard areas on the(*name of municipal government*) Flood Insurance Rate Map (FIRM) issued by the Federal Emergency Management Agency for the administration of the National Flood Insurance Program numbered and dated.....

“Floodways” means the channel of any rivers, stream or other watercourse and the portions of the adjoining floodplain required to carry a discharge flood without raising flood waters and velocities more than a defined amount.

“National Wetlands Inventory Maps (NWI)” are a series of maps produced by the U.S. Fish and Wildlife Service showing the general location and classification of wetlands. Some wetlands, particularly smaller wetlands, are not shown on these maps. In addition, the criteria used for mapping wetlands in the NWI does not fully coincide with the definition of wetland provided below. The definition of wetland provided below and field surveys undertaken by the Board or provided by a permit applicant and reviewed and approved by the Board shall provide the basis for more specific and accurate designation of wetlands and wetland boundaries.

“Ordinary High Water Mark” means the point of the bank or shore up to which the presence and action of surface water is so continuous as to leave a distinctive mark such as by erosion, destruction or prevention of terrestrial vegetation, predominance of aquatic vegetation, or other recognized characteristic.

“Regulated Activities” means all activities in regulated riparian areas involving filling, excavation, dredging, clear-cutting, dumping, excavation, changing of drainage, grading, placing of objects in water, excavation, or any other alteration or use of a riparian area.

“Restoration” means manipulating the physical, chemical or biological characteristics of a site to achieve a former condition with improved riparian functions, values, or acreage.

“Riparian Area” means the area adjacent to rivers, streams, creeks, washes, arroyos, and other bodies of water or channels having banks and bed through which waters flow at least periodically. These areas are subject to period flooding and are generally characterized or distinguished by a difference in plant species composition or an increase in the size and/or density of vegetation as compared to upland areas. See more detailed description of regulated riparian areas in Section 4 below.

“Watercourses” mean rivers, streams, intermittent streams, ditches, brooks, channels, lakes, ponds, manmade ponds, estuarine waters, swamps, bogs, vernal pools, playas, and all other bodies of water, natural or artificial, intermittent or permanent, public or private which has defined banks and water at least a portion of each year. These areas are typically shown on United States Geologic Survey topographic maps of the community.

“Wetlands” are areas and waters that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions. Wetlands generally include but are not limited to lands and waters meeting this definition and otherwise often referred to as swamps, marshes, bogs swamps, wetland meadows, ephemeral and tributary

streams vernal pools, banks, reservoirs, ponds, lakes, and lands under water bodies. The primary ecological parameters for identifying wetlands include hydric soils, hydrophytic vegetation, and hydrologic conditions reflecting temporary or permanent inundation or saturation. *(Note, we are utilizing the Corps of Engineers wetland definition here. A community may wish to substitute its own definition.)*

“Riparian Area Delineation” means the establishment of riparian area boundaries.

Section 5: Riparian Review Board

(Not, this is an optional section. See commentary for Wetland Review Board in the Wetland Protection Model Ordinance above.)

The.....*(name of community)* Council shall appoint a Riparian Review Board of not more than eight but not less than four members for terms to be specified by the Council.

The Board may issue, deny, and conditionally approve riparian area permits consistent with the standards, goals, and criteria set forth in this ordinance. *(Note, the ordinance should vest permitting powers in the Board of Adjustment or Planning Commission if the Riparian Review Board is to be advisory only.)*

The Board may also advise the Council with regard to riparian area policies and activities and may help the Council undertake the following activities:

- The mapping and delineation of riparian areas, wetlands, and floodplains;
- The assessment of riparian area functions and values;
- The location of riparian area boundaries on the ground;
- The acquisition of riparian area and related wildlife or recreation areas; and
- The initiation of riparian area enforcement actions.

Section 6: Riparian Areas Regulated by This Ordinance

Riparian areas subject to the this ordinance include the following areas measured horizontally from the top of the bank of a river, stream, creek, arroyo, wash or other body of water or channel having banks and bed through which waters flow at least periodically:

- 300 feet of following rivers and streams or to the landward side of the 100 year floodplain identified on FEMA flood maps for these rivers and streams if this distance is greater: *(Note, major regulated rivers and streams should be listed here.)*
- 200 feet of the following creeks and streams or to the landward side of the 100 year floodplain identified on FEMA flood maps for these creeks and streams if this distance is greater. *(Note, mid-sized, regulated rivers and streams should be listed here.)*
- 100 feet of all other river, stream, creeks, wash, arroyo, or other body of water or channel having banks and bed through which waters flow at least periodically or to the landward side of the 100 year floodplain identified on FEMA flood maps if this distance is greater.

If there is dispute with regard to the boundaries of a riparian area, the Board shall carry out a field investigation to delineate the boundaries of the area. In this determination, the Board may take into account the available maps, the actual character of the land, distribution of soil types, degree of saturation or inundation and overall hydrology, plant species and other features.

Section 7: Coordination With Other Regulatory Agencies

(Note, this is also an optional section. It is designed to help coordinate regulatory reviews and to permit the Board to require that a project applicant obtain other required permits prior before seeking a riparian area permit pursuant to this ordinance. Alternatively, a local government may wish to allow the permit applicant to simultaneously apply for a number of permits. Some communities have developed joint permit processing procedures with other regulatory agencies.)

The Board may require that a permit applicant obtain other federal, state, or local regulatory permits needed for a proposed activity before applying for a riparian permit from the Board. The following activities may require additional state, federal, or local permits:

(Note this needs to be tailored to state laws and local laws. The additional permits required will depend upon the type of activity, the type of wetland affected, and the local government and state.)

- Construction of any dam regulated by..... (name of regulatory agency, statutory cite.)
- Construction, encroachment or placement of any obstruction within a stream channel, lake, or tidal water regulated by..... (name of regulatory agency, statutory cite.)
- Diversion of water including withdrawals in excess ofgallons per day regulated by.....(name of regulatory agency, statutory cite.)
- Discharges of fills or pollutants into the waters of the state regulated by..... (name of regulatory agency, statutory cite.)
- The undertaking of any regulated activity in a floodplain or floodway regulated by.....(name of regulatory agency, statutory cite.)
- The construction of septic tank/soil absorption fields in any wetland or buffer area requiring a permit from.....(name of regulatory agency, statutory site.)
- Any filling or grading requiring a permit from.....(name or regulatory agency, statutory site.)
- Any land use, building construction, or subdivision permit required from.....(name of the local regulatory agency, statutory site.)
- The discharge of fill or dredged material into wetlands and watercourses regulated by the U.S. Army Corps of Engineers pursuant to Section 10 of the Rivers and Harbor Act or Sections 404 and 401 of the Federal Clean Water Act, as amended.

Section 8: Activities Allowed as of Right

The following uses are allowed in riparian areas without a permit providing they do not involve hydrologic modifications or fills:

- Conservation of soil, vegetation, water, fish, and wildlife,
- Private wildlife sanctuaries, woodland preserves,

- Outdoor recreation including nature study, hiking, horseback riding, swimming, camping, trapping, hunting, fishing, shell fishing, cross-country skiing where otherwise legally permitted,
- Grazing, farming, nurseries, gardening and harvesting of crops, providing a minimum setback of 25 feet from all watercourses is maintained. This shall not be construed to include road construction, erection of buildings, or relocation of wetlands or watercourses, clear cutting of timber, or the mining of top soil, peat, sand or gravel from riparian areas without a permit,
- The control of noxious weeds if the control does not involve drainage or fill,
- Open space uses incidental to the enjoyment and maintenance of adjacent residential, commercial and industrial property such as open space for subdivisions and building setback areas,
- Maintenance and repair of existing ditches, watercourses, farm pounds, utilities, roadways providing the activity does not involve the expansion of roadways or related improvements into previously unimpacted areas , and
- The enhancement or restoration of riparian areas less than one acre and not associated with any development proposal.

Section 9: Activities Requiring a Permit

All activities in regulated riparian areas involving filling, excavation, dredging, clear-cutting, grading or excavation, construction, removal or 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 areas not permitted by Section 8 of this ordinance shall require a permit from the Board.

Any person proposing to carry out an activity which may disturb the natural and indigenous character of a regulated riparian area may, prior to the commencement of the operation, notify the agency on a form provided by it and provide the Board with sufficient information to enable it to determine whether the proposed activity is an activity permitted as of right or an activity requiring a permit. Such a ruling by the Board shall be made in writing within 30 days of submission and a determination by the Board that the application is complete.

Section 10: Information to be Provided by Permit Applicants

The Board shall develop and make available riparian area permit application forms. Individuals or public or private corporations seeking a permit for a regulated activity within a riparian shall fill out and submit this form to the Board. All applications shall include, at the minimum, the following information in writing or on maps or drawings in the form prescribed by the Board:

- Name, address, telephone number, and e-mail address of owner and permit applicant (if different);
- A sketch map and description of the riparian area on the project site or which may be impacted by the proposed activity;
- A description of the proposed activity including the type of proposed activity, its dimensions, distance from any road or water body;
- A description of all grading, filling, and vegetation removal proposed by the project applicant including an estimate of the dimensions of the area which will be affected;

- An explanation why this activity cannot be located at an upland location;
- A description of all measures proposed to reduce or compensate for project impacts;
- Name and location of the nearest road intersection;
- Photographs of the proposed project site showing the existing condition of the site;
- The lot size and size of any adjacent parcels owned by the project applicant;
- Any surface water bodies located on or within 100 feet of the project site;
- Zoning classification and restrictions;
- The 100 year flood elevation and floodplain and floodway boundaries at the project site if FEMA or other flood maps are available;
- A description of proposed restoration or riparian vegetation for all surfaces;
- A map of any wetlands which may be impacted by the proposed activity; and
- A description of the construction sequencing and timetable for any proposed activities including description of future phases of projects.

The Board may also require a permit applicant to submit additional information if the Board deems such information necessary to determine the compliance of a proposed activity with the standards and criteria set forth in the ordinance. Such information may include:

- Description of ecological communities and functions;
- Description how the application will change, diminish, or enhance the ecological communities and functions;
- Name, address, professional status, license number, and phone number of the person who is to prepare the riparian management or mitigation plan;
- More detailed site plans;
- Engineering reports and analyses where the proposed activity may be subject to flood or erosion hazards or increase such hazards of other types;
- Mapping or description of soil types where onsite waste disposal is proposed; and
- Analysis of chemical or physical characteristics of any fill material.

In addition, the Board may require the permit applicant to submit a riparian management and/or a compensatory mitigation plan.

Section 11: Public Hearings

Any person filing a permit application shall give written notice thereof, by certified mail (return receipt requested) or hand delivered, to all abutters at their mailing addresses shown on the most recent applicable tax list of the assessors. The notice to abutters shall include a copy of the permit application or shall state where copies may be examined and obtained by abutters.

(Note, a community could require a permit applicant to provide a notice to other agencies. See Section 7 above. For example, a permit applicant could be required to submit a copy of the permit application to the municipal engineer for compliance with floodplain regulations.)

No sooner than 30 days and not later than 60 days after receipt of a permit application and after notice the permit application has been published in one newspaper having general circulation in the area, the Board may hold a public hearing on the application unless the Board finds that the activity is so minor as not to affect riparian area functions, values, or acreage or

have impact upon public properties or the public at large. All hearings shall be open to the public.

Section 12: Standards and Criteria for Issuance of Permits

The Board shall consider all relevant facts in making its decision on any application for a permit including but not limited to the following:

- The goals and purposes of this ordinance;
- The functions and values of the riparian zone (See Section 1);
- The environmental impact of the proposed action;
- Alternatives to the proposed action;
- The relationship between short-term uses and long term productivity;
- Threats to other properties from increases in flooding, erosion, or other hazards;
- The suitability of the activity to the area for which it is proposed including threats from natural hazards; and
- Measures which would mitigate the impact of any aspect of the proposed regulated activity.

The Board shall not issue or conditionally issue a permit unless it finds that the proposed activity will not, taking into account individual and cumulative effects, threaten health or safety, result in fraud, cause nuisances, impair public rights in public waters, violate pollution control standards, or violate other regulations. In addition, the Board shall not issue a permit unless it finds that

- The permit applicant has, to the extent practical, avoided riparian areas;
- The permit applicant has, to the extent practical, reduced impacts to riparian areas;
- The proposed activity will be set back a minimum of 25 feet from the top of the bank of any river, stream, creek, wetland, or arroyo. The Board may require a larger setback based upon flooding, erosion, pollution, endangered species, riparian or wetland functions and values, or other relevant factors;
- The proposed activity will not cause a net loss of riparian area functions, values, or acreage taking in account the cumulative adverse effects of past activities on the riparian buffer area and reasonably anticipated future activities;
- The proposed activity will not increase flood, erosion, subsidence or other hazard on other lands and the proposed activity will not, in itself, be subject to flood and erosion hazards;
- The proposed activity will not result in adverse modification of habitat for or jeopardize plant, animal, or other wildlife species listed as threatened or endangered by the U.S. Fish and Wildlife Service or the state of(*specify*). Department of Fish and Wildlife or the state of Heritage program; and
- The proposed activity will not violate other applicable federal, state, and local water quality, flood loss reduction, fill and grading, stream protection, water supply protection, comprehensive zoning, sanitary code, and other statutes, regulations and ordinances.

The Board shall make written findings on any permit applicant stating the reason why the proposed permit is issued, denied, or conditionally issued or denied. The Board may consider all relevant information including but not limited to the following in making its decision on the application:

- The application and supporting documentation;
- Public comments, evidence, and testimony;
- Reports or comments from other local, state, tribal, or federal agencies and commissions; and
- Comments on the application from regional planning agencies, soil and water conservation districts, or other regional organizations.

Section 13: Conditions Which May Be Attached to Permits

The Board may conditionally approve permits. The following sorts of conditions may be attached to permit approvals:

- Design measures to further reduce project impacts;
- Relocation of the proposed activity to reduce project impacts;
- Flood and erosion loss reduction measures to prevent hazard losses to activities on other lands;
- Compensatory mitigation measures to offset losses to riparian area acreage, functions, and values;
- A requirement that structures be elevated on piles, floodproofed or otherwise protected from hazards including flood heights, velocities, and erosion potential;
- Modification of waste disposal and water supply facilities to reflect flooding, high ground water, and erosion hazards;
- Inclusion in the deed for the property a warning that the property contains a riparian area and that any activities in the riparian areas are subject to the riparian, wetland, floodplain and other regulatory requirements;
- Set backs from the river, stream, or other water body of a size appropriate for the proposed activity and the particular riparian area;
- Deed restrictions, covenants, or execution of conservation easements regarding the future use of lands including but not limited to preservation of undeveloped areas and restrictions on vegetation removal;
- Erosion control and storm water management measures;
- The clustering of structures or development;
- Erection of riparian area markers and signs including survey stakes delineating the boundary between riparian areas and adjacent lands;
- Long term monitoring and management requirements including control of exotic plant and animal species;
- Compensatory mitigation measure to offset losses to riparian acreage, functions, and values; and
- Other conditions necessary to protect riparian area functions, offset losses, and prevent increased natural hazard losses in the community.

Section 14: Riparian Management Plans

The Board may require that a permit applicant submit a riparian management plan to the Board if the Board believes such a plan is needed to meet the goals and standards of this ordinance including conditions attached to permit issuance. Such a management plan may include the procedures and timing of the proposed project, water level manipulation, removal of exotic species, replanting (if necessary) and other active management activities over time. It may also be combined with a compensatory mitigation plan as provided in Section 14 of this ordinance.

The riparian management plan shall be consistent with the following requirements:

- The plan shall describe all conservation and/or land management techniques that will be used to conserve and restore the riparian area;
- The plan shall specify any activities which will be carried out over time, who will carry out such activities, and how the activities will be carried out;
- The plan shall specify the professional and personnel resources which will be committed to monitoring and managing the riparian area;
- The plan shall specify construction methods that identify and protect riparian habitat that is to be left unaltered;
- Site development shall be fitted to the topography and soil so as to create the least potential for vegetation loss and site disturbance;
- Vegetation and soil removal shall be limited to the minimum amount necessary for the development of the site;
- Temporary vegetation, sufficient to stabilize the soil, may be required on all disturbed areas as needed to prevent soil erosion. New planting shall be given sufficient water, fertilizer and protection to insure reestablishment; and
- If proposed development including grading, dredging and filling would affect the banks of the stream or river, bank stabilization using techniques acceptable to the Board shall be required to prevent erosion.

Section 15: Compensatory Mitigation

The Board may require that the permit applicant submit a compensatory mitigation plan developed by qualified personnel to achieve no net loss of riparian area functions, values, and acreage if the Board believes such a plan is needed to meet the goals and standards of this ordinance including conditions attached to the issuance of a riparian permit. Compensatory mitigation measures may take the form of riparian area restoration creation, or enhancement. Such plans shall include design, implementation, maintenance, and monitoring elements. It shall include description of the compensation area, existing and proposed topography at one foot contour intervals, any proposed fill with the source of the fill, and any stockpiling, and planting (with source of plants).

A compensatory mitigation plan shall also include, at a minimum:

- A description of how long term replacement of riparian functions, values, and acreage will take place that recreates as nearly as possible the original riparian area in terms of type, geographic location and setting.
- Plans for any selected clearing and maintenance;

- The restoration of vegetation indigenous to the site or plant community.
- Periodic monitoring of mitigation features;
- Maintenance and replacement of damaged plants; and
- A proposal for posting a performance bond or other financial assurances.

In general, compensatory mitigation shall be onsite and in kind. However, the Board may allow use of offsite and out of kind mitigation including the use of mitigation banks if such use will have net ecological benefits, will not cause nuisances, will not violate other laws, and will not result in fragmentation of the riparian ecological system. Use of mitigation banks will be allowed to compensate for impacts only where onsite measures are in addition applied to insure that flooding, water pollution, erosion, and other problems do not occur at the original site.

Where feasible, mitigation projects shall be completed prior to activities that will disturb wetlands. In other cases, mitigation shall be completed immediately following disturbance and prior to use or occupancy of the activity.

There shall be no introduction of any plant or wildlife into a mitigation project for any wetland or wetland buffer which is not native to the area unless authorized by a state or federal permit.

In general the following ratios shall be provided for restoration, creation, and enhancement: 2:1 for restoration, 4:1 for creation, and 6:1 for enhancement. The Board may increase the ratios if uncertainties exist with regard to the success of the proposed mitigation, a significant period of time will elapse between impact and replication of riparian area functions, the mitigation will result in reduced riparian area functions, or the impact was an unauthorized impact. The Board may decrease ratios if the proposed mitigation has a high likelihood of success, the proposed mitigation will provide functions and values significantly greater than the wetland being impacted, or the proposed mitigation is conducted in advance of the impact and has been shown to be successful.

In evaluating the adequacy of proposed compensatory mitigation, the Board shall consider evaluate its effectiveness in avoiding impacts, minimizing impacts, rectifying the impacts, reducing or eliminating the impacts over time; and compensating for the impacts. It shall consider:

- The risk of failure of the proposed mitigation project based upon the difficulty with which this type of riparian area is restored, created, or enhanced, the experience and expertise of the individual or individuals proposing to carry out the mitigation, the proposed buffer and other protection measures, and the proposed management, monitoring and maintenance,
- The societal importance (value) of riparian functions provided by the mitigation plan in contrast with the societal importance of the functions of the original riparian area;
- Whether the proposed mitigation will require long term maintenance and, if so, the adequacy of any proposed maintenance;
- The need for long term monitoring and whether such monitoring will be provided; and
- Whether there will be offsite impacts of the proposed mitigation such as flooding of adjacent property and how these impacts will be addressed.

There shall be no introduction of any plant or wildlife into a mitigation project for any wetland or wetland buffer which is not native to the area unless authorized by a state or federal permit or approval.

Section 16: Variances

The Board may issue variances to the requirements of this ordinance where the regulations will otherwise deny landowners all economic use of entire properties taking into account existing uses, reasonably anticipated future uses, market values and sales for comparable properties, taxes, special assessments, and other factors. The Board may issue a variance only for the minimum deviations from permit standards, conditions, or mitigation measures, consistent with not denying landowners all economic use of their entire properties. The Board shall not authorize variances for activities which will increase flood and erosion losses on other properties, pose threats to public health and welfare such as flash flooding, pollute potable water supplies, or otherwise cause nuisances. The Board shall also not issue a variance for activities which will violate other laws.

Section 17. Prior Nonconforming Uses

Nonconforming uses including but not limited to buildings shall not be enlarged or expanded to further encroach onto the riparian area or watercourse. No nonconforming activity which has been discontinued for more than two years shall not be resumed. No nonconforming structure which has been destroyed or damaged for more than 50% of its value by flooding, wind, fire, or other natural or man-made force may be rebuilt only with issuance of a permit in conformity with the provisions of this ordinance.

Section 18: Inspections, Display of Permit, Revocations of Permits

Every permit issued pursuant to this ordinance shall allow the Board or its designated employee the right to inspect a project to determine compliance with conditions and the provisions of this ordinance. A permit applicant shall notify the Board at least five days before construction of an authorized project construction is to begin. The permit shall be prominently displayed at the project site during the undertaking of the activities authorized by the permit. All permits shall be valid for a period of one year from the date of issuance unless the Board indicates otherwise. The Board may issue a Stop Work Order if it finds that the permittee is violating provisions of the permit or of other applicable laws, ordinances, and/or regulations. The Board may, on written notice to the permittee, suspend or revoke a permit issued pursuant to this ordinance if the permittee has not complied with any term or condition of the permit or has failed to undertake the project in the manner set forth in the application.

Section 19: Bonds and Insurance

Upon approval of the application and prior to issuance of a permit, the Board may require the permit applicant to file a bond with such surety in such amount and in a form approved by the Board.

Release of the bond or surety shall be conditioned on compliance with all provisions of these regulations and the terms, conditions and limitations established in the permit.

The Board may require the applicant to certify that it has public liability insurance against liability which might result from the proposed activity covering any and all damage which might occur within (*specify*)years of completion of such operations, in an amount commensurate with the regulated activity.

Section 20: Enforcement and Penalties

Any person who commits, takes part in, or assists in any violation of any provision of this ordinance is guilty of a misdemeanor and may be fined not more than (*specify*)dollars for each offense and subject to imprisonment not exceeding (*specify*)days or both. Each violation of this ordinance shall be a separate offense, and in the case of a continuing violation, each day’s continuance thereof shall be deemed to be a separate and distinct offense.

The (*community name*) shall have jurisdiction to enforce a violation of this ordinance. All costs, fees, and expenses in connection with such action shall be assessed as damages against the violator.

In the event of a violation the (*community name*)..... shall have the power to order restoration of the riparian area. If the responsible person or agent does not complete such restoration within a reasonable time following the order, the authorized local government shall have the authority to restore the affected wetlands to the prior condition and the person or agent responsible for the violation shall be held liable to the (*community name*) for the cost of restoration.

Section 21: Appeals

Appeal on actions of the Board shall be made in accordance with provisions of the General Statutes (*specify section*).....

Section 22: Conflict and Severance

This ordinance shall be construed as not to conflict with any provision of local, state, or federal law. However, the provisions of this ordinance shall control if more restrictive than other local, state, or federal laws.

If any portion of this ordinance is held invalid or unconstitutional by a court of competent jurisdiction, all remaining provisions of the ordinance shall continue to be of full force and effect.

Section 23: Application Fees

At the time of a permit application, the applicant shall apply a filing fee of (*specify*)if the project will involve less than 5,000 square feet of disturbance to a riparian area and a filing fee of (*specify*)if more.

The Board may also require an applicant to pay fee for reasonable costs and expenses born by the commission including but not limited to verifying wetland boundaries, analyzing resource functions and values including wildlife evaluations, and hydrogeologic and drainage analyses.

PART 7: ADOPTING A COMBINED WETLAND, RIPARIAN AREA, WATERCOURSE PROTECTION ORDINANCE

INTRODUCTION

Some local governments have combined wetland, riparian area, and watercourse protection provisions into a single ordinance. Part 7 sets forth recommendations for such a combined ordinance. For the purposes of brevity, we do not repeat the model ordinance language suggested for wetlands and riparian areas in Parts 5 and 6 above. Not surprisingly, much of the model language and commentary for the model wetland and riparian ordinances in Parts 5 and 6 above are equally applicable to a model combined ordinance.

Examples of localities which have adopted combined or partially combined ordinances pertaining to wetlands, riparian areas, streams, and, in some instances, broader watercourses include:

- Wisconsin. Counties in Wisconsin have adopted state-mandated “shoreland” protection regulations which apply to areas within 1000 feet of lakes and 300 feet of streams or to the landward side of the floodplain. These regulations include wetland regulations, restrictions on vegetation removal for all shoreland areas including riparian areas, setbacks from rivers, lakes and streams, and minimum lot widths and sizes. Counties have also adopted floodplain ordinances.
- Minnesota. Counties and municipalities in Minnesota have adopted state-mandated shoreland protection regulations resembling those in Wisconsin. However, Minnesota counties have classified their lakes, rivers and streams and applied broader range and more severe restrictions including setbacks, wetland regulations, and floodplain regulations.
- Massachusetts. Towns in Massachusetts implement a state wetland protection statute which applies not only to wetlands but to the 100 year floodplain and many watercourses. Many towns have, therefore, adopted combined wetland, river, and floodplain regulations.
- Connecticut. Towns in Connecticut also implement a state statute which applies to wetlands and watercourses. Many Connecticut towns have adopted combined wetland, stream, floodplain and watercourse ordinances.
- Maryland and Virginia. Many communities in Maryland and Virginia have adopted both wetland and stream buffer protection regulations pursuant to wetland protection, coastal zone management, and Chesapeake Bay protection statutes and regulations.

Simultaneous wetland, river, and watercourse regulations are also common in Maine and Vermont which have adopted shoreland zoning statutes. Many communities in Washington have adopted comprehensive “critical area” and “sensitive” land ordinances pursuant to state “shoreline” and “smart growth” statutes. These ordinances address wetlands, floodplains, and other hazard areas, and provide river setbacks.

Need for Comprehensive Regulation

Simultaneously regulation of wetlands, riparian areas, and watercourses is needed for a number of reasons:

- Wetlands, riparian areas, and watercourses are all essential components of a community's total water resources systems. Regulating only one or two components leaves gaps.
- All collectively store and convey flood waters.
- All are collectively important for water quality protection.
- All are linked by hydrology and hydraulics.
- All collectively form wildlife corridors.
- All serve similar overall functions although there are also differences.
- Activities in all have the potential for increasing hazards on other lands.

Until the U.S. Supreme Court issued the SWANCC decision in 2001, federal Section 404 Clean Water Act regulations applied to most wetlands, lakes, coastal waters, streams, ditches, arroyos and some riparian areas throughout the U.S.. These waters included most ephemeral streams and isolated wetlands used by migratory waterfowl. However, due the SWANCC decision in 2001 and the Rapanos decision in 2006, many isolated wetlands and smaller ephemeral streams are not longer protected. As a consequence, local adoption of regulations becomes increasingly important to fill the gaps in federal and state regulations

Critical Provisions of Combined Ordinances

Critical provisions of combined ordinances are similar to those for wetlands and riparian areas. They include:

- Definition of regulated areas,
- Definition of regulated activities, and
- Standards and criteria for issuance of permits including conditions which may be attached to permits.

Definition of Regulated Areas

The combined ordinance suggested below uses several approaches for simultaneously designating for regulatory purposes wetlands, riparian areas, and watercourses:

- “Wetlands”: The ordinance incorporates, by reference, National Wetland Inventory (or other) wetland maps to designate regulated wetlands. Other wetlands are regulated by description.
- “Riparian Areas”. Distance measurements are used to designate regulated riparian areas.
- “Watercourses” USGS maps are used, in part, to identify regulated watercourses.

Communities with sufficient funding may wish to adopt wetland, riparian, and watercourse maps to more precisely define areas subject to regulatory jurisdiction.

Definition of Regulated Activities

The definition of regulated activities in a comprehensive ordinance is similar to that for a wetland or riparian area ordinance. It should encompass all activities which may damage or destroy wetlands, riparian areas, or watercourses.

Standards and Criteria for Issuance of Permits

Not surprisingly, standards and criteria for issuance of permits pursuant to a combined ordinance are similar to those for wetlands and riparian areas with the addition of some special factors relevant to watercourses.

MODEL WETLAND, RIPARIAN AREA AND WATERCOURSE ORDINANCE

As indicated above, for brevity purposes, the following draft refers to language in the model wetland ordinance in Part 5 above rather than repeating this language. Only language which is unique to the wetland, riparian area and watercourse ordinance is set forth below.

Section 1: Findings of Fact

The legislative body of(*local government name*) determines that protection of all waters is critical to the health, safety, and welfare of the citizens of (*local government name*) . The intent of this ordinance is to provide an integrated, cooperative approach to the protection of wetlands, riparian areas, and watercourses including but not limited to wetlands, riparian areas, rivers, streams, and coastal/estuarine waters (*include where applicable*). It is the goal to restore and maintain the physical, biological, and chemical integrity of all waters.

Many of the waters of(*local government name*) have been degraded by pollution, fills, drainage, channelization, grading, mining, grazing, and other activities. Destruction and degradation of wetlands, riparian areas, and watercourses results in increased downstream water pollution, flooding, and erosion. Protection of wetlands, riparian areas and watercourses is needed to:

- Provide flood conveyance and storage capacity which reduces downstream flood hazards by absorbing peak flows, slowing the velocity of flood waters, and regulating base flow;
- Reduce the need for costly engineering solutions for flooding and erosion such as rip rap, retention basins, and dams;
- Stabilize the banks of watercourses to reduce bank erosion and downstream transport of sediments eroded from watercourse banks;
- Provide stormwater detention and purification;
- Provide living, breeding, nesting and feeding environments for many forms of wildlife by maintaining diverse and connected riparian vegetation including waterfowl, shorebirds, salamanders, frogs, and deer;
- Treat polluted surface/subsurface waters through biological degradation and chemical oxidation;
- Reduce additional nonpoint pollution of waters by providing buffers;
- Protect nursery grounds and sanctuaries for fish;

- Help maintain water temperatures and oxygen levels in rivers, streams, lakes, ponds, and other waters;
 - Provide recreation areas for hiking, bird watching, biking, photography and other recreation uses;
 - Maintain potable water supplies in rivers and streams; and
 - Reduce community flood, erosion, and other natural hazard losses.
- Activities in wetland, riparian areas, and watercourses are often subject to flood and erosion hazards and exacerbate hazards on other lands. Buildings, roads, and other infrastructure located in such areas are often damaged by floods and erosion and require expensive emergency rescue and disaster assistance.

Section 2: Purposes

The purpose of this ordinance is protect the valuable and limited water resources in(*local government name*) Loss of waters is contrary to the public health, safety, and welfare. More specific goals include:

- Achieve no net loss in the quantity, quality, functions and biological diversity of wetlands, riparian areas, and watercourses;
-
- Avoid direct or indirect impacts from activities that destroy or diminish the quantity, quality and biological diversity of wetlands, riparian areas, and watercourses;
- Provide ecologically sound transitions between waters and upland areas;
-
- Replace wetland, riparian area, and watercourse functions (See Section 1 above) and acreage where avoidance of activities is not practical and all practical measures have been taken to reduce impacts;
- Prevent increases in flood, erosion, and other natural hazard losses due to destruction of wetlands and riparian areas and the filling and drainage of watercourses and degradation of their flood conveyance, flood storage, and erosion control and other functions.
- Incorporate wetland, riparian, and watercourse protection into the.....(*local government*) land use, planning and development approval procedures.

Section 3: Authority

See authority section in model wetland ordinance in Part 5 above.

Section 4: Definitions

“Board” means (*Note, the local government must choose the board/commission it wishes to authorize to issue permits. Permits must typically be issued by the Board of Adjustment or Planning Board if state statutes do not specifically allow the creation of a separate board with*

regulatory powers such as a conservation commission. We use the term “Board” generically in this ordinance to mean the selected local regulatory body.

“Compensatory mitigation” means the replacement of wetland, riparian area, or watercourse acreage, function, and value to compensate for losses.

“Creation” means a human activity bringing a riparian area or wetland into existence at a site in which it did not formerly exist.

“Enhancement” means the manipulating the physical, chemical or biological characteristics of a wetland, riparian area or watercourse to increase or improve specific functions or to change the growth stage or vegetation present.

“Floodplains”. *See definition in model wetland ordinance in Part 5 above.*

“Floodways”. *See definition in model wetland ordinance in Part 5 above.*

“National Wetlands Inventory Maps (NWI)”. *See definition in model wetland ordinance in Part 5 above.*

“Ordinary High Water Mark”. *See definition in model wetland ordinance in Part 5 above.*

“Regulated Activities” means all activities in regulated riparian or wetland areas or watercourses which involving filling, excavation, dredging, clear-cutting, dumping, excavation, changing of drainage, grading, placing of objects in water, excavation or any other alteration or use of a wetland, riparian area, or watercourse.

“Restoration” means manipulating the physical, chemical or biological characteristics of a site to achieve a former condition with improved wetland, riparian, or watercourse functions, values, and acreage.

“Riparian Area”. *See definition in model wetland ordinance in Part 5 above.*

“Watercourses” mean rivers, streams, intermittent streams, ditches, brooks, channels, lakes, ponds, manmade ponds, estuarine waters, vernal pools, playas, and all other bodies of water, natural or artificial, intermittent or permanent, public or private which have defined banks and water at least a portion of each year. These areas are typically shown on the United States Geologic Survey topographic maps for a community.

“Wetlands”. *See definition in model wetland ordinance in Part 5 above.*

Section 5: Wetland, Riparian, and Watercourse Review Board

See wetland, riparian, and watercourse review board requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 6: Wetland, Riparian, Watercourses Subject to This Ordinance

Wetlands, riparian areas, and watercourses subject to the provisions of this ordinance include the following:

- Wetlands identified on National Wetland Inventory Maps series.....(*list numbers with dates*), all other wetlands meeting the definition of wetland in Section 4 above, and wetland buffer areas within 75 feet of such wetlands.

- Riparian areas measured horizontally from the ordinary high water mark including all lands within:
 - 300 feet of following rivers and streams or to the landward side of the 100 year floodplain if this is greater:
(*List*)

 - 200 feet of the following creeks and streams or to the landward side of the 100 year floodplain if this is greater:
(*List*)

 - 100 feet of all other rivers, streams, creeks, washes, arroyos, or other watercourses having banks and bed through which waters flow at least periodically including watercourses indicated as intermittent and perennial streams on U.S.G.S. topographic maps (*numbers, dates*).....

- All watercourses shown as intermittent or permanent water bodies on U.S.G.S. topographic maps (*numbers, dates*).....

Section 7: Delineation of Wetland, Riparian, Watercourse Boundaries

See delineation in model wetland ordinance in Part 5 above. Substitute “wetland, riparian, watercourse” for “wetland”.

Section 8: Activities Allowed as of Right

The following activities shall be allowed as of right in wetlands, riparian areas, and watercourses providing there is no fill or disturbance of natural hydrology:

See activities allowed as of right in model wetland ordinance in Part 5 above.

Section 9: Activities Requiring a Permit

All activities in a regulated wetland, riparian area, or watercourse involving filling, drainage, grading or excavation, dredging, clear-cutting, removal or 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 wetland, riparian area, or watercourse not permitted by Section 8 of this ordinance shall require a permit from the Board.

Section 10: Coordination With Other Regulatory Agencies

The goal of this ordinance is to provide a coordinated and integrated approach to protection and restoration of wetlands, riparian areas, and watercourses. The Board may require that a permit applicant obtain other federal, state, or local regulatory permits needed for a proposed activity before applying for a permit from the Board.

See coordination with other regulatory agencies in model wetland ordinance in Part 5 above.

Section 11: Information to be Provided by Permit Applicants

The Board shall develop and make available Wetland, Riparian Area, and Watercourse permit application forms. Individuals or public or private corporations seeking a permit for a regulated activity shall fill out and submit this form to the Board.

All applications for permits shall include, at the minimum, the following information:

(See required information in model wetland ordinance in Part 5 above.)

Section 12: Public Notice and Hearing

See public notice and hearing requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

The Board shall conduct a public hearing on all permit applications involving disturbance of more than 1000 square feet of wetland or riparian area or more than 50 lineal feet of watercourse.

Section 13: Standards and Criteria for Issuance of Permits

See standards and criteria for issuance of permits in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”. Add the following language to more fully address issues associated with “watercourse”:

- Maintain with particular care vegetated bank areas of rivers, streams, and other watercourses because they are often subject to high velocity flows and severe erosion;
- Manage rivers, streams and riparian areas to maintain geomorphic equilibrium to reduce stream bank erosion, loss of habitat and other problems;
- Avoid to the extent practical the culverting of streams and other watercourses which often destroys habitat, increases the velocity of flows, causes erosion, and results in flooding of adjacent lands;
- Reduce the use of riprap or other debris to stabilize stream banks because it often results in erosion of streambanks up and downstream of the riprap. It also often blocks flood flows thereby increasing flood heights and velocities on other lands, and it destroys wildlife;

- Avoid activities which will prevent free passage of fish and other aquatic life; and
- Prevent fills or restrictions on channels which will increase flooding on upstream and downstream properties.

Section 14: Conditions Which May Be Attached to Permits

See conditions which may be attached to permits in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 15: Wetland, Riparian Area, Watercourse Management Plans

The Board may require a permit applicant to prepare a wetland, riparian area, and/or watercourse management plan if the Board determines that such a plan is needed to apply the standards set forth in this ordinance or to achieve the goals and standards of this ordinance. In general, plans are needed for long term and large scale management of a wetland, riparian area, or watercourse such as manipulation of water levels, control of exotic plant species, or period harvesting of timber. Plans shall also generally be required for larger projects. A plan shall be consistent with the following:

- The plan shall describe any long term management proposed for the site, how this management is to be carried out, and who will undertake such management.
- Site development shall be fitted to the topography and soil so as to create the least potential for vegetation loss and site disturbance.
- Vegetation and soil removal shall be limited to the minimum amount necessary for the development of the site.
- If proposed development, including grading, dredging and filling, would affect the banks of a stream, river or other watercourse, bank stabilization using bioengineering or other techniques acceptable to the Board shall be required to prevent erosion.
- Vegetation indigenous to the site or plant community shall be restored in areas affected by construction activities. Temporary vegetation, sufficient to stabilize the soil, may be required on all disturbed areas as needed to prevent soil erosion. New planting shall be given sufficient water, fertilizer and protection to insure reestablishment.

Section 16: Compensatory Mitigation

See compensatory mitigation requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 17: Variances

See variance requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 18: Prior Nonconforming Uses

See prior nonconforming uses requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 19: Bonds and Insurance

See bonds and insurance requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 20: Penalties

See penalty requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 21: Inspections, Display of Permit, Revocations of Permits

See inspections, display of permit, revocations of permit requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 22: Appeals

See appeals requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 23: Conflict and Severance

See conflict and severance hearing requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

Section 24: Application Fees

See application requirements in model wetland ordinance in Part 5 above. Substitute words “wetlands, riparian areas, and watercourses” for “wetland”.

PART 8: SUGGESTED READINGS

- Burke, D., E. Meyers, R. Tiner, Jr. and H. Groman. 1988. Protecting Nontidal Wetlands. American Planning Association, Washington, D.C. This contains a model wetland protection ordinance.
- Cowles, C., D. Sheldon, and S. Dietz (New England Interstate Water Pollution Control Commission). 1991. Guidance on Developing Local Wetlands Projects, A Case Study of Three Counties and Guidance for Others. U.S. Environmental Protection Agency, Office of Wetlands Protection. Washington, D.C.
- Dutchess County Environmental Management Council's Wetland Task Force. 1997. A Model Ordinance for Wetland, Waterbody, and Watercourse Protection. Millbrook, N.Y.
- Frome, M.L. and E. Shenkman (Eds.). 1990. Wetlands Protection: A Handbook for Local Officials. Report No. 7. Department of Environmental Resources, Commonwealth of Pennsylvania, Harrisburg, Pennsylvania.
- Georgia Department of Community Affairs. 1997. Model Wetland Protection Ordinance. Atlanta, Georgia.
- Henderson, T.R., W. Smith, and D.G. Burke. 1983. Non-Tidal Wetlands Protection: A Handbook for Maryland Local Governments. Maryland Department of Natural Resources. This contains a model wetland protection ordinance.
- International City/County Management Association. 1999. Protecting Wetlands and Managing Watersheds: Local Government Case Studies. Washington, D.C.
- Kusler J., et al. 2003. A Guidebook for Local Governments: Wetlands and Watershed Management, Association of State Wetland Managers, Berne, New York
- Kusler, J. and T. Opheim. 1996. Our National Wetland Heritage, Second Edition, A Protection Guide, The Environmental Law Institute, Washington, D.C. This contains a model wetland ordinance.
- Mitch, W. & J. Gosslink, 2nd Ed., 1993. Wetlands. Van Nostrand Reinhold, New York
- Passaic River Coalition & New Jersey Department of Environmental Protection. 2005. Riparian Buffer Conservation Zone Model Ordinance. New Jersey Department of Environmental Protection, Division of Watershed Management.
- Rubey Frost, J. and K. Stenberg. 1992. Designing Wetlands Preservation Programs for Local Government: A Summary. Washington State Department of Ecology, Olympia, Washington. Pub. No. 92-19
- U.S. Environmental Protection Agency. 1997. Protecting Wetlands: Tools for Local Governments in the Chesapeake Bay Region. Chesapeake Bay Program Office, Annapolis, Maryland

U.S. Environmental Protection Agency, Region 2. 1993. Wetlands Regulation Guidebook for New York State. Marine and Wetlands Protection Branch, New York, New York

Washington State Department of Ecology. 1986. Wetlands Acquisition & Preservation: A Guide for Landowners and Government Agencies. Shorelands & Coastal Zone Management Program, Wetlands Section

PART 9: SUGGESTED WEB SITES

<http://www.cwp.org/>

Center for Watershed Protection. Many excellent publications listed here.

<http://www.epa.gov/owow/nps/ordinance/>

U.S. Environmental Protection Agency, Model Ordinances to Protect Local Resources. Very useful.

<http://www.smartgrowth.org/Default.asp?res=1024>

Smart Growth Online resources.

<http://www.epa.gov/surf/>

U.S. Environmental Protection Agency, Surf Your Watershed. Wetlands, Oceans and Watersheds.

<http://www.epa.gov/OWOW/>

U.S. Environmental Protection Agency. Wetlands, Oceans and Watersheds Publications.

http://www.eugene-or.gov/portal/server.pt?space=CommunityPage&cached=true&parentname=CommunityPage&parentid=0&in_hi_userid=2&control=SetCommunity&CommunityID=217&PageID=0

Eugene Parks and Open Space. West Eugene Wetlands Plan. Excellent. Lots of detailed information on the plan, wetland links.

<http://www.csc.noaa.gov/>

NOAA Coastal Services Center. Many helpful links and information.

<http://www.crowc.org/programs/watershedmgmt/scwetlands/scwofficials.html>

Clinton River Watershed Council. Wetland Stewardship for Local Governments. Contains a model ordinance.

<http://www.angelfire.com/in4/earthpages/indianawetlands.html>

A Model Wetlands Ordinance for Indiana Communities.

<http://www.co.cass.mn.us/esd/pdfs/ordinance/WETORD98.pdf>

Cass County Environmental Services. Cass County Wetland Ordinance. Wetland ordinance utilizing wetland functional assessments.

<http://www.lta.org/>

Land Trust Alliance. Many links. Excellent collection of publications for sale.

www.epa.gov/owow/nps/ordinance/

U.S. Environmental Protection Agency. Collection of model ordinances to protect local resources.

http://www.nrcs.usda.gov/technical/stream_restoration/

Federal Interagency Stream Restoration Working Group, Stream Corridor Restoration: Principles, Processes, and Practices.

<http://www.epa.gov/owow/wetlands/restore/links>

U.S. Environmental Protection Agency, Wetland links by state.

<http://www.cicacenter.org/swift.html>

Construction Industry Compliance Assistance, State Wetland Information Tool.

http://www.tpl.org/tier2_kad.cfm?folder_id=2554#cs8

Trust for Public Lands watershed case studies.

<http://aswm.org/wbn/current.htm>

ASWM, Wetlands Breaking News.

<http://www2.eli.org/index.cfm>

Environmental Law Institute.

www.noaa.gov

National Oceanic Atmospheric Administration (NOAA).

<http://www.nmfs.noaa.gov/>

NOAA - National Marine Fisheries Service.

<http://www.sws.org/>

Society of Wetland Scientists.

<http://www.usace.army.mil/>

U.S. Army Corps of Engineers.

<http://thomas.loc.gov/>

The Library of Congress. Thomas Legislative Information on the Internet.

<http://www.pwrc.usgs.gov/wli/>

USDA Natural Resources Conservation Service. Wetland Science Institute.

<http://www.epa.gov/>

U.S. Environmental Protection Agency.

<http://www.esri.com/hazards/>

Federal Emergency Management Agency flood maps.

<http://www.fws.gov/>

U.S. Fish and Wildlife Service.

<http://wetlands.fws.gov/>

U. S. Fish and Wildlife Service. National Wetlands Inventory.

<http://www.fws.gov/partners/>

U.S. Fish and Wildlife Service, Partners for Fish and Wildlife Program.