Model Stream/Wetland Buffers Ordinance

(Prepared By State of Rhode Island)

Section I. Background.

Buffers next to stream systems and coastal areas provide numerous environmental protection and resource management benefits which can include the following:

- restoring and maintaining the chemical, physical and biological integrity of the water resources
- removing pollutants delivered in urban stormwater
- reducing erosion and controlling sedimentation
- stabilizing stream banks
- providing infiltration of stormwater runoff
- maintaining base flow of streams
- contributing the organic matter that is a source of food and energy for the aquatic ecosystem
- providing tree canopy to shade streams and promote desirable aquatic organism.
- providing riparian wildlife habitat
- furnishing scenic value and recreational opportunity

It is the desire of the _____ (Municipality) to protect and maintain the native vegetation in riparian and wetland areas by implementing specifications for the establishment, protection and maintenance of vegetated along all stream systems and/or coastal zones within our jurisdictional authority.

Section II. Intent.

The purpose of this ordinance is to establish minimal acceptable requirements for the design of buffers to protect the streams, wetlands and floodplains of (Jurisdiction); to protect the water quality of watercourses, reservoirs, lakes, and other significant water resources within _____ (Municipality); to protect _____'s (Municipality's) riparian and aquatic ecosystems; and to provide for the environmentally sound use of _____'s (Municipality's) land resources.

Section III. Definitions.

Active Channel: the area of the stream channel that is subject to frequent flows (approximately once per one and a half years), and that includes the portion of the channel below where the floodplain flattens.

Best Management Practices (BMPs): conservation practices or management measures which control soil loss and reduce water quality degradation caused by nutrients, animal wastes, toxics,

sediment, and runoff.

Buffer: a vegetated area, including trees, shrubs and herbaceous vegetation, which exists or is established to protect a stream system, lake, reservoir or coastal estuarine area. Alteration of this natural area is strictly limited.

Development:
1) the improvement of property for any purpose involving building
2) subdivision, or the division of a tract or parcel of land in to 2 or more parcels
3) the combination of any two or more lots, tracts, or parcels of property for any purpose
4) the preparation of land for any of the above purposes

Non-Tidal Wetland: those areas not influenced by tidal fluctuations that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

Nonpoint Source Pollution: pollution which is generated by various land use activities rather than from an identifiable or discrete source, and is conveyed to waterways through natural processes, such as rainfall, storm runoff, or ground water seepage rather than direct discharge.

One Hundred Year Floodplain: the area of land adjacent to a stream that is subject to inundation during a storm event that has a recurrence interval of one hundred (100) years.

Pollution: any contamination or alteration of the physical, chemical, or biological properties of any waters that will render the waters harmful or detrimental to:
1) public health, safety or welfare
2) domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses
3) livestock, wild animals, or birds
4) fish or other aquatic life

Stream Channel: part of a water course either naturally or artificially created which contains an intermittent or perennial base flow of groundwater origin. Base flows of groundwater origin can be distinguished by any of the following physical indicators:
1) Hydrophytic vegetation, hydric soil or other hydrologic indicators in the area(s) where groundwater enters the stream channel, in the vicinity of the stream headwaters, channel bed or channel banks
2) Flowing water not directly related to a storm event
3) Historical records of a local high groundwater table, such as well and stream gauge records.

Stream Order: a classification system for streams based on stream hierarchy. The smaller the stream, the lower its numerical classification. For example, a first order stream does not have tributaries and normally originates from springs and/or seeps. At the confluence of two first order streams, a second order stream begins, and so on. (See Figure 1)

Stream System: a stream channel together with one or both of the following:

- 100-year floodplain and/or
- hydrologically-related non-tidal wetlands

Streams: perennial and intermittent watercourses identified through site inspection and USGS maps. Perennial streams are those which are depicted on a USGS map with a solid blue line. Intermittent streams are those which are depicted on a USGS map with a dotted blue line.

Water Pollution Hazard: a land use or activity that causes a relatively high risk of potential water pollution.

Section IV. Applications.

1) This ordinance shall apply to all proposed development except for that development which meets waiver or variance criteria as outlined in Section IX of this regulation.
2) This ordinance shall apply to all timber harvesting activities, except those timber harvesting operations which are implementing a forest management plan which has been deemed to be in compliance with the regulations of the buffer ordinance and has received approval from _____(S*tate Forestry Agency*).
3) This ordinance shall apply to all surface mining operations except that the design standards shall not apply to active surface mining operations which are operating in compliance with an approved _____(S*tate or Federal Agency*) surface mining permit.
4) The ordinance shall not apply to agricultural operations that are covered by a conservation plan approved by an appropriate agency that includes the application of best management practices.

[Note: *Communities should carefully consider whether or not to exempt agricultural operations from the buffer ordinance, because buffer regulations may take land out of production and impose a financial burden on family farms. Many communities exempt agricultural operations if they have an approved conservation plan. In some regions, agricultural buffers may be funded through the USDA-Natural Resources Conservation Service's Conservation Reserve Program (CRP).*

[Note: *Livestock operations near and around streams may be regulated by communities. Livestock can significantly degrade the stream system, and accelerate streambank erosion. For more information, contact the Westchester County Soil and Water Conservation District at (914)285-4422.]*

5) Except as provided in Section IX, this ordinance shall apply to all parcels of land, structures and activities which are causing or contributing to:
   - pollution, including nonpoint source pollution, of the waters of the jurisdiction adopting this ordinance.
   - erosion or sedimentation of stream channels
   - degradation of aquatic or riparian habitat

Section V. Plan Requirements.

In accordance with Section IV of this ordinance, a plan approved by the appropriate agency is required for all development, forest harvesting operations, surface mining operations, and agricultural operations.

1) The plan shall set forth an informative, conceptual and schematic representation of the proposed activity by means of maps, graphs, charts, or other written or drawn documents so as to enable the agency an opportunity to make a reasonably informed decision regarding the proposed activity.
2) The plan shall contain the following information:
   - a location or vicinity map
   - field delineated and surveyed streams, springs, seeps, bodies of water, and wetlands (include a minimum of two hundred (200) feet into adjacent properties).
   - field delineated and surveyed forested buffers
   - limits of the one hundred (100) year floodplain
   - hydric soils mapped in accordance with the USDA-NRCS *Soil Survey of Putnam and Westchester Counties, New York*
   - steep slopes greater than fifteen (15) percent for areas adjacent to and within two hundred (200) feet of streams, wetlands, or other water bodies.
   - a narrative of the species and distribution of existing vegetation within the buffer
3) The buffer plan shall be submitted in conjunction with the required grading plan for any development, and the forest buffer should be clearly delineated on the final grading plan.
4) Permanent boundary markers, in the form of signage approved by (Municipality), shall be installed prior to final approval of the required clearing and grading plan. Signs shall be placed at the edge of the Middle Zone (See Section VI.E).

Section VI. Design Standards for Forest Buffers.

1) A forest buffer for a stream system shall consist of a forested strip of land extending along both sides of a stream and its adjacent wetlands, floodplains or slopes. The forest buffer width shall be adjusted to include contiguous sensitive areas, such as steep slopes or erodible soils, where development or disturbance may adversely affect water quality, streams, wetlands, or other water bodies.
2) The forest buffer shall begin at the edge of the stream bank of the active channel.
3) The required width for all forest buffers (i.e., the base width) shall be a minimum of one

hundred feet, with the requirement to expand the buffer depending on: a)stream order; b) percent slope; c) 100-year floodplain; and d) wetlands or other critical natural resource(s).

- in third order and higher streams, add twenty five feet to the base width.
- forest buffer width shall be modified if there are steep slopes which are within close proximity to the stream and drain into the stream system. In those cases, the forest buffer width can be adjusted.

[Note: Several method may be used to adjust buffer width for steep slopes. Two examples include:]

Method A

Percent Slope	Buffer Width
15%-17%	add 10 feet
18%-20%	add 30 feet
21%-23%	add 50 feet
24%-25%	add 60 feet

Method B

Percent Slope	Type of Stream Use	
	Water Contact Recreational Use	Sensitive Stream Habitat
0 to 14%	no change	add 50 feet
15 to 25%	add 25 feet	add 75 feet
Greater than 25%	add 50 feet	add 100 feet

- forest buffers shall be extended to encompass the entire 100-year floodplain and a zone with a minimum width of 25 feet beyond the edge of the floodplain.
- when wetland or critical areas extend beyond the edge of the required buffer width, the buffer shall be adjusted so that the buffer consists of the extent of the wetland plus a 25-foot-wide zone extending beyond the wetland edge.

A) Water Pollution Hazards

The following land uses and/or activities are designated as potential water pollution hazards, and must be setback from any stream or water body by the distance indicated below:

1) storage of hazardous substances (150 feet)

2) above or below ground petroleum storage facilities (150 feet)
3) drain fields from on-site sewage disposal and treatment system (i.e., septic systems--100 feet)
4) raised septic systems (250 feet)
5) solid waste landfills or junkyards (300 feet)
6) confined animal feedlot operations (250 feet)
7) subsurface discharges from a wastewater treatment plant (100 feet)
8) land application of biosolids (100 feet)

[Note: For surface water supplies, the setbacks should be doubled.]

B) The forest buffer shall be composed of three distinct zones, with each zone having its own set of allowable uses and vegetative targets as specified in this ordinance. (See Figure 2).

[Note: Although a three zone buffer system is highly recommended, the widths and specific uses allowed in each zone may vary between jurisdictions.]

1) Zone 1 Streamside Zone
    1) The function of the streamside zone is to protect the physical and ecological integrity of the stream ecosystem.
    2) The streamside zone will begin at the edge of the stream bank of the active channel and extend a minimum of 25 feet from the top of the bank.
    3) Allowable uses within this zone are highly restricted to:
        - flood control structures
        - utility rights of way
        - footpaths
        - road crossings, where permitted.
    4) The vegetative target for the streamside zone is undisturbed native vegetation.
2) Zone 2 Middle Zone
    1) The function of the middle zone is to protect key components of the stream and to provide distance between upland development and the streamside zone.
    2) The middle zone will begin at the outer edge of the streamside zone and extend a minimum of 50 plus any additional buffer width as specified in Section VI C.
    3) Allowable uses within the middle zone are restricted to:
        - Biking or hiking paths
        - Stormwater management facilities, with the approval of (l*ocal agency responsible for stormwater).*
        - Recreational uses as approved by _____ *(*Municipality*).*
        - Limited tree clearing with approval from _____ (*Forestry Agency or Planning Agency*).
    4) The vegetative target for the middle zone is mature native vegetation adapted to the region.
3) Zone 3 Outer Zone
    1) The function of the outer zone is to prevent encroachment into the forest buffer and to filter runoff from residential and commercial development.

2) The outer zone will begin at the outward edge of the middle zone and provide a minimum width of 25 feet between Zone 2 and the nearest permanent structure.
3) There shall be no septic systems, permanent structures or impervious cover, with the exception of paths, within the outer zone.
4) The vegetative target for the outer zone may vary, although the planting of native vegetation should be encouraged to increase the total width of the buffer.

Section VII. Buffer Management and Maintenance.

1) The forest buffer, including wetlands and floodplains, shall be managed to enhance and maximize the unique value of these resources. Management includes specific limitations on alteration of the natural conditions of these resources. The following practices and activities are restricted within Zones 1 and 2 of the forest buffer, except with approval by _____ (Municipality*)*:
    1) Clearing of existing vegetation.
    2) Soil disturbance by grading, stripping, or other practices.
    3) Filling or dumping.
    4) Drainage by ditching, under drains, or other systems
    5) Use, storage, or application of pesticides, except for the spot spraying of noxious weeds or non-native species consistent with recommendations of _____. (*NYS DEC or County Health Department*)
    6) Housing, grazing, or other maintenance of livestock.
    7) Storage or operation of motorized vehicles, except for maintenance and emergency use approved by _____.(Municipality*)*
2) The following structures, practices, and activities are permitted in the forest buffer, with specific design or maintenance features, subject to the review of (Municipality):
    1) Roads, bridges, paths, and utilities:
        - an analysis needs to be conducted to ensure that no economically feasible alternative is available.
        - the right of way should be the minimum width needed to allow for maintenance access and installation.
        - the angle of the crossing shall be perpendicular to the stream or buffer in order to minimize clearing requirements

- the minimum number of road crossings should be used within each subdivision, and no more than one fairway crossing is allowed for every 1,000 feet of buffer.

2) Stormwater management:
   - an analysis needs to be conducted to ensure that no economically feasible alternative is available, and that the project is either necessary for flood control, or significantly improves the water quality or habitat in the stream.
   - in new developments, on-site and non-structural alternatives will be preferred over larger facilities within the stream buffer.
   - when constructing stormwater management facilities (i.e., BMPs), the area cleared will be limited to the area required for construction, and adequate maintenance access.
   - material dredged or otherwise removed from a BMP shall be stored outside the buffer.
   - stream restoration projects, facilities and activities approved by _____ are permitted within the forest buffer.
   - water quality monitoring and stream gauging are permitted within the forest buffer, as approved by _____ (local, state and/or federal agency).
   - individual trees within the forest buffer may be removed which are in danger of falling, causing damage to dwellings or other structures, or causing blockage of the stream.
   - other timber cutting techniques approved by the agency may be undertaken within the forest buffer under the advice and guidance of (*State or Federal Forestry Agency*), if necessary to preserve the forest from extensive pest infestation, disease infestation, or threat from fire.

[Note: Rather than place specific stormwater BMP design criteria in an ordinance, it is often preferable to reference a manual. Therefore, specific design information can change over time without going through the formal process needed to change ordinance language. One such manual is the NYS DEC's Reducing the Impacts of Stormwater Runoff from New Development.]

3) All plats prepared for recording and all right-of-way plats shall clearly:
   - Show the extent of any forest buffer on the subject property by metes and bounds
   - Label the forest buffer
   - Provide a note to reference any forest buffer stating: "There shall be no clearing, grading, construction or disturbance of vegetation except as permitted by the agency".
   - Provide a note to reference any protective covenants governing all forest buffers areas stating: "Any forest buffer shown hereon is subject to protective covenants which may be found in the land records and which restrict disturbance and use of these areas.
4) All forest buffer areas shall be maintained through a declaration of protective covenant, which is required to be submitted for approval by _____ (Municipality). The covenant shall be recorded in the land records and shall run with the land and continue in perpetuity.

[Note: This protective covenant can be kept either by the local government agency

responsible for management of environmental resources, or by an approved nonprofit organization.]

All lease agreements must contain a notation regarding the presence and location of protective covenants for forest buffer areas, and which shall contain information on the management and maintenance requirements of the forest buffer for the new property owner.

1) An offer of dedication of a forest buffer area to the agency shall not be interpreted to mean that this automatically conveys to the general public the right of access to this area.
2) _____ (*Responsible Individual or Group)* shall inspect the buffer annually and immediately following severe storms for evidence of sediment deposition, erosion, or concentrated flow channels and corrective actions taken to ensure the integrity and functions of the forest buffer.

[Note: A local ordinance will need to designate the individual or group responsible for buffer maintenance. Often, the responsible party will be identified in any protective covenants associated with the property.]

3) Forest buffer areas may be allowed to grow into their vegetative target state naturally, but methods to enhance the successional process such as active reforestation may be used when deemed necessary by _____ (Municipality*)* to ensure the preservation and propagation of the buffer area. Forest buffer areas may also be enhanced through reforestation or other growth techniques as a form of mitigation for achieving buffer preservation requirements.

Section VIII. Enforcement Procedures.

1) _____ (Director of *Responsible Agency)* is authorized and empowered to enforce the requirements of this ordinance in accordance with the procedures of this section.
2) If, upon inspection or investigation, the director or his/her designee is of the opinion that any person has violated any provision of this ordinance, he/she shall with reasonable promptness issue a correction notice to the person. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance which has been violated. In addition, the notice shall set a reasonable time for the abatement and correction of the violation.
3) If it is determined that the violation or violations continue after the time fixed for abatement and correction has expired, the director shall issue a citation by certified mail to the person who is in violation. Each such notice shall be in writing and shall describe the nature of the violation, including a reference to the provision within this ordinance which has been violated, and what penalty, if any, is proposed to be assessed. The person charged has thirty (30) days within which to contest the citation or proposed assessment of penalty and to file a request for a hearing with the director or his designee. At the conclusion of this hearing, the director or his designee will issue a final order, subject to appeal to the appropriate authority. If, within thirty (30) days from the receipt of the citation issued by the director, the person fails to contest the citation or proposed assessment of penalty, the citation or proposed assessment of penalty shall be deemed the final order of the director.

4) Any person who violates any provision of this ordinance may be liable for any cost or expenses incurred as a result thereof by the agency.

5) Penalties which may be assessed for those deemed to be in violation may include:
   - a civil penalty not to exceed one thousand dollars ($1,000.00) for each violation with each days continuance considered a separate violation.
   - a criminal penalty in the form of a fine of not more than one thousand dollars ($1,000.00) for each violation or imprisonment for not more than ninety (90) days, or both. Every day that such violations shall continue will be considered a separate offense.
   - anyone who knowingly makes any false statements in any application, record, plat, or plan required by this ordinance shall upon conviction be punished by a fine of not more than one thousand dollars ($1,000.00) for each violation or imprisonment for not more than thirty (30) days, or both.

[Note: Specific penalties will vary between communities, and should reflect realistically enforceable penalties given the political realities of a jurisdiction.]

6) In addition to any other sanctions listed in this ordinance, a person who fails to comply with the provisions of this buffer ordinance shall be liable to the agency in a civil action for damages in an amount equal to twice the cost of restoring the buffer. Damages that are recovered in accordance with this action shall be used for the restoration of buffer systems or for the administration of programs for the protection and restoration of water quality, streams, wetlands, and floodplains.

Section IX. Waivers/Variances.

1) This ordinance shall apply to all proposed development except for that development which prior to the effective date of this ordinance:
   - is covered by a valid, unexpired plat in accordance with development regulations
   - is covered by a current, executed public works agreement
   - is covered by a valid, unexpired building permit
   - has been accepted to apply for a building permit
   - has been granted a waiver in accordance with current development regulations.
2) The director of the agency may grant a variance for the following:
   - those projects or activities where it can be demonstrated that strict compliance with the ordinance would result in practical difficulty or financial hardship
   - those projects or activities serving a public need where no feasible alternative is available.
   - the repair and maintenance of public improvements where avoidance and minimization of adverse impacts to nontidal wetlands and associated aquatic ecosystems have been addressed
   - for those developments which have had buffers applied in conformance with previously issued requirements.
3) Waivers for development may also be granted in two additional forms, if deemed appropriate by the director:
   - the buffer width made be relaxed and the buffer permitted to become narrower at

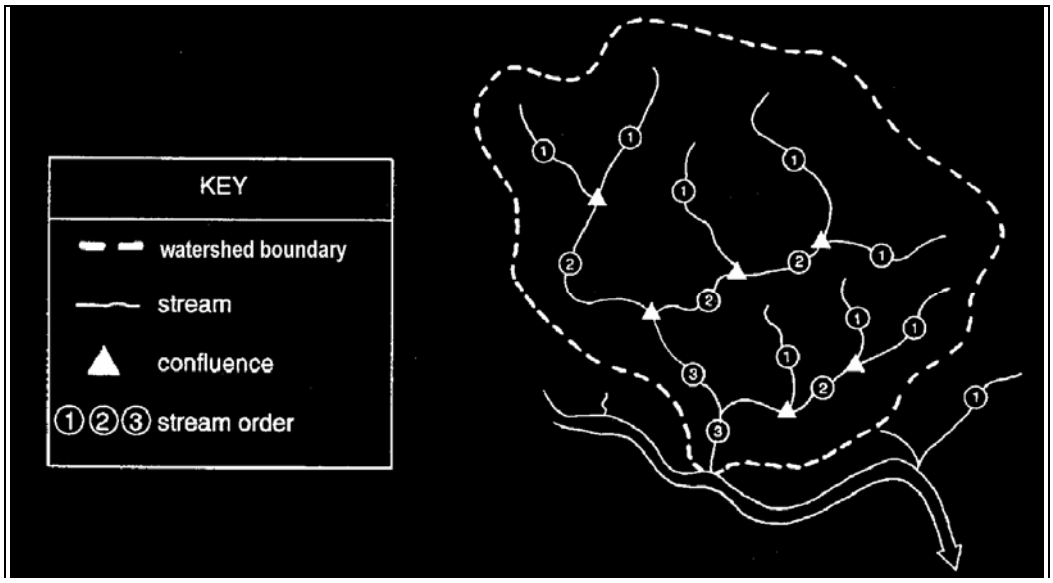
some points as long as the average width of the buffer meets the minimum requirement. This averaging of the buffer may be used to allow for the presence of an existing structure or to recover a lost lot, as long as the streamside zone (Zone I) is not disturbed by the narrowing, and no new structures are built within the one hundred (100) year floodplain.

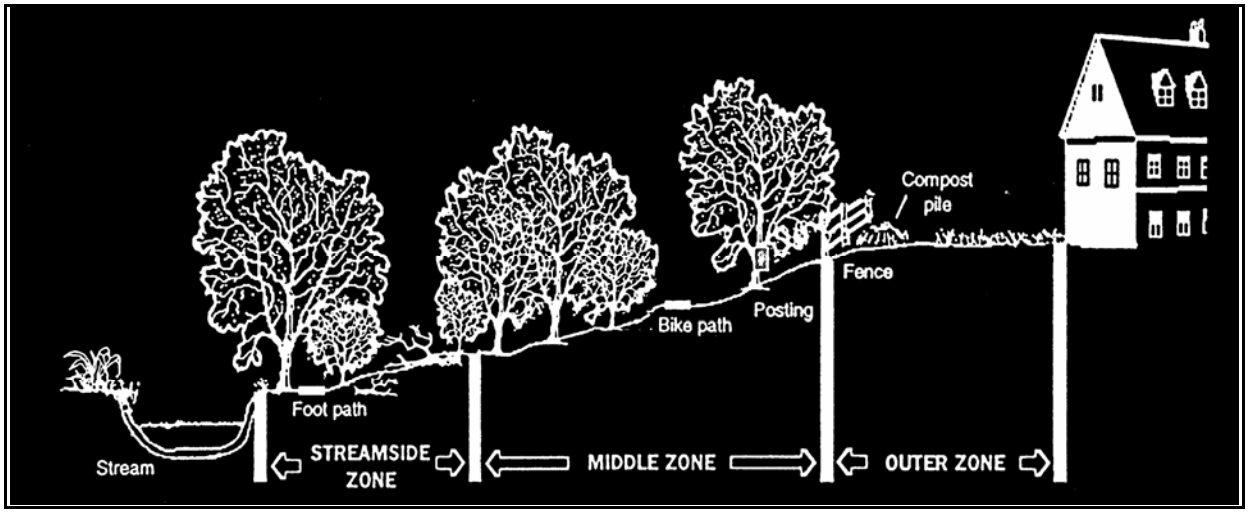
- _____ (*Planning Agency*) may offer credit for additional density elsewhere on the site in compensation for the loss of developable land due to the requirements of this ordinance. This compensation may increase the total number of dwelling units on the site up to the amount permitted under the base zoning.

4) The applicant shall submit a written request for a variance to the director of the agency. The application shall include specific reasons justifying the variance and any other information necessary to evaluate the proposed variance request. The agency may require an alternatives analysis that clearly demonstrates that no other feasible alternatives exist and that minimal impact will occur as a result of the project or development.
5) In granting a request for a variance, the director of the agency may require site design, landscape planting, fencing, the placement of signs, and the establishment of water quality best management practices in order to reduce adverse impacts on water quality, streams, wetlands, and floodplains.

Section X. Conflict With Other Regulations.

Where the standards and management requirements of this buffer ordinance are in conflict with other laws, regulations, and policies regarding streams, steep slopes, erodible soils, wetlands, floodplains, timber harvesting, land disturbance activities or other environmental protective measures, the more restrictive shall apply.





Figures 1 and 2