

Appendix 15. Buffers

Vegetated Buffers

Vermont currently has no comprehensive, statewide law regarding requirements for vegetated buffers along state waterways; however, many State Agencies and local groups recognize the value of vegetated buffers for the reduction of land erosion and preservation of water quality and habitat. Examples of a variety of buffer recommendations by Vermont State Agencies are presented below.

Vermont Agency of Natural Resources (ANR)

There is an excellent guidance document from the ANR on their suggestions for riparian buffers. **Guidance Document for Resource Managers: Riparian Buffers and Corridors: Technical Papers.** Vermont Agency of Natural Resources, Waterbury, Vermont, 2005. (www.anr.state.vt.us/site/html/buff/buffer-tech-final.pdf)

Vermont Department of Forests, Parks and Recreation

From the Vermont Division of Forestry [Website](#):

Acceptable Management Practices (AMP) Program

The 1986 Vermont Legislature passed amendments to Vermont's water quality statutes, [Title 10 V.S.A. Chapter 47: Water Pollution Control](#) which stated that, "it is the policy of the state to seek over the long term to upgrade the quality of waters and to reduce existing risks to water quality". The revised state law requires permits for discharges of "any waste, substance or material into the waters of the state." Individual permits are not required for any discharges that inadvertently result from logging operations if responsible management practices are followed to protect water quality. [Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont\(AMP's\)](#) were developed and adopted as rules to Vermont's water quality statutes and became effective August 15, 1987. The AMP's are intended and designed to prevent any mud, petroleum products and woody debris (logging slash) from entering the waters of the State. They are scientifically proven methods for loggers and landowners to follow for maintaining water quality and minimizing erosion.

The AMPs (effective in 1987 and reprinted in 2009) suggest that during logging:

Protective Strips

14. Except for necessary construction of stream crossings, a protective strip shall be left along streams and other bodies of water in which only light thinning or selection harvesting can occur so that breaks made in the canopy are minimal and a continuous cover is maintained. Log transport machinery must remain outside a 25 foot margin along the stream or water body. Including this 25 foot margin, the width of the protective strip shall be according to Table 4.

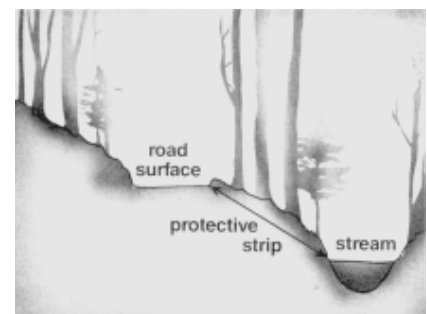


Figure A15.1. A protective strip prevents sediment from reaching streams and maintains shade and stream bank stability.

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16. Landings shall not be located in protective strips. The width of the protective strip shall be in accordance with Table 4.
 - ◇ Careful location of log landings will protect water quality and improve operating conditions for the logger.
 - ◇ Divert upslope drainage from skid roads around landing area.
17. Silt fencing, hay bale erosion checks or water diversions shall be used to prevent sediment from landings from entering streams and other surface waters.

(<http://www.vtfpr.org/watershed/ampprog.cfm>)

→ **Bottom line**: A forestry buffer strip of at least 25' is maintained without log transport machinery but light thinning or selection harvesting can occur. If the forestry AMPs are followed, though they are currently being reviewed to incorporate the latest river science, it seems that the state can't fine you for a water quality violation. Both forestry and agriculture have Best Management Practices they recommend, but only the Accepted Management Practices are regulated and enforced.

Table 4: Protective Strip Width Guide

Slope of Land Between Roads or Landings and Stream banks or Lake Shores (percent)**	Width of Strip Between Roads or Landings and Stream (Feet Along Surface of Ground)
0-10	50
1-20	70
21-30	90
31-40*	110

*Add 20 feet for each additional 10 percent side slope.

**See Slope Chart (Figure 1).

Vermont Agency of Agriculture, Farms and Markets (VAAFMM)

All entities have to comply with the State of Vermont's Accepted Agricultural Practices (AAPs). The most current version was effective April 24, 2006 and may be found here: <http://www.vermontagriculture.com/ARMES/awg/AAPs.htm>

The following is language taken directly from the AAPs:

INTRODUCTION

This introduction is intended to provide a general explanation of the Accepted Agricultural Practice Rules and is not part of the rules.

Recognizing the need to protect and improve water quality through improved agricultural practices, the Vermont legislature charged the Agency of Agriculture, Food and Markets with creating a comprehensive Agricultural Nonpoint Source Pollution Reduction Program including Accepted Agricultural Practices and Best Management Practices. The legislature also recognized the need to balance water quality improvements with the need to sustain a healthy, economically viable agricultural industry...Accepted Agricultural Practices and Best Management Practices are two different levels of practices to reduce agricultural nonpoint source pollution. Accepted Agricultural Practices are statewide restrictions designed to reduce nonpoint pollutant discharges through implementation of improved farming techniques rather than investments in

structures and equipment. The law requires that these practices must be technically feasible as well as cost effective for farmers to implement without governmental financial assistance. Best management practices are more restrictive than Accepted Agricultural Practices and will be site specific practices prescribed to correct a problem on a specific farm. Best Management Practices typically require installation of structures, such as manure storage systems, to reduce agricultural nonpoint source pollution. While farmers may realize an economic benefit from Best Management Practices, it is unlikely that they will be affordable without governmental cost sharing...Accepted Agricultural Practices are intended to reduce, not eliminate, pollutants associated with nonpoint sources such as sediments, nutrients and agricultural chemicals that can enter surface water, groundwater and State Significant Wetlands that would degrade water quality.

ii. Vegetative buffer strips

Vegetative buffer strips shall be maintained between annual cropland and adjoining surface waters. Buffer strips help to filter out sediments, agricultural chemicals, and nutrients such as phosphorus from surface runoff. Nutrients and sediments contained in runoff adversely affect fish, natural plant growth, water turbidity, as well as other water quality values, and promote nuisance aquatic plant growth. Buffer strips also help to stabilize stream banks reducing the amount of cropland lost to natural stream bank erosion as well as land lost due to excessive tillage. Vegetative buffer strips also help to prevent activities on or over the tops of stream and river banks that can negatively affect water quality.

SECTION 3: ACCEPTED AGRICULTURAL PRACTICES

3.1 Persons engaged in agricultural operations who follow the agricultural practices as defined in Section 3.2 of these rules and who comply with the conditions and restrictions contained in Section 4 shall be presumed to be pursuing Accepted Agricultural Practices.

3.2 Agricultural practices that are governed by these regulations include, but are not limited to, the following:

- a) The confinement, feeding, fencing, and watering of livestock.
- b) The storage and handling of livestock wastes and by-products.
- c) The collection of maple sap and production of maple syrup.
- d) The preparation, tilling, fertilization, planting, protection, irrigation and harvesting of crops.
- e) The ditching and subsurface drainage of farm fields and the construction of farm ponds.
- f) The stabilization of farm field streambanks..
- g) The construction and maintenance of farm structures and farm roads.
- h) The on-site production of fuel or power from agricultural products or wastes produced on the farm.
- i) The on-site storage, preparation and sale of agricultural products principally produced on the farm.
- j) The on-site storage of agricultural inputs including, but not limited to, lime, fertilizer and pesticides.
- k) The handling of livestock mortalities.

SECTION 4: ACCEPTED AGRICULTURAL PRACTICE CONDITIONS AND RESTRICTIONS

4.06 Buffer Zones

A vegetative buffer zone of perennial vegetation shall be maintained between annual croplands and the top of the bank of adjoining surface waters consistent with (a) through (f) below, in order to filter out sediments, nutrients, and agricultural chemicals and to protect the surface waters from erosion of streambanks due to excessive tillage. Vegetative buffer zones are not required along intermittent stream channels such as those occurring in annual croplands or along drainage ditches.

- a) adjoining surface waters shall be buffered from annual crop lands by at least 10 feet of perennial vegetation.
- b) an additional 15 feet of perennial vegetation shall be established at points of runoff to adjoining surface waters.
- c) no manure shall be applied within vegetative buffers.
- d) use of fertilizer for the establishment and maintenance of the vegetative buffer is allowed.
- e) tillage shall not occur in a vegetative buffer except for the establishment or maintenance of the vegetative buffer.
- f) harvesting the vegetative buffer as a perennial crop is allowed.

→ **Bottom line**: It seems is that there is a 10' buffer of perennial vegetation required by farmers along surface waters, but intermittent stream channels and drainage ditches are exempt. No tilling can occur once it's established, no manure spreading can occur, but fertilizer can be used and the perennial vegetation can be harvested (i.e. haying can occur right up to the stream bank).

Vermont State Regulations

The State of Vermont encourages a buffer, often a minimum of a 50-100' buffer along waterways.

The Vermont Department of Fish and Wildlife [website](#) states:

Your specific Conservation Goals will dictate how large an area you want to consider for riparian habitat conservation. But in general, a naturally vegetated 100-foot-wide riparian buffer on each side of a stream will protect many of the functions associated with healthy riparian habitat. A 330-foot buffer will protect nearly all the functions we value in riparian habitat, including high quality cover for many wildlife species. They suggest including "specific language in the town plan supporting the stewardship, protection, and restoration of riparian habitat.

Sample Language: Lakes, ponds, rivers, and streams will be protected from encroaching development, including roads and driveways, by maintaining and/or establishing undisturbed, naturally vegetated riparian buffers on their banks."

(http://www.vtfishandwildlife.com/cwp_elem_comm_rh.cfm)

Act 110, passed in July 2010, states:

It is in the public interest to encourage and promote protected river corridors and buffers adjacent to rivers and streams of the state, where:

“Buffer” means an undisturbed area consisting of trees, shrubs, ground cover plants, duff layer, and generally uneven ground surface that extends a specified distance horizontally across the surface of the land from the mean water level of an adjacent lake or from the top of the bank of an adjacent river or stream, as determined by the secretary of natural resources.

A River Corridor Management Program will be established by the ANR Secretary to aid and support the municipal adoption of river corridor and buffer bylaws.

No later than February 1, 2011, state financial incentives shall be offered to municipalities through existing grants and pass-through funding programs which encourage municipal adoption and implementation of zoning bylaws that protect river corridors and buffers. The Agency of Natural Resources will define the minimum standards for a municipality to be eligible for financial incentives.

Under the River Corridor Management Program, beginning February 1, 2011, the secretary shall: (1) upon request, provide municipalities with maps of designated river corridors within the municipality. A river corridor map provided to a municipality shall delineate a recommended buffer that is based on site-specific conditions. The secretary shall provide maps under this subdivision based on a priority schedule established by the secretary in procedure; and (2) develop recommended best management practices for the management of river corridors and buffers.

(http://www.vtwaterquality.org/rivers/docs/rv_act110_rcmp_%20summary.pdf)

→ ***Bottom line:*** Buffers are encouraged and there are financial incentives and assistance from ANR to establish them. Specific, set buffer distances are not set presumably so that ANR can work with the towns to recommend buffers based on the specific location, the conditions of the waterways in the town and the latest science. No towns in the Study area have taken advantage of the opportunities offered in Act 110 at this time. Possibly they will consider using the resources available from this Act when they revise their town plans and zoning bylaws.

Act 250 Regulations Relating to Buffers

From “[GUIDANCE FOR AGENCY ACT 250 AND SECTION 248 COMMENTS REGARDING RIPARIAN BUFFERS](#)” (Pg. 4):

2. Streams

The minimum buffer zone width recommended for regulated projects on streams is dependent on several site- and project-specific factors, including:

- Physical characteristics of the site and the watercourse and its banks and floodplain;

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- Aquatic and terrestrial populations and communities dependent on the watercourse and riparian corridor; and,
- Nature and extent of the proposed development and existing encroachments, including the potential for erosion and overland flow of pollutants.

Detailed descriptions of these features and the associated functions of riparian buffers are included in Appendix C of this Guidance. Further, the Agency's *Riparian Buffers and Corridors Technical Papers* summarize and provide reference to the scientific studies that provide the foundation for recommendations contained in this Guidance. While it is difficult to offer generalizations encompassing the wide range of stream conditions and resource needs found throughout Vermont, the Agency will generally make recommendations of either a 50-foot or 100-foot buffer for regulated project on streams based on evaluation of the site attributes summarized below.

Summary of Key Stream Riparian Buffer Functions and Typical Recommended Widths Function	50-foot Buffer Recommendation	100-foot Buffer Recommendation
Protection of channel and floodplain stability	Small to moderate sized streams that are at low risk for lateral or vertical channel adjustment and have small floodplain requirements.	Small to moderate sized streams with the potential for significant lateral or vertical channel adjustment. Streams with large belt width and floodplain requirements (includes most large rivers).
Protection of aquatic and terrestrial wildlife habitats	Aquatic populations dependent upon stream habitat and/or water quality either directly associated with or in close proximity to the project site. Project sites without significant wildlife travel corridor and/or riparian dependent species and/or significant natural communities identified on or in close proximity to the project site.	Sites with significant wildlife travel corridor and/or identified riparian dependent species (e.g., riparian breeding birds), and/or significant natural communities either directly associated with or in close proximity to the project site.
Protection of water quality	Site soils and slope indicate low risk of erosion; proximity of project to receiving water and amount of resulting impervious cover indicate low potential for overland flow of pollutants.	Site characteristics indicate increased risk of erosion and/or potential for overland flow of pollutants.

3. Agency Recommendation for Wider or Narrower Buffers

As previously stated, recommended buffers for regulated projects will generally be 100 feet on lakes and either 50 feet or 100 feet on streams. There are some lake and stream sites, however, where recommended buffers may be wider than these minimums. These include areas where:

- Rare, threatened, endangered, or sensitive species, *sensitive* significant natural communities, and/or necessary habitats (as defined in Appendix C) are either directly associated with or in close proximity to the project site; and
- Actively adjusting channels are undergoing channel lengthening and floodplain development. In determining the floodway area needed to protect channel stability the Agency may also apply the *Procedure on ANR Floodway Determination in Act 250*.

Similarly, there are certain types of lake and stream sites where narrower buffers may be acceptable. These include areas where:

- Riparian functions and values will be adequately protected by a narrower buffer, such as sites adjacent to small, stable intermittent streams; or
- The location and extent of existing encroachments severely limits the ecological benefits that would be derived from a wider buffer.

(<http://www.anr.state.vt.us/site/html/buff/BufferGuidanceFINAL-120905.pdf>)

→ **Bottom line:** The minimum buffer zone width recommended for regulated projects on streams 100 feet on lakes and either 50 feet or 100 feet on streams, though there are some projects where wider or narrower buffers are recommended.



Intact buffer on the Missisquoi on a paddle from Westfield to Troy, VT

Please see ANR's **Guidance Document for Resource Managers: Riparian Buffers and Corridors: Technical Papers**. Vermont Agency of Natural Resources, Waterbury, Vermont, 2005. (www.anr.state.vt.us/site/html/buff/buffer-tech-final.pdf), and the ANR website for the most up-to-date information.

See the Water Quality ORV and Protections chapters of this Management Plan for more information. The online Paddle Tour also has some examples of intact buffers (www.vtwsr.org).