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Protecting Shoreland and Riparian Buffers Workshop (2007)

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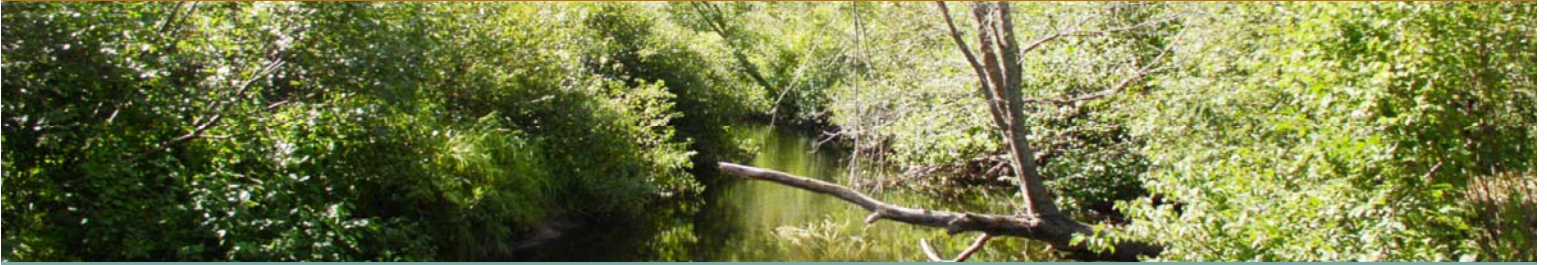
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2008

New Hampshire Estuaries Project



Workshop on Protecting Shoreland and Riparian Buffers

Prepared by:

**Jennifer Hunter
NHEP Director
University of New Hampshire**

April 2008

Protecting Shoreland and Riparian Buffers Workshop

SUMMARY

The New Hampshire Estuaries Project (NHEP) organized and implemented a workshop on protecting shoreland and riparian buffers. A number of other organizations, including three regional planning commissions, NH Fish and Game Department, NH Department of Environmental Services, Great Bay National Estuarine Research Reserve, and UNH Cooperative Extension, were involved in the planning and execution of the workshop. The workshop was designed to provide information and tools to encourage greater municipal regulatory protections for buffers. The workshop was held three times in October and November 2007 and attended by 75 people, primarily planning board and conservation commission members.

OVERVIEW

The NHEP's Management Plan for New Hampshire's estuaries includes several action plans intended to improve municipal regulatory protections for stream and wetlands buffers. As such, the NHEP has implemented and supported a number of projects and initiatives to provide data, information, and technical assistance to municipal boards to support increased regulatory protections.

The NHEP led the development of a workshop on buffer aimed at providing municipal officials with information and tools to support the development of local buffer regulations and other protection measures. Individuals from a number of organizations, including the Great Bay National Estuarine Research Reserve, NH Department of Environmental Services, NH Fish and Game Department, Rockingham Planning Commission, Southern NH Planning Commission, Strafford Regional Planning Commission, and UNH Cooperative Extension, served as a workshop planning committee to develop different components of the workshop to meet the desired objectives.

The workshop was developed primarily for planning boards and conservation commissions, but was also appropriate for other town boards, watershed organizations, and interested citizens.

The workshops were comprised of four related sessions:

1. An **introductory presentation** on the function and values of buffers and the rationale for their protection. The presentation also stressed the importance of protecting headwater streams, which are often overlooked or under-protected through buffer regulations.
2. A **buffer mapping exercise** that involved participants applying a 150-foot "water quality" buffer, a 300-foot "wildlife habitat" buffer, and whatever buffer width was specified in their own town's regulations, if any, to a base map. Buffers were applied to a parcel map that had different water features to demonstrate how different buffer regulations would impact protected areas and areas for potential development.
3. An **ordinance assessment** that involved participants reviewing their own towns' buffer regulations for a number of criteria to better understand strengths and limitations. The

recently developed model Shoreland Protection ordinance also was assessed for comparison.

4. Review and discussion of a buffer ordinance “**road map**” that included steps to develop or improve local buffer regulations.

Materials related to each session were provided to workshop participants. Participants received a number of additional handouts, including:

- A comprehensive Resource List with links to model ordinances, buffer studies, data resources, and programs offering assistance with buffer protection
- Overview of changes to the State Comprehensive Shoreland Protection Act
- Model Shoreland Protection Ordinance developed through the NHDES Regional Environmental Planning Program

Workshop materials and the Resource List are included as attachments to this report.

RESULTS

The workshop was held three times – once in each of the planning commission regions. A total of 75 people attended the workshops. Fifty-one participants completed evaluation forms. Nearly all feedback was very positive, with respondents indicating that the sessions improved their understanding and that they would subsequently use the information. A summary of all evaluations received is included as an attachment.

The desired outcome of improving buffer protections could not be measured in the short-term following the workshop.

Workshop materials are available for use by other organizations conducting subsequent workshops or outreach.

ATTACHMENTS:

Workshop Promotional Flyer

Workshop Materials

 Presentation

 Mapping Exercise Description

 Ordinance Assessment Form

 Road Map

 Resource List

Evaluations – Summaries for each workshop

Protecting Shoreland and Riparian Buffers

www.nhep.unh.edu/resources/buffers.htm

A Workshop for Municipal Board/Commission Members, Town Staff, Members of Watershed Organizations, and Citizens Interested in Protecting Surface Waters by Strengthening Buffer Ordinances



This workshop will increase understanding of the value of buffers, the extent to which different regulatory scenarios protect water resources, the strength of their towns' buffer ordinances, and steps they can undertake to improve local buffer protections.

Workshop Agenda

- 6:30 Workshop introduction & presentation on the functions and values of buffers
- 7:15 Buffer mapping exercise – a hands-on mapping exercise that demonstrates how different buffer regulations protect water resources
- 7:45 Short break
- 8:00 Assessment of town buffer regulations* – participants will review their town's buffer ordinance to better understand strengths and limitations
- 8:30 Steps to develop or improve local buffer regulations – planning commissions will provide a “road map” for participants to enhance regulatory protections for buffers in their towns
- 9:00 Adjourn

* Participants are asked to bring a copy the buffer ordinance for their town; if none exist, they will review a neighboring town's ordinance.

The workshop is free, but space is limited. **Pre-registration is required** at least one week prior to the workshop date. The workshop will be conducted three times throughout the seacoast/southern region of the state.

<p>October 29, 2007 Hugh Gregg Coastal Conservation Center, 89 Depot Road, Greenland, NH</p> <p>Hosted by the Rockingham Planning Commission, as part of its I-93 Conservation Commission Institute workshop series</p> <p>Register by contacting Theresa Walker at 778-0885 or email@rpc-nh.org Arrive at 6:00 PM for refreshments and sign-in (program starts at 6:30)</p>	<p>November 5, 2007 Governor's Inn, 78 Wakefield Street, Rochester, NH</p> <p>Hosted by the New Hampshire Estuaries Project and the Strafford Regional Planning Commission</p> <p>Register by contacting Julie LaBranche at 742-2523 or jlbranche@strafford.org Arrive at 6:00 PM for refreshments and sign-in (program starts at 6:30)</p>	<p>November 29, 2007 Southern New Hampshire Planning Commission Office, 438 Duquabue Street, Manchester, NH</p> <p>Hosted by the Southern New Hampshire Planning Commission, as part of its I-93 Conservation Commission Institute workshop series</p> <p>Register by contacting Roz Knouse at 669-4664 or rknouse@snhpc.org Arrive at 6:15 PM for refreshments and sign-in (program starts at 6:30)</p>
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Workshops organized and presented by staff from the following agencies and organizations:

- Great Bay National Estuarine Research Reserve
- NH Department of Environmental Services
- NH Fish and Game Department
- New Hampshire Coastal Program
- New Hampshire Estuaries Project
- Rockingham Planning Commission
- Southern New Hampshire Planning Commission
- Strafford Regional Planning Commission
- UNH Cooperative Extension

Protecting Shoreland and Riparian Buffers

A Free Workshop for Municipal Board/
Commission Members, Town Staff,
Members of Watershed Organizations,
and Citizens Interested in Protecting
Surface Waters by Strengthening Buffer
Ordinances



Workshops organized and presented by staff from the following agencies and organizations:

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Southern New Hampshire Planning Commission
Strafford Regional Planning Commission
UNH Cooperative Extension

New Hampshire Estuaries Project



Protecting Shoreland and Riparian Buffers

October 29, 2007 – Greenland, NH
 November 5, 2007 – Rochester, NH
 November 29, 2007 – Manchester, NH

New Hampshire Estuaries Project

Workshop Overview


- Introductory Presentation
- Buffer Mapping Exercise
- Buffer Ordinance Assessment
- Steps To Develop and/or Improve Buffer Ordinances
- Resource List/Other Materials

New Hampshire Estuaries Project

Introductions




New Hampshire Estuaries Project



Focus on Buffers

An overview of the functions and values of buffers and the rationale for protection



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What Are Buffers?

[Ecological Services] Naturally vegetated areas adjacent to surface waters that protect water resources from nonpoint source pollution, stabilize banks, and provide aquatic and wildlife habitat.

[Regulatory] A buffer is a naturally vegetated area along a shoreline, wetland, or stream where development or disturbance is restricted or prohibited.

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Vegetated Buffers

- All buffers are important – riparian, wetland, and shoreline
- Buffers provide a defense against the impacts of impervious surfaces, nutrients, and erosion
- Critical in all areas, including developed areas



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Buffer Benefits and Services

- Remove nitrogen, sediments and other pollutants
- Stabilize stream banks
- Maintain stream ecology and aquatic habitat
- Shade streams
- Provide flood control services
- Protect drinking water supplies
- Provide wildlife habitat and corridors



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Buffer Benefits and Services

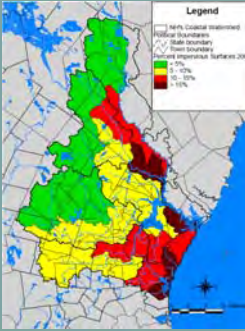
- Protect infrastructure
- Provide recreational opportunities
- Improve aesthetics: rural and scenic viewsheds
- Increase property values




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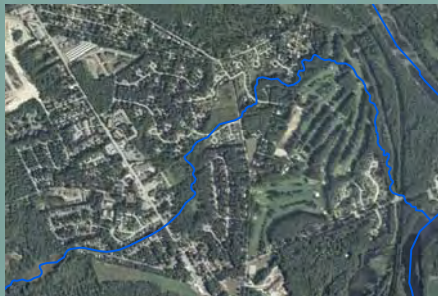
Why Buffers Are Important

- Increasing population and development
- Increasing impervious surfaces
- Decreasing water quality
- Flood control and stormwater management: effective and low cost option



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Impacts of Impervious Surfaces



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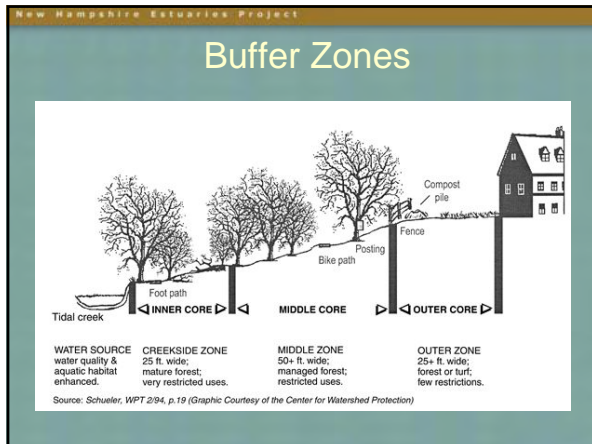


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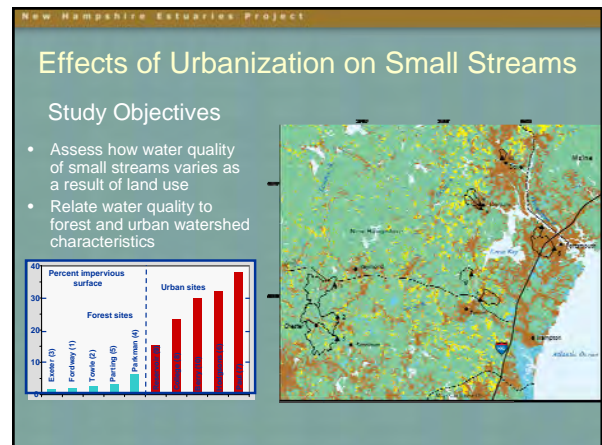
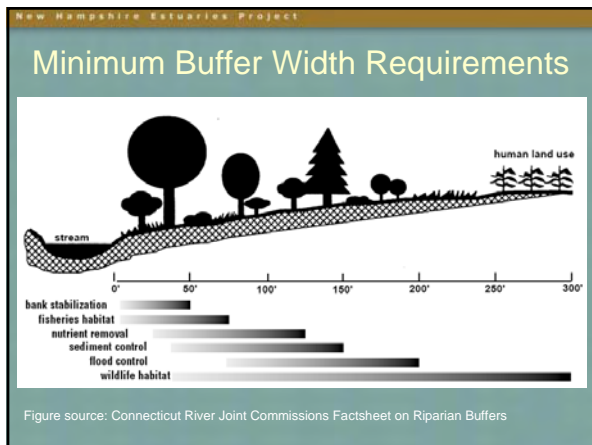
Vertical Layers of Buffers

- Tree and shrub layer
- Ground cover and leaf litter
- Subsurface – roots and soil

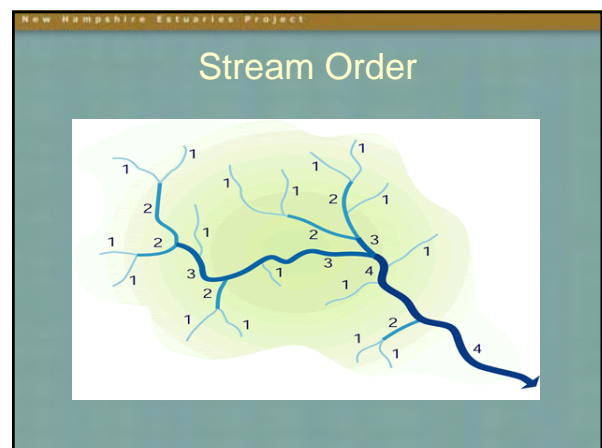




- New Hampshire Estuaries Project
- ## Buffer Widths
- Determined by:
- Resource to be protected
 - Desired function(s) of the buffer
 - Adjacent land use
 - Soils, slopes, and vegetation within the buffer



- New Hampshire Estuaries Project
- ## Study Results
- Chemical concentrations increased with increasing levels of impervious surfaces and urban land near streams
 - Aquatic insect communities were adversely affected at sites with higher levels of impervious surfaces and urban land near the stream
 - Results show that buffers play a key role in maintaining the physical, chemical, and biological integrity of streams
-



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Importance of Headwater Streams

- Provide important ecological linkages
- Provide storage and recharge capacity
- Improve water quality
- Nationwide headwater streams comprise 53-59% of stream network (EPA estimate)
- Most vulnerable to development impacts
- Likely to have the least protection


Source: The Importance of Protecting Vulnerable Streams and Wetlands at the Local Level (CWP)

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CSPA Coverage

- Fourth Order & higher streams, plus tidal waters


* CSPA amendments will add Designated Rivers to coverage and will use NHHM for ordering streams



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Land Conservation Plan for NH's Coastal Watersheds

- Important Freshwater Systems
 - High quality stream watersheds/catchments
 - Riparian buffers (500')
 - Important stream reaches



From the Land Conservation Plan for NH's Coastal Watersheds

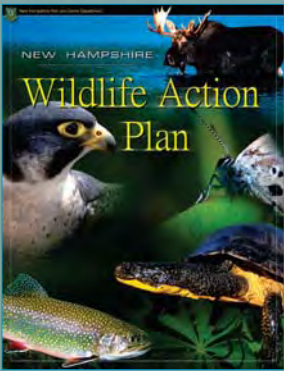
New Hampshire Estuaries Project

Land Conservation Plan for NH's Coastal Watersheds

Implementation Strategy

- Apply CSPA requirements to all streams in CFAs
- Model COD:
 - Minimum of 100' buffer to protect water quality
 - 200-300' buffer to protect riparian wildlife habitat
 - Permanent markers or signage for buffers

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- Identifies habitats that support species of conservation interest
 - Lakes, riverine, floodplain forests, marsh/shrub wetlands, vernal pools, saltmarsh, northern bog
- Provides habitat maps
- Identifies implementation strategies, including buffer protections

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Master Plans

- SRPC Region:
 - 10/10 community Master Plans surveyed included water quality/water resources
 - 0/10 included shoreland resources
- RPC Region:
 - 14/20 community Master Plans surveyed included water quality/water resources
 - 2/20 included shoreland resources

Data from the Land Conservation Plan for New Hampshire's Coastal Watersheds

Natural Vegetated Buffers



Buffers are low-tech,
high-performance options
for stormwater management
and resource protection.

BUFFER MAPPING EXERCISE

DIRECTIONS FOR FACILITATORS

Objective

For the participants to understand the consequences of different regulations and buffer widths “on the ground” and to observe how buffers for the different resources interact.

General Overview

The larger group will be broken up into smaller groups. These groups will be given a standard parcel map and directions to map buffers required under local ordinances and regulations (if any exist), a 150-foot water quality buffer and 300-foot habitat/riparian buffer.

The wrap-up will consist of a discussion of how local regulations may or may not protect adequate protection of buffers and water resources, what are the ways of strengthening regulations, and what are some ways to provide flexibility.

Time: 30 minutes to complete the buffer mapping exercise, including a 15 minute discussion period.

Facilitator Notes

- No more than 5 people per group. Individuals from the same town can be grouped together but the group doesn't necessarily have to be made up of just one town. If more than one town is represented at a table and there are more than one set of local regulations, have them choose one town's regulations for the exercise.
- Walk them through the instructions and let them know that development plans will be presented after they complete the mapping.
- A “model” subdivision development plan will be provided for the CSPA and 300-foot buffer scenarios following the exercise. Identify the development assumptions applied to each scenario and the “results” for each.
- A fact sheet about the new CSPA requirements is included in the workshop packet.
- Have each group present their version of the maps- briefly describe their scenario: did they feel that the scenarios provided enough protection, did it provide the property owner with enough development options, any other thoughts or ideas this exercise generated.
- Wrap up at the end by discussing: stream order, how it is determined, have a chart to visually describe it; importance of headwater streams; how each scenario either does or does not protect water quality; how to strengthen regulations; how to make regulations more flexible.

Protecting Shoreland and Riparian Buffers Workshop

Exercise developed by Strafford Regional Planning Commission, with input from the workshop steering committee.

BUFFER MAPPING EXERCISE

DIRECTIONS FOR PARTICIPANTS

1. **Parcel Map:** Each group has a blank parcel map with natural features including wetlands and several streams of different order. The pond is a man-made pond added to the site for fire protection purposes. (Note – for this exercise, participants will not be asked to identify areas for lot and road development; however after the mapping exercise, several development scenarios will be shown.)
2. **Map Buffers:** Using the color scheme below, each group will delineate on the parcel map the following buffers which are “no cut, no disturb” areas.

RED **Buffer(s) for streams, waterbodies and wetlands required by your community’s ordinances or regulations**

BLUE **150 foot water quality buffer for streams and wetlands**

GREEN **300 foot habitat/riparian buffer for streams and wetlands**

3. **Group Discussion:** Each group will share thoughts about their local regulations and results of the buffer mapping exercise.
 - Describe the general requirements for buffers in your local ordinance or regulations.
 - Do you feel your local ordinance or regulations provide enough resource protection?
 - How could local regulations be strengthened or changed to provide more flexibility in the design of development projects?
 - How do the buffers in your local ordinance or regulations compare to the 150-foot and 300-foot buffers?
 - How do the buffer around wetlands interact with the buffers around streams?
 - Share any other thoughts or ideas inspired by this exercise.

30-minute Buffer Mapping Exercise FACILITATOR INSTRUCTIONS AND FORMAT

Overview/instructions (Facilitator) – 5 minutes

- Review objective of this session and the site/parcel map
- Let them know the hypothetical scenario
- Here is a parcel with lots of water resources where development is being proposed. Walk people through the parcel: ~180 acre site, scale 1"=150', there are streams of different orders, wetlands, area of steep slopes, and man-made pond on site; describe the site boundaries (bounded by road on bottom, stream on right side and top, property line on left). I've taken a picture of the undeveloped, unbuffered map that they'll have in front of them and have it as the first slide of the powerpoint for this exercise, so you can refer to it as your describing the site.
- Have them map buffers according to the instructions (red – local regs, blue – 150' WQ buffer, green – 300' wildlife buffer). When drawing in the buffers, don't worry too much about precision – just get a general sense of the buffer widths and draw them in to see where development/disturbance would be prohibited. Remind them that buffers would not apply to the fire pond.
- Let them know that at the conclusion of the mapping, you'll show them hypothetical development scenarios... in one case where there is no local buffer regulation and in another case where 300 foot buffers are in effect. They don't have to map areas for development on their base maps, but if they have time after they've completed the mapping, they can discuss where it makes the most sense to have development go and where their ordinances would have allowed development to go.
- Let them know that at the end of the session there will be time for discussion of observations/issues generated by this exercise.

Buffer mapping (group) – 10 minutes

- Workshop facilitators will assist groups as needed, and try to keep them on track to wrap up after 10 minutes.

Describe the 2 development scenarios – buffers and no buffers in place (Facilitator) – 5 minutes

- Show the 2 development scenarios
 1. first scenario– if there were no local regs in place (CSPA applies, but wouldn't affect any of the streams on the site);
 2. second scenario: show the map with 150 and 300' buffers
- Describe water quality and wildlife habitat benefits of second scenario (buffers) and other discussion points
- See if there are any questions or discussion points from participants on the development scenarios

Report out/discussion (group) – 10 minutes

- The Facilitator will ask someone from each table to report out on an observation or discussion point from the exercise (for example, how well their local buffers would protect the natural resources on the site, or anything else they spent time discussing)
- Additional questions and discussion, if time allows

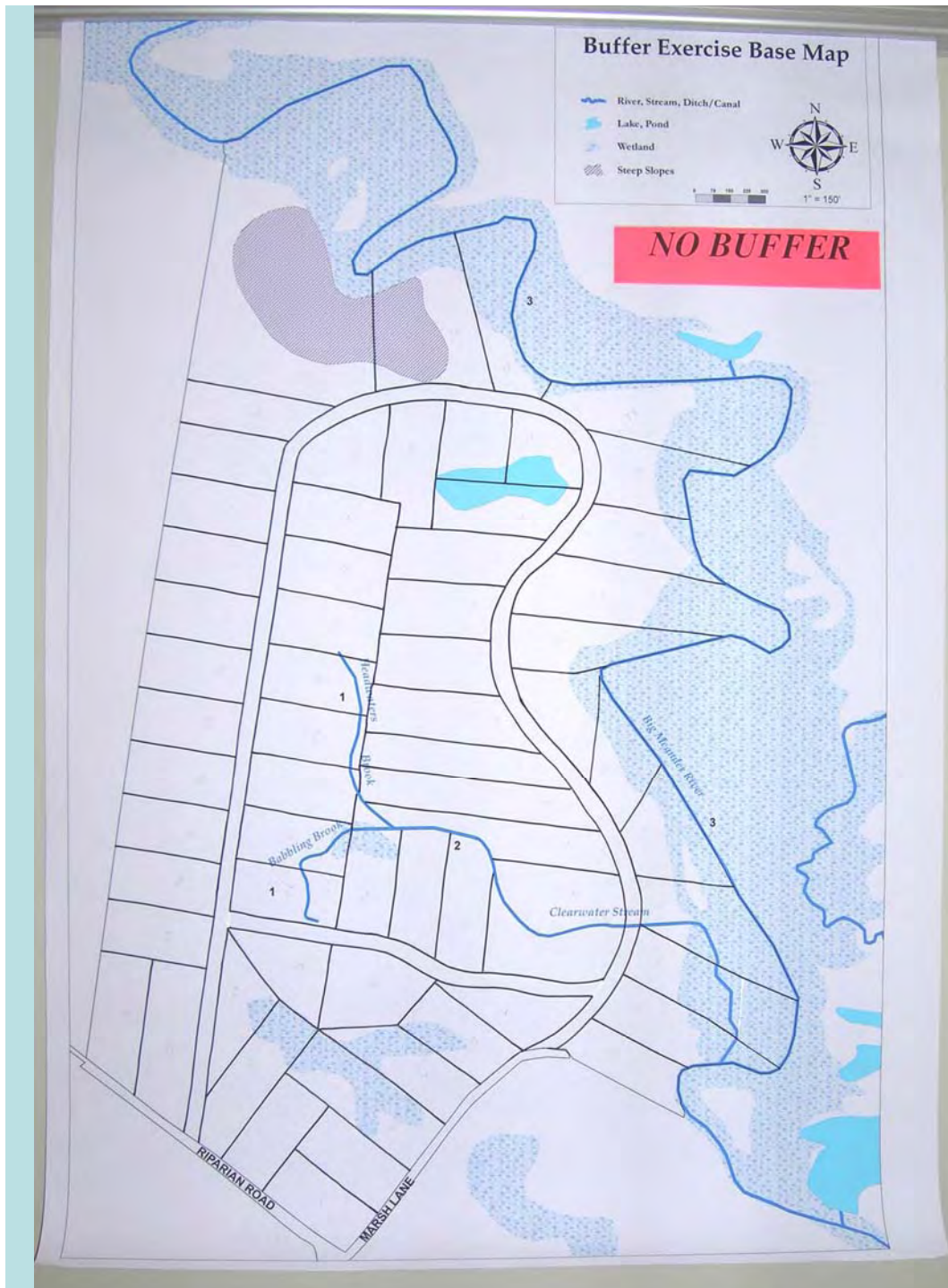
Buffer Exercise Base Map

Legend:

- River, Stream, Ditch/Canal
- Lake, Pond
- Wetland
- Steep Slopes

Scale: 1" = 100'





180 acre parcel – no buffers

Development Assumptions

- Minimum of 2-acre lots
- All land is “developable” and “perkable” for septic systems
- Man-made pond (fire pond) on property

Development “Results” with no buffer protections

- 64 house lots developed
- 6 lots exceed 2 acres; rest are ~2 acres



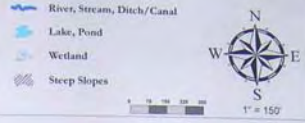
180 acre parcel – with buffers Development Assumptions

- Minimum of 2-acre lots
- Minimum of 1-acre of developable land lies outside the 300-foot Buffer (most lots lie outside the 150-foot Buffer altogether)
- All land outside of buffer areas is “developable” and “perkable” for septic systems
- Man-made pond (fire pond) on property: lot is under common ownership and undeveloped

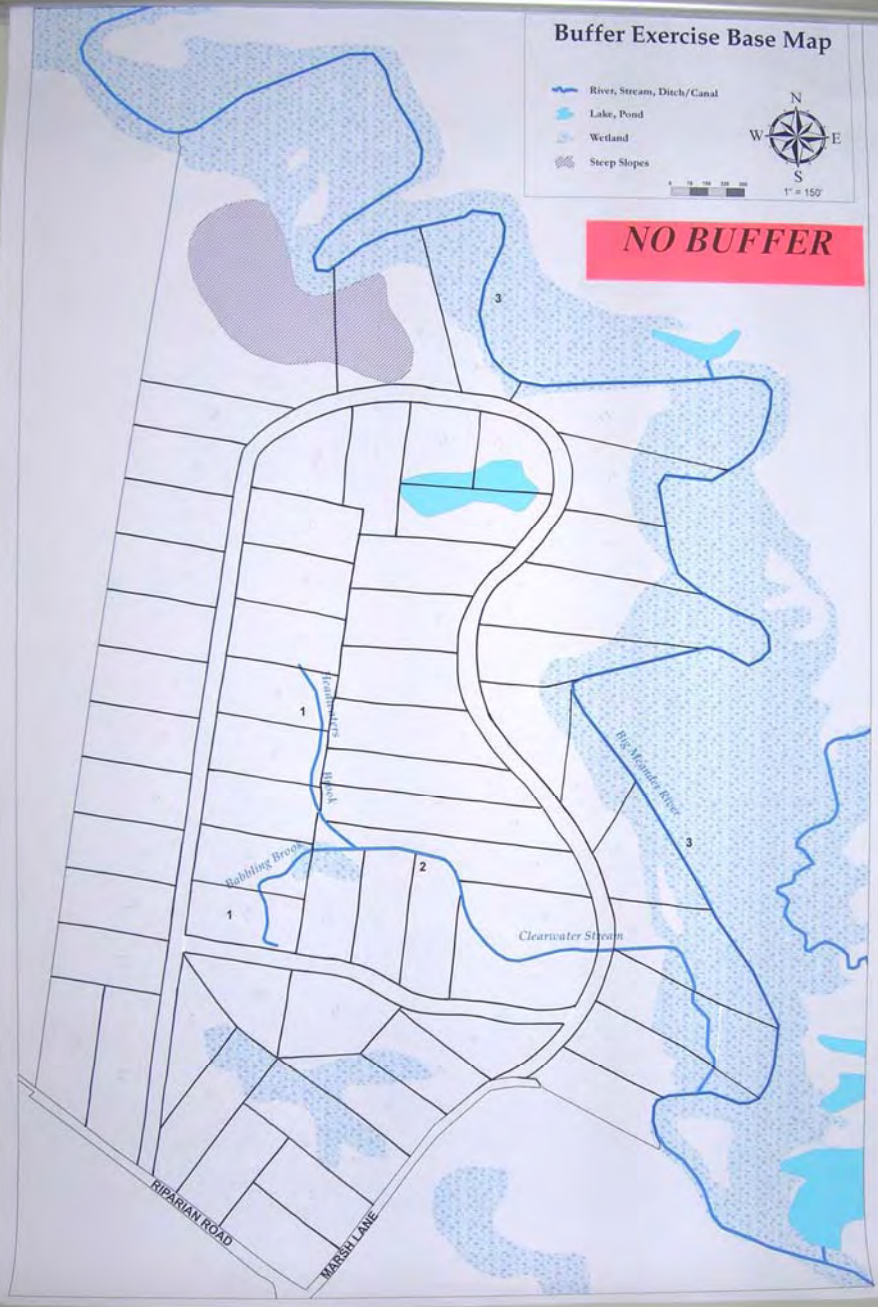
Development “Results” with Buffer Protections

- 34 house lots developed
- 5 lots exceed 2 acres; rest are ~2 acres

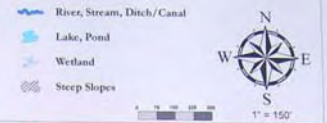
Buffer Exercise Base Map



NO BUFFER



Buffer Exercise Base Map



**300-ft Habitat Buffer
150-ft Water Quality Buffer**



Buffer Ordinance Assessment

Name: _____ Town: _____ Date: _____

	Yes	No	Buffer Width	Setback Width	What changes would you make to your town's ordinance?	DES/REPP Model Shoreland Ordinance
Is there a buffer policy in the master plan?						-----
Do you have an ordinance or regulation that specifies setbacks and/or buffers to protect water quality?						Yes; setbacks and buffers
Does the buffer ordinance apply to:						
3rd order and higher streams						150' vegetated buffer; 50' setback
2nd order streams						75' vegetated buffer; 25' setback
1st order streams						75' veg buffer; 25' setback
intermittent streams						75' veg buffer; 25' setback
named rivers/tributaries/waterbodies						No
all lakes and ponds						Yes, except fire/farm/beaver ponds
wetlands						No
vernal pools						No
Are there larger buffer requirements for:						
steep slopes						Yes
water supply sources						No
sensitive wetlands						No
prime wetlands						No
Does the ordinance specify that at least part of the buffer be maintained with native plants						Yes
Does the ordinance identify allowable uses						Yes
Does the ordinance identify prohibited uses						Yes
Does the ordinance allow trimming/cutting for a view corridor?						Yes
Does the ordinance limit impervious surfaces in the buffer?						Yes - 20%
Are enforcement procedures specified in the ordinance?						PB has implementation & inspection authority; enforcement procedures undefined
Are enforcement procedures reviewed with code enforcement?						TBD
Does the ordinance specify education mechanisms						No
Must the buffer be marked (monumented) during construction?						Yes
Must the buffer be marked (monumented) post-construction?						Yes
Has the town designated prime wetlands?						-----

**ROAD MAP:
HOW TO DEVELOP AND ADOPT A BUFFER ORDINANCE
IN YOUR COMMUNITY**

PHASE I: GETTING ORGANIZED

- 1. Identify a Sponsor.** Identify a working group that will act as a sponsor to shepherd the ordinance through the local review and adoption process, whether a vote at Town Meeting or approval by City Council. The working group can be composed of an existing board or commission, or a diverse group of interested individuals including local officials, board and commission members, the public, the business community, and the expertise of regional planning commissions, local watershed or lake associations, local river advisory committees and land trusts.
- 2. Develop a Plan.** The working group would be responsible for creating a work plan and timetable for developing the ordinance, and a plan to implement the ordinance.

PHASE II: DEVELOPING THE ORDINANCE

- 1. First Step: Identify the Resources.** Utilize the mapping skills of your Regional Planning Commission and others and generate a map displaying the surface water bodies, lakes, ponds, wetlands, streams and rivers within your community. A reliable source of stream location and stream order classification (i.e. the identification of 1st, 2nd, 3rd, 4th and higher streams) within your community is available from the New Hampshire Hydrography Dataset (NHHD) developed by Complex Systems Research Center, University of New Hampshire. While the NHHD is fairly accurate, you may elect to supplement this dataset by conducting your own stream mapping through field verification and GPS technology or ask that your Planning Board require the submittal of surveyed stream and surface water body data as part of the subdivision and site plan review process. Other reliable mapping resources include:
 - Stream Buffer Characterization Data and Maps: Town specific maps that assess 150 and 300 buffer areas, available online at www.nhep.unh.edu/resources/actions.htm
 - Buffer Data Mapper: Demonstrates the land area impact of various buffer widths, available online at <http://maper.granit.unh.edu/viewer.htm>
- 2. Second Step: Decide on the Resources to Regulate.** Local governments in NH have a choice - they may choose to extend the requirements of the Comprehensive Shoreland Protection Act (CSPA) to those resources within their community that are not subject to CSPA or develop more protective regulations which can apply to first, second and third order streams, isolated wetlands, and smaller lakes and ponds. In making this decision, invite the State Shoreland Protection Specialist to provide you with an overview of the CSPA and discuss the pros and cons of one or both of these options.
- 3. Third Step: Establish the Zoning Boundaries.** Once you have made the decisions regarding your regulatory approach (CSPA extension and/or more local protective regulations) and the resources to be protected begin to consider the various model riparian

and buffer ordinances focusing on the regulatory area, buffer widths (set width or variable zones), setback distances for structures and septic systems, slope consideration and district boundaries.

4. **Master Plan.** Review the Master Plan for consistency with the goals of adopting a buffer ordinance, particularly if your community does not have a Natural Resources chapter. This may also include incorporating the relevant study conducted by the USGS, in cooperation with the NH Department of Environmental Services (DES), “Effects of Urbanization on Stream Quality at Selected Sites in the Seacoast Region in New Hampshire, 2001-2003.” The study provides valuable data comparing the ecological integrity and water quality of streams in undeveloped and urbanized watersheds, including the effects of impervious surface cover, buffer condition and width, stream volume/discharge fluctuations, and land use.
5. **Technical References.** To assist with developing an ordinance and providing background and reference information for public outreach, there are many and various sources of information including the DES Innovative Land Use Guide Model Ordinances “Shoreland Protection” and “Drinking Water Protection” Chapters (online at <http://www.des.nh.gov/REPP/index.asp?go=ilupth>). See also the Resource List provided as part of the Workshop for additional technical references and example ordinances adopted by other communities.

PHASE III: GETTING THE WORD OUT

1. **Public and Riparian Landowner Outreach.** Engage the public and the business community to raise awareness of the importance of buffers and to gain input on local issues of importance and concern. The “take home message” is that buffers provide public benefits:
 - Economic – water quality, recreation, capital costs, flood storage and prevention
 - Quality of life – recreation, wildlife, aesthetics
 - Ecology – habitat, water quality, biodiversity
 - Drinking Water – public systems and private wells
2. **Engage Local Stakeholders.**
 - Work cooperatively with local officials and departments, boards and commissions to gain support of developing the ordinance.
 - Arrange informational meetings and/or work sessions to discuss the purpose and goals of the ordinance and provide an opportunity for review and comment on the ordinance.
 - Provide instruction on how the ordinance will be implemented, who will have implementation authority, and how the approval process works and what groups are involved in this process (i.e., review and comment by other boards, commissions, local officials or DPW, Fire, Police, Building Inspector, etc.). Instruction may be provided through the Regional Planning Commission, NH Local Government Center, your County Conservation District Office, a consultant or other qualified professional.
3. **Demonstration.** Identify locally owned properties or private properties where functioning, healthy buffers occur, preferably where they coexist with developed lands. First hand observation is a powerful educational tool as “a picture is worth a thousand words.”

PHASE IV: IMPLEMENTING THE ORDINANCE

1. **Enforcement.** The ordinance should specify a local enforcement authority, whether the Code Enforcement Officer, Conservation Commission, or other, and include standards for fines or other corrective actions such as mitigation (plantings or compensation), and the party responsible for assessing fines and collecting them.
2. **Education.** Provide periodic workshops or other public forums to educate local officials and future applicants about the ordinance. This audience would include property owners, consultants, the business community, realtors and developers. An information packet might be developed for distribution to new property owners, civic groups and schools. The information packet may include a buffer evaluation form for use by property owners to assess the condition of their buffers and to identify potential methods to address any problems.
3. **Process.** Develop clear and concise administrative procedures, which may include instructions about the application process, an application form, and technical assistance to applicants.
4. **Comparison with CSPA.** It may be helpful to develop a one to two page fact sheet describing the requirements of the buffer ordinance. A similar fact sheet will be provided summarizing the requirements of the revised Comprehensive Shoreline Protection Act.

Protecting Shoreland and Riparian Buffers Workshop

This document is available electronically from www.nhep.unh.edu/resources/buffers.htm

RESOURCE LIST

Buffer Ordinances

- ▶ NH Regional Environmental Planning Program: Innovative Land Use Planning Techniques Guide Chapter on *Shoreland and Riparian Areas*:
http://www.des.state.nh.us/REPP/ilupth/Shoreland_and_riparian_areas.doc
Additional Chapters with ordinances related to buffers include: *Stormwater Management, Steep Slopes and Ridgeline Protection, Wildlife Habitat Management, Wetlands, Drinking Water, and Erosion and Sediment Control* and are available at: <http://www.des.nh.gov/REPP/index.asp?go=ilu>
- ▶ Protecting Stream and River Corridors: Creating Effective Local Riparian Buffer Ordinances
http://www.rivercenter.uga.edu/publications/pdf/riparian_buffer_guidebook.pdf
- ▶ Center for Watershed Protection: Aquatic Buffers (includes links to model ordinances)
http://www.cwp.org/aquatic_buffers.htm
- ▶ River Network: Model Buffer Ordinances
http://www.rivernetnetwork.org/library/index.cfm?doc_id=179
- ▶ EPA: Models for buffers to protect local resources - background information
<http://www.epa.gov/owow/nps/ordinance/mol1.htm>
- ▶ Town of Amherst, NH: Rules and ordinances for the wetlands conservation district
<http://www.amherstnh.gov/Regulations/conservation.html>
- ▶ Land Conservation Plan for New Hampshire's Coastal Watersheds (includes model Conservation Overlay District) http://www.nhep.unh.edu/resources/pdf/the_land_conservation-tnc-06.pdf

General Information and Technical References

- ▶ Buffers for Wetlands and Surface Waters: A Guidebook for New Hampshire Municipalities
<http://extension.unh.edu/CommDev/Buffers.pdf>
- ▶ Chesapeake Bay Riparian Handbook: A Guide for Establishing and Maintaining Riparian Forest Buffers <http://www.chesapeakebay.net/pubs/subcommittee/nsc/forest/sect12.pdf>
- ▶ Connecticut River Joint Commission's Riparian Buffers Fact Sheets (a series of 10 fact sheets, including information on buffers for forestland and agricultural land)
<http://www.crjc.org/riparianbuffers.htm>
- ▶ Conservation by utilizing buffers (agricultural focus) <http://www.nrcs.usda.gov/feature/buffers/>
- ▶ Forestry and the Riparian Zone – Conference Proceedings
<http://www.umaine.edu/fes/Wagner/Publication%20files/ForestryRiparian.PDF>
- ▶ The Importance of Protecting Vulnerable Streams and Wetlands at the Local Level
<http://www.cwp.org/wetlands/articles/WetlandsArticle6.pdf>
- ▶ A Review of the Scientific Literature on Riparian Buffer Width, Extent and Vegetation
http://www.dnr.state.wi.us/org/water/wm/dsfm/shore/documents/lit_review.pdf

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- ▶ Riparian Buffer Width, Vegetative Cover, and Nitrogen Removal Effectiveness: A Review of Current Science and Regulations <http://www.epa.gov/nrmrl/pubs/600R05118/600R05118.pdf>
- ▶ Riparian Setbacks: Technical Information for Decision Makers http://www.crowp.org/pdf_files/riparian_setback_paper_jan_2006.pdf
- ▶ Stormwater Center's Aquatic Buffer Fact Sheets http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Tool3_Buffers/BufferZones.htm
- ▶ Understanding the Science Behind Riparian Forest Buffers: Effects on Water Quality <http://www.ext.vt.edu/pubs/forestry/420-151/420-151.html>
- ▶ Value of Riparian Buffers (NH Fish and Game Department) http://www.des.state.nh.us/cspa/CSPACommissionReport/AppendixG/NH_F&G_value_of_riparian_buffers.pdf

Buffer Data and Mapping Tools

Buffer Characterization Maps: The NHEP funded a 2006 study by the UNH Complex Systems Research Center (CSRC) to characterize the buffers around 2nd order and higher streams within the 42-community coastal watershed in New Hampshire. CSRC assessed the level of development within 150-foot and 300-foot buffers around each stream and assigned one of four categories, ranging from intact to altered. Intact buffers have a land area that is less than 10% developed, mostly intact is 10-25% developed, somewhat modified is 25-50% developed, and altered is greater than 50% developed. The results are presented on town maps displaying stream characterizations and the corresponding acreage tables. Town maps can be viewed on the NHEP website:

<http://www.nhep.unh.edu/resources/maps.htm>

NH GRANIT Buffer Data Mapper: The NH GRANIT Data Mapper, an online data viewing and query tool, includes a shoreline buffer theme. Maps can be made displaying shoreline buffers in increments of 50 feet, from 50 feet up to 300 feet. The mapped buffers are available as an overlay to any of the standard base features incorporated in the Data Mapper, including aerial imagery, town boundaries, surface water features, road centerlines, watershed boundaries, and elevation/hillshade. Supporting summary tables provide acreage, by town, for the selected buffer option. Users can choose to include or exclude intermittent streams in the buffer display and the supporting data tables. Select the "Water Resources" theme on the Data Mapper and then select the buffer option under "Theme Tools" at: <http://mapper.granit.unh.edu/viewer.jsp>

New Hampshire Hydrography Data (NHHD), with stream orders: Enhanced in April 2007, this data set is available on NH GRANIT: <http://www.granit.sr.unh.edu/>

Buffer Demonstration Site

Norris Brook Stream Buffer Demonstration Project: The town of Exeter created a vegetated streamside buffer along a 500' section of Norris Brook, located in Swazey Park, a public park in the town. The site is in an urbanized area where, prior to the project, very little natural buffer remained. The stream buffer was designed to filter polluted runoff, provide a transition zone between the stream and human land use, and improve fish habitat. The town consulted with local buffer specialists to select and place native plantings that have high wildlife habitat values and bank stabilization properties. An educational kiosk on the importance of vegetated buffers is located near the site. For more information or for directions to the site, contact Phyllis Duffy, Town of Exeter, at 773-6157 or Sally Soule, NHDES, at 559-0032.

Protecting Shoreland and Riparian Buffers Workshop

ORGANIZATIONS, PROGRAMS, & ADDITIONAL RESOURCES

New Hampshire Estuaries Project www.nhep.unh.edu

Buffer Workshop Contact: Jennifer Hunter, 862-3948, Jennifer.Hunter@unh.edu

The NHEP, which is housed at the University of New Hampshire, is part of the U.S. Environmental Protection Agency's National Estuary Program, which is a collaborative local/state/federal program established under the Clean Water Act to protect estuaries of national significance. The NHEP protects, enhances, and monitors the environmental quality of the state's estuaries by implementing its comprehensive Management Plan for New Hampshire's estuaries. The NHEP works in the 42-community coastal watershed area of New Hampshire. To sign up for *Estuaries Update*, a monthly email newsletter with information on publications and meetings, email Dave.Kellam@unh.edu.

Buffer Related Programs and Resources:

- **Community Technical Assistance Program**: The program funds technical assistance providers to work with communities on natural resource protection projects, including buffer-related projects, ranging from wetland inventories to developing buffer regulations. Community boards (planning boards and/or conservation commissions) apply for assistance and the NHEP hires a consultant to work with the community on the project. Jennifer.Hunter@unh.edu *NOTE: Communities in the I-93 corridor are eligible for the I-93/NHDOT Community Technical Assistance Program, which is a different program than the NHEP CTAP.*
- **Impervious Surface Maps**: These town scale maps produced by the NHEP include impervious surface estimates developed by UNH Complex Systems Research Center for the 42 coastal watershed towns using 1990, 2000, and 2005 30-meter Landsat satellite imagery. Impervious surface cover from 1990, 2000, and 2005 is represented on the map, along with conservation lands recorded in NH GRANIT, and conservation focus areas developed by The Nature Conservancy in the *Land Conservation Plan for NH Coastal Watersheds*. Town statistics on population, acres of impervious surface, impervious surface as percent of land area, and imperviousness per capita are included. Maps are also available on the NHEP website: <http://www.nhep.unh.edu/resources/maps.htm>. *Note: The NHDES recently funded development of impervious surface maps for the Exeter River watershed using different (higher resolution) imagery and methods, which yielded different results for impervious surface cover than what was developed by UNH CSRC.*
- **Buffer Protection Information and Outreach**: The NHEP offers presentations on the importance of buffers and protection options. NHEP staff will customize an introductory presentation or workshop to meet a town's interests. <http://www.nhep.unh.edu/resources/buffers.htm>

NH Department of Environmental Services www.des.state.nh.us

Buffer Workshop Contact: Barbara McMillan, 271- 7889, bmcmillan@des.state.nh.us

The Department of Environmental Services (DES) responsibilities range from ensuring high levels of water quality for water supplies, ecological balance, and recreational benefits, to regulating the emissions of air pollutants, to fostering the proper management of municipal and industrial waste, to managing water resources for future generations. Regulatory enforcement, permitting, planning, public education, and technical and financial assistance are some of the many activities that DES carries out on a daily basis.

Protecting Shoreland and Riparian Buffers Workshop

Buffer Related Programs:

- DES Watershed Management Bureau: The Bureau staff provide assistance with volunteer water quality monitoring, lakes and rivers management and protection, shellfish, biomonitoring, beaches, invasive species, and nonpoint source pollution and stormwater runoff.
<http://www.des.nh.gov/WMB/>
- N.H. Coastal Program: NHCP staff assists with planning, education, and restoration in the coastal watershed. www.des.nh.gov/Coastal/
- DES Environmental Quality Impact Planner: The EQIP planner position works to identify and promote land use practices that protect natural resources by minimizing the negative impacts of development. crussell@des.state.nh.us
- DES Comprehensive Shoreland Protection Program: The CSPP performs outreach, permitting, and enforcement related to the N.H. Comprehensive Shoreland Protection Act (CSPA), RSA 483-B which established the “protected shoreland.” The protected shoreland is all the land located within 250 feet of the “reference line” of public waters. www.des.nh.gov/cspa/
- DES Drinking Water and Groundwater Bureau: The DWGB staff will provide planning, grant, and technical assistance to ensure the protection, responsible development and use of the ground water and surface waters of the state. DWGBInfo@des.state.nh.us
- DES Wetlands Bureau: Wetlands Bureau staff performs permitting, enforcement, and education for protecting tidal fresh water wetlands and surface waters from unregulated alteration. www.des.nh.gov/Wetlands/
- DES Alteration of Terrain Permitting Section: The ALT permit program is intended to protect surface waters by controlling soil erosion and managing stormwater runoff from developed areas. Staff provides permitting and enforcement with new construction sites 100,000 square feet of terrain (50,000 sf if within the protected shoreland). www.des.nh.gov/aot/

Documents:

- Field Guide to Common Riparian Plants in New Hampshire:
<http://www.des.nh.gov/wmb/vrap/documents/FieldGuideToCommonRiparianPlantsOfNH.pdf>
- Native Shoreland Riparian Buffer Plantings:
<http://www.des.nh.gov/wmb/vrap/documents/NativeShorelandRiparianBufferPlantingsNH.pdf>:
- Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials, 2004: http://www.des.nh.gov/wmb/was/documents/2004_npsBMP.pdf
- Effects of Urbanization on Stream Quality at Selected Sites in the Seacoast Region in New Hampshire, 2001-03 - USGS & NHCP: <http://pubs.usgs.gov/sir/2005/5103/>
- Fact Sheet: Minimizing the Impact of Development on Wildlife: Actions for Local Municipalities: <http://www.des.nh.gov/factsheets/id/id-5.htm>
- Fact Sheet: Erosion Control for Construction in the Protected Shoreland Buffer Zone:
www.des.nh.gov/factsheets/sp/sp-1.htm

NH Fish and Game Department <http://www.wildlife.state.nh.us/>

Buffer Workshop Contact: Matt Carpenter, 271-2612, Matthew.A.Carpenter@wildlife.nh.gov

The NHFG Fisheries Department protects and restores aquatic habitats throughout the state with an emphasis on both sportfish and species of conservation concern. Central to its work is the understanding that healthy fish populations depend on healthy ecosystems and that terrestrial and aquatic systems are interdependent.

Protecting Shoreland and Riparian Buffers Workshop

Resources:

- NH Wildlife Action Plan: includes detailed maps of Focus Areas for species and habitats of concern and conservation strategies. More information available at: http://www.wildlife.state.nh.us/Wildlife/wildlife_plan.htm
- Records of Fish Species Assemblages and other fish survey data from throughout the state
- Continuous water temperature data collected from various streams during July and August. This data has many uses, including: determining the upper temperature threshold for different fish species, assessing the impact of land use change on water temperature, and identifying cold vs. warm water fish communities.
- The Eastern Brook Trout Joint Venture is an effort to protect and restore brook trout habitat throughout its historical range. Protection of riparian buffers along first, second, and third order streams will be critical to this effort. More information available at: <http://www.easternbrooktrout.org/>
- New Hampshire Stream Crossing Guidelines (*DRAFT*). April 12, 2007. Available upon request.

Great Bay National Estuarine Research Reserve Coastal Training Program www.greatbay.org

Buffer Workshop Contact: Steve Miller, 778-0015, Steve@greatbay.org

The mission of the GBNERR Coastal Training Program (CTP) is to support informed decision-making by providing technical information and training to target audiences. The CTP aims to improve the stewardship of coastal resources and the ecosystems that produce these resources in the New Hampshire Coastal Watershed. The GBNERR CTP has been active in coastal New Hampshire with programs and workshops for coastal decision makers for over 5 years and supports partner efforts in coastal management training and natural resource protection.

Resource:

- Backyard Buffers That Work for People and Nature by Restoring Ecological Function: A brochure that includes three different native landscaping plans to create functional buffers.

UNH Cooperative Extension <http://extension.unh.edu/>

Buffer Workshop Contact: Frank Mitchell, 862-1067, Frank.Mitchell@unh.edu

UNH Cooperative Extension provides assistance to New Hampshire communities and conservation groups with land and water conservation planning projects through its Community Conservation Assistance Program. Projects typically include a team of community volunteers. Assistance includes:

- Helping establish goals and priorities.
- Guidance formulating project work plans
- Training needed by volunteers to complete specific project tasks.
- Addressing issues in specialized areas, e.g. shoreland buffers, wetlands, wildlife habitat, etc.

Extension assistance is limited to project guidance and training, and does not include specific involvement in completing project tasks.

UNH Cooperative Extension also coordinates the Natural Resources Outreach Coalition, which offers assistance to communities wishing to protect natural resources while accommodating growth.

Protecting Shoreland and Riparian Buffers Workshop

Rockingham Planning Commission <http://www.rpc-nh.org/>

Buffer Workshop Contact: Theresa Walker, 778-0885, email@rpc-nh.org

The Rockingham Planning Commission is one of nine regional planning commissions in New Hampshire established by RSA 36:46. The Commission's region consists of twenty-seven communities within Rockingham County. The RPC is not affiliated with Rockingham County. Operating as a non-profit local government organization, the Commission serves in an advisory role to local governments in order to promote coordinated planning, orderly growth, efficient land use, transportation access, and environmental protection. The Commission's professional planning staff provides an array of planning assistance to its 27 active member communities. Membership, which is optional, is obtained through annual dues assessed to each community on a per capita basis.

Southern New Hampshire Planning Commission <http://www.snhpc.org/>

Buffer Workshop Contact: Jack Munn, 669-4664, jmunn@snhpc.org

The Southern New Hampshire Planning Commission (SNHPC) is one of nine regional planning agencies within the State of New Hampshire. The Commission provides many services within the region which include transportation planning, land use and environmental planning, local planning assistance, GIS and regional planning data. The region includes a total of thirteen municipalities including the City of Manchester. A significant role for SNHPC is acting as the lead agency or Metropolitan Planning Organization (MPO) for the region. As the MPO, SNHPC provides an important forum for state and local officials to discuss transportation issues and develop an overall transportation plan for the region. SNHPC also works with member communities in the development and/or updating of regional plans for land use, housing and land use regulations, generating build out studies and zoning maps, and conducting a number of environmental studies and initiatives, including source water protection, brownfields, and, recently, riparian buffer protection.

Strafford Regional Planning Commission <http://www.strafford.org/>

Buffer Workshop Contact: Julie LaBranche, 742-2523, jlabranche@strafford.org

Strafford Regional Planning Commission (SRPC) has been active in regional planning for over 30 years as one of the nine Regional Planning Commissions established by the New Hampshire legislature. Operating as a political subdivision of the State, SRPC serves an advisory role to local governments and organizations. SRPC is composed of eighteen communities including all thirteen municipalities in Strafford County, three communities in Rockingham County (Newmarket, Nottingham, and Northwood), and two communities in Carroll County (Wakefield and Brookfield). Its fundamental mission is to plan and act to achieve sustainable development and improve the quality of life. Sustainable development is balanced economic progress with environmental protection and community well-being. SRPC works to improve the region by coordinating local planning, promoting orderly growth and efficient land use and transportation systems, and addressing issues of regional concern. SRPC's professional planning staff assists in land use, transportation, environmental and natural resource planning, housing, economic development, technical support services and project review and management. Recently, SRPC received final approval of their Metropolitan Planning Organization (MPO) redesignation – now the Strafford MPO – which follows its regional planning boundary.

Protecting Shoreland and Riparian Buffers Workshop

Workshop Date (circle): October 29 November 5 November 29

1. Your Town/City: Newton (1), Exeter (3), Stratham (3), North Hampton (2), Kingston (2), Hampton Falls (3), Northwood (1), Newfields (1), Fremont (1), Seabrook (1), Lee (2), Hampstead (1)

2. Which of the following do you represent? (Please check all that apply)

Governmental: State ____, Regional ____, City Council/Selectman ____, Planning Board 8,

Conservation Commission 9, Zoning Board ____, Building Dept. ____, Other Governmental ____

Business 1, **University** ____, **Watershed Organization** 1, **Other** (list): citizen (3), consultant (1), lake association (1), real estate (1).

Introductory Presentation

3. The introductory presentation improved your understanding of the functions and values of buffers.

Agree 17 Somewhat agree 4 Somewhat disagree ____ Disagree ____

4. The presentation introduced concepts and ideas that were helpful for subsequent sessions in this workshop.

Agree 20 Somewhat agree 1 Somewhat disagree ____ Disagree ____

Buffer Mapping Exercise

5. The buffer mapping exercise improved your understanding of how different regulatory scenarios protect water resources.

Agree 11 Somewhat agree 10 Somewhat disagree ____ Disagree ____

6. The exercise provided information that was helpful in reviewing and discussing buffer ordinances in subsequent sessions of this workshop.

Agree 14 Somewhat agree 7 Somewhat disagree ____ Disagree ____

Town Buffer Assessment

7. The assessment form and discussion improved your knowledge of your town's buffer ordinances.

Agree 15 Somewhat agree 5 Somewhat disagree 1 Disagree ____

8. You have specific ideas for improvements to make to your existing ordinance, or if none currently exists, you have ideas for what you would want to include in a new ordinance.

Agree 16 Somewhat agree 2 Somewhat disagree ____ Disagree ____

Unanswered 3

Road Map

9. The "road map" discussion provided you clear, actionable steps for moving forward in implementing a buffer ordinance.

Agree 14 Somewhat agree 6 Somewhat disagree ____ Disagree ____

Unanswered 1

10. How would you rate the **overall** content of this workshop?

Very Satisfactory 11 More than Satisfactory 6 Satisfactory 4 Less than Satisfactory ____ Not Satisfactory ____

11. How would you rate the **overall** delivery of this workshop?

Very Satisfactory 14 More than Satisfactory 5 Satisfactory 2 Less than Satisfactory ____ Not Satisfactory ____

12. Will you apply the knowledge gained through this workshop?

Yes 21 No ____

If so, how?

- Try to improve the setbacks via feedback to the P.B.
- Review Env. Regs & Buffer ordinances & tweak them
- Review zoning ordinances regarding buffer width and language
- Consider education initiatives
- Better understanding of town's ordinances and the need for various buffer distances
- Developing proposals for revising ZO and Master Plan

- Education ZBA, re. importance of buffers/setbacks
- Share info with other members of lake association
- Drafting Ordinances @ PB level
- Upcoming planned creation of shoreland/stream buffer ordinances (Northwood)
- Will scope out resources cited in the info
- Will have a warrant article on Prime Wetlands; if that goes well, would like to get buffer ordinance improvements next year (Newfields)
- Will encourage others to develop strong buffer protections
- Try to convince Pl. Bd. to vastly expand & define buffers (Seabrook)
- Will look at existing ordinances with eye to buffer functions – need to review master plan for “buffer” references
- Look at increased buffers
- Will be better able to promote the work you do! Guide clients to the source of the info they need
- Will bring the highlights to rest of CC and brainstorm how can use this info to improve ordinances
- To learn more and share the knowledge

13. What additional information and/or training do you need to implement buffer protections?

- Clearer information about what & how to specify as permitted uses in buffers
- How to educate the public, get them enthusiastic
- Presentations to planning board public hearing or deliberation session (Hampton Falls)
- A better understanding of the state’s Shoreland Protection Act
- How to write/develop zoning- what to include, etc. (Fremont)
- Handouts and websites should provide lots of information
- Further Education

14. Please provide any additional comments or feedback on this workshop on the back of this form.

- Good job!
- Visuals help: before/after pics!
- Excellent!
- Thank you all for putting this workshop together. Good job!
- Thanks! Very well done.
- Good job; valued insights and experiences of other attendees

Protecting Shoreland and Riparian Buffers Workshop

Workshop Date (circle): October 29 November 5 November 29

1. Your Town/City: Strafford (3), Dover (3), Rochester (2), Madbury (2), Wolfeboro (2), Portsmouth (2), Somersworth (1), Farmington (1), Durham (1), no response (1)

2. Which of the following do you represent? (Please check all that apply)

Governmental: State 1, Regional , City Council/Selectman 1, Planning Board 3, Conservation Commission 7, Zoning Board 1, Building Dept. , Other Governmental 2, water board (1)
Business , **University** 1, **Watershed Organization** 5, **Other** (list): citizen (1), land use consultant (1), IRLAC (1), resident volunteer for local land trust (1), WQ Monitoring Coast (1), Open Lands Committee (1), NROC-managing growth (1), other (1).

Introductory Presentation

3. The introductory presentation improved your understanding of the functions and values of buffers.

Agree 7 Somewhat agree 9 Somewhat disagree Disagree 1 No response 1

4. The presentation introduced concepts and ideas that were helpful for subsequent sessions in this workshop.

Agree 12 Somewhat agree 6 Somewhat disagree Disagree

Buffer Mapping Exercise

5. The exercise improved your understanding of how different regulatory scenarios protect water resources.

Agree 6 Somewhat agree 12 Somewhat disagree Disagree

6. The exercise provided information that was helpful in reviewing and discussing buffer ordinances in subsequent sessions of this workshop.

Agree 10 Somewhat agree 8 Somewhat disagree Disagree

Town Buffer Assessment

7. The assessment form and discussion improved your knowledge of your town's buffer ordinances.

Agree 11 Somewhat agree 6 Somewhat disagree Disagree

No response 1

8. You have specific ideas for improvements to make to your existing ordinance, or if none currently exists, you have ideas for what you would want to include in a new ordinance.

Agree 14 Somewhat agree 3 Somewhat disagree Disagree

No response 1

Road Map

9. The "road map" discussion provided you clear, actionable steps for moving forward in implementing a buffer ordinance.

Agree 11 Somewhat agree 6 Somewhat disagree Disagree

No response 1

10. How would you rate the **overall** content of this workshop?

Very Satisfactory 6 More than Satisfactory 6 Satisfactory 4 Less than Satisfactory Not Satisfactory

No response 2

11. How would you rate the **overall** delivery of this workshop?

Very Satisfactory 8 More than Satisfactory 7 Satisfactory 2 Less than Satisfactory Not Satisfactory

No response 1

12. Will you apply the knowledge gained through this workshop?

Yes 18 No

If so, how?

- Work for a better wetland buffer ordinance in town
- Check out resources list
- See if we can better use the roadmap
- Inform other land use board members, as well as town planner!
- In my daily work & conservation commission
- Revising town buffer/setbacks
- Update definitions
- Will share the buffer function information with ZBA members
- I am participating in a sub-committee that is reviewing the city's buffer ordinance(s) in order to make recommendations for improvements; the "assessment" tool & "road map" will be very helpful for the process!
- Through the waterboard, I can help educate, suggest improvements, and work on improvements; map project was great!
- Share with OLC (*note: presumably refers to Dover Open Lands Committee*)
- Spreading the word
- Educate neighbors along the Bellamy; continue to gain more knowledge; perhaps attend conservation commission meeting if possible (or at least e-mail)

13. What additional information and/or training do you need to implement buffer protections?

- Any and all available info (Somersworth)
- More information and studies on actual reasons or scientific basis for buffer and setback restrictions; to help in applying and instituting the regulations (Wolfeboro)
- The training and presentations were very good. – The only reason they did not significantly improve my knowledge and understanding is that I have municipal training and am familiar with this already.
- Would like the email & phone numbers of the 3 presenters for future references questions (Durham)
- Training for zoning board and selectmen (Madbury)
- Would like to know about changes in shoreland protection act; treatment of grandfathered non-conforming lots

14. How would you rate the networking opportunities at this workshop?

Very Satisfactory 4 More than Satisfactory 3 Satisfactory 6 Less than Satisfactory 1 Not Satisfactory
No response 4

15. Did your awareness of resources related to protecting buffers increase because of this workshop?

Yes 14 No Change 1 Unable To Rate No Response 3

16. How did your skills related to protecting shoreland and riparian buffers change as a result of this workshop?

Increased 11 Didn't Change 2 Unable To Rate 1 No Response 4

17. Will you integrate new perspectives learned through the workshop into your professional or volunteer activities as they relate to protecting shoreland and riparian buffers?

Yes 15 No No Response 3

18. Please provide any additional comments or feedback on this workshop in the space below.

- Good job guys!
- Very good training; I just hoped there would be more planners/staff or more of Farmington's Board Members present
- Very helpful
- Nice job
- Helpful to hear about other towns

Protecting Shoreland and Riparian Buffers Workshop

Workshop Date (circle): October 29 November 5 November 29

1. Your Town/City Henniker (1), Bedford (4), Deering (1), Salem (1), Auburn (1), Candia (4)

2. Which of the following do you represent? (Please check all that apply)

Governmental: State 1, Regional _____, City Council/Selectman_____, Planning Board 4, Conservation Commission 7, Zoning Board_____, Building Dept._____, Other Governmental_____

Business ____, **University** ____, **Watershed Organization** 2, **Other** (list): Planning Department (1), Bear Paw Reg. Greenways (1).

Introductory Presentation

3. The introductory presentation improved your understanding of the functions and values of buffers.

Agree 7 Somewhat agree 5 Somewhat disagree _____ Disagree _____

4. The presentation introduced concepts and ideas that were helpful for subsequent sessions in this workshop.

Agree 11 Somewhat agree 1 Somewhat disagree _____ Disagree _____

Buffer Mapping Exercise

5. The exercise improved your understanding of how different regulatory scenarios protect water resources.

Agree 8 Somewhat agree 4 Somewhat disagree _____ Disagree _____

6. The exercise provided information that was helpful in reviewing and discussing buffer ordinances in subsequent sessions of this workshop.

Agree 9 Somewhat agree 3 Somewhat disagree _____ Disagree _____

Town Buffer Assessment

7. The assessment form and discussion improved your knowledge of your town's buffer ordinances.

Agree 5 Somewhat agree 6 Somewhat disagree _____ Disagree _____ No Response 1

8. You have specific ideas for improvements to make to your existing ordinance, or if none currently exists, you have ideas for what you would want to include in a new ordinance.

Agree 8 Somewhat agree 4 Somewhat disagree _____ Disagree _____

Road Map

9. The "road map" discussion provided you clear, actionable steps for moving forward in implementing a buffer ordinance. Agree 9 Somewhat agree 2 Somewhat disagree 1 Disagree _____

10. How would you rate the **overall** content of this workshop?

Very Satisfactory 8 More than Satisfactory 3 Satisfactory 1 Less than Satisfactory _____ Not Satisfactory _____

11. How would you rate the **overall** delivery of this workshop?

Very Satisfactory 7 More than Satisfactory 4 Satisfactory 1 Less than Satisfactory _____ Not Satisfactory _____

12. Will you apply the knowledge gained through this workshop?

Yes 11 No _____ No Response 1

If so, how?

- Henniker CC will be working on a draft buffer ordinance in the future and this info will be useful for that effort
- PB, implementation, master plan updates
- See how Salem's Ordinances stack up
- Bedford Master Plan Preps
- Public education sessions for property owners
- Plan to work with PB to make some changes to our ordinances clarifying several issues that were discussed tonight
- Working toward improving buffer ordinances
- Buffer ordinance assessment; maybe go over with CC & PB

- Time constraints

13. What additional information and/or training do you need to implement buffer protections?

- Additional tips on presenting ordinances to the public to increase acceptance (Henniker)
- Help to designate our prime wetlands – need \$\$\$ (Candia)
- The public needs information (Candia)

14. How would you rate the networking opportunities at this workshop?

Very Satisfactory 2 More than Satisfactory 2 Satisfactory 1 Less than Satisfactory Not Satisfactory
No Response 7

15. Did your awareness of resources related to protecting buffers increase because of this workshop?

Yes 6 No Change Unable To Rate No Response 6

16. How did your skills related to protecting shoreland and riparian buffers change as a result of this workshop?

Increased 4 Didn't Change 2 Unable To Rate No Response 6

17. Will you integrate new perspectives learned through the workshop into your professional or volunteer activities as they relate to protecting shoreland and riparian buffers?

Yes 6 No No Response 6

18. Please provide any additional comments or feedback on this workshop in the space below.

- Liked the hands on mapping of the buffer; it made you think about what you might already have in place or need to put in place