

Activity 2: A Wetlands Public Hearing

Objective Students will gain first-hand experience in understanding the complex nature of making land use decisions by analyzing and making recommendations for a planned residential development project which will involve the filling of wetlands as proposed.

Materials Copies of original site plan, background information sheet and student worksheets for each group; paper, pencils.

Day1

- Procedure**
1. Break students into groups of approximately five per group, assigning a role for each – developers, conservation commissioners, etc. Hand out copies of the “student worksheets” and original site plan to all students.
 2. Explain that each group will be role playing one of the participants in the proposed development scenario described on the “Background Information” sheet. Have each student read through this information now.
 3. Tell the students that their opinions on this project will be sought by the conservation commission during a public hearing. Direct them to analyze the site plan from the perspective of the role they are playing and to prepare to argue a case for whether the plan should be left unaltered or should be modified. Encourage students to make notations or draft changes on the site plan itself. A spokesperson should be elected from each group to present their recommendations to the entire class. Allow at least 15 - 20 minutes for individual group discussions.
 4. Have each group’s spokesperson present their recommendations during the public hearing for why and how the site plan should or should not be changed. All students should take notes on each presentation for future reference.

Day2

1. Have each group revisit the original site plan and redesign it based on the alternatives brought up in the class discussion the previous day.
2. Have each group present their redesigned plans to the whole class then present the sample “ideal” site plan and have the entire class nominate which of their plans would best incorporate the ecological, social, and economic concerns of all groups involved in the public hearing process.

Portions of this activity are adapted with permission from *Ecolands* curriculum.

Background Information Sheet

A developer in your community, Mr. Smith, owns a 30 acre parcel of land that contains 10 acres of a red maple swamp. He has decided to build a housing development of 25 (1) acre lots on this property, but has planned to fill in 5 acres of the wetland to put in an access road and accomodate additional housing lots. In order to begin construction, he needs the conservation commission and planning board to approve his plan.

There are, however, many groups of people in the community that have an interest in this project: several neighbors living near the parcel, a local watershed association, the conservation commission, and planning board. The conservation commission will review this project by seeking input from other people in the community, as well as making their own determination about how the land can be developed with the least amount of environmental impact.

Conservation Commission's Environmental Assessment of the Red Maple Swamp on Mr. Smith's property:

Plant species: red maple, white ash, winterberry, spice bush, high bush blueberry, swamp honeysuckle, impatiens, cinnamon fern, royal fern, skunk cabbage, marsh marigold (spring), jewelweed (fall).

Wildlife habitat values: Red maple swamps, with their abundance of woody and herbaceous vegetation, contain the three essentials for wildlife habitat: food, cover, and water. Direct or indirect evidence was found indicating the presence of the following species that use this wetland for habitat:

Birds: common yellowthroat, cedar waxwing, tree swallow, red-shouldered hawk

Amphibians: blue-spotted salamander (state-listed species), wood frogs, spring peepers, wood turtle

Mammals: white-tailed deer, raccoon

Student Worksheet

Developer: Mr. Smith; his engineering consultant; and his financial supporters

Your role: You (Mr. Smith) have submitted an application to the conservation commission and planning board to develop a residential subdivision on a 30 acre parcel of land in town. Of the 30 acres of land, 10 acres is wetland, 5 of which you have proposed to fill to complete your project. You have hired a consultant to design the site plan, taking into consideration any environmental impacts to wetlands, drinking water supplies, traffic and safety issues.

Things to consider in your role:

- You expect to make a lot of money from this project and need to compensate those people who have provided financial assistance to complete the project.
- You want to maximize the number of lots you can sell on this parcel. You have proposed to put 25 (1) acre lots on 30 acres of land, and need to be able to defend the need for this many houses.
- You have chosen to place the access road through the most narrow portion of the wetland to produce the least amount of impact.

Conservation Commission

Your role: The conservation commission (also referred to as the “con comm”) is the group of local officials responsible for upholding the state wetland protection laws. You are currently reviewing the application submitted by Mr. Smith.

Things to consider in your role:

- the amount of wetlands to be filled. Is it really necessary to place the access road straight through the wetlands? Does there seem to be any other alternatives the developer can consider? See if you can come up with some suggestions for avoiding the wetlands fill altogether, or minimize the total number of acres impacted.
- what are the values of this wetland? Should you deny the project based on the value of this particular site?
- if filling wetlands is unavoidable, you can require the developer to *mitigate* for the wetland loss, such as setting aside other wetlands for permanent conservation or “creating” more wetlands on other land in the community. However, creating forested wetlands is technically very difficult, and often fails to replicate the *same* values of the wetland that was destroyed.
- how can the wetlands be least impacted during construction? (Use of hay bales and silt fences to prevent erosion, for example).

Neighbors #1

Your role: You have lived next to the proposed development site for a few years, but have never really wanted to go anywhere near it. The area looks wet, mucky and dark and has no appeal to you whatsoever. You actually encourage that this “wasteland” be filled in for the reasons given below.

Things to consider in your role:

- You feel the area is probably breeding grounds for all the mosquitoes that invade your backyard barbeques during the summer.
 - Some of you have little children that play outside, and you’re concerned that they might come into contact with some animals living in the wetland, such as raccoons that could spread rabies.
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Neighbors #2

Your role: You have lived next to the proposed development site for many years and know the area well. You and other neighbors are fond of the songbirds that inhabit the area and enjoy the call of the spring peepers in the springtime.

Things to consider in your role:

- you enjoy stocking your birdfeeder for the many songbirds that inhabit your neighborhood. The wetland seems to provide good breeding habitat for these birds and you fear the local populations will decline if this wetland is impacted.
- you moved to this part of town because of the natural beauty of the surrounding landscape – conservation land on one side of your property and the wetland on the other. For aesthetic reasons, the wetland is valuable as a last refuge of peace and quiet in a community that is quickly running out of open space.

Local Watershed Association

Your role: You work for a regional organization that advocates the protection of wetlands for many reasons – water quality protection, flood storage and wildlife habitat. You are concerned about the impacts the project will have on the loss of habitat from this red maple swamp, specifically the vernal pools utilized by the blue spotted salamander for breeding. This species is already on your state’s list of species of special concern.

Things to consider in your role:

- Consider how Mr. Smith might be able to avoid filling wetlands in the first place.
- Using the following data to back you up, prepare an argument for why the filling of the wetland should be avoided to protect the habitat of the blue-spotted salamander.

Importance of Protecting Vernal Pool Habitat

Vernal pools are typically small, shallow depressions in the land that collect water from runoff or intercept a high groundwater table. Despite their small size, vernal pools support a diverse community of species from microscopic organisms to amphibians (salamanders and frogs) and reptiles (turtles and snakes). Vernal pools typically disappear during the hot, dry months of summer and fill again with autumn rains. Due to this periodic lack of water, vernal pools cannot support fish populations. Since fish readily devour the eggs and larvae of most amphibians, the absence of fish is crucial to the successful breeding of many amphibians.

The Blue-spotted salamander is an example of an *obligate* species – one that has come to depend almost completely on vernal pools for breeding habitat because of their inability to withstand fish predation. During the first warm and rainy nights of the spring, hundreds of salamanders emerge from their burrows to migrate en masse to their traditional breeding sites. However, when vernal pools are filled or otherwise destroyed, local populations of many species are in jeopardy of extinction unless other vernal pools are present nearby to serve as new breeding sites.

Natural History of the Blue-spotted Salamander

Identification: dark-colored salamander marked with irregular blue or bluish white spots on the sides of the trunk and tail. Usually has flecks of the same color on its back.

Size: Four to six inches in length.

Egg Masses: Number of eggs per mass highly variable. Normal range appears to be between 6 and 30. They are found either attached to stems and twigs or to leaves on pool bottoms.

Life History: Migration begins on the first mild rainy nights of the spring, usually late March in southern Massachusetts, later in the northern parts of the state. The eggs hatch in four to eight weeks and the larvae usually transform between late July and September.

Planning Board

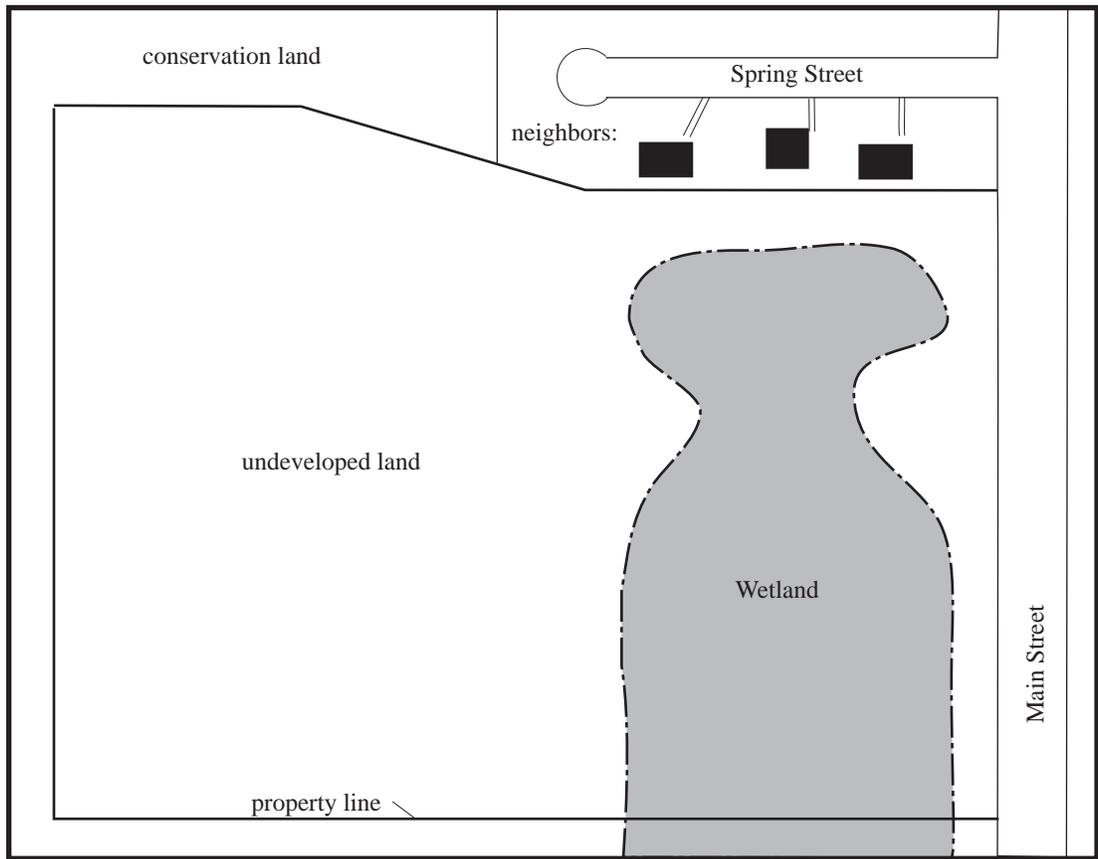
Your role: The local planning board is responsible for reviewing plans for development projects and granting their approval or denial.

Things to consider in your role:

- examine the width (40 ft) of the proposed access road crossing the wetland. Does it really have to be that wide? What justification does Mr. Smith's consultant give for the width of the road? Does it comply with your town code?
- examine the size of the lots (1 acre). Can you think of ways to reduce the amount of space on the site to build houses? (Hint: you may want to use your zoning bylaw to recommend the developer consider a *cluster development*.)

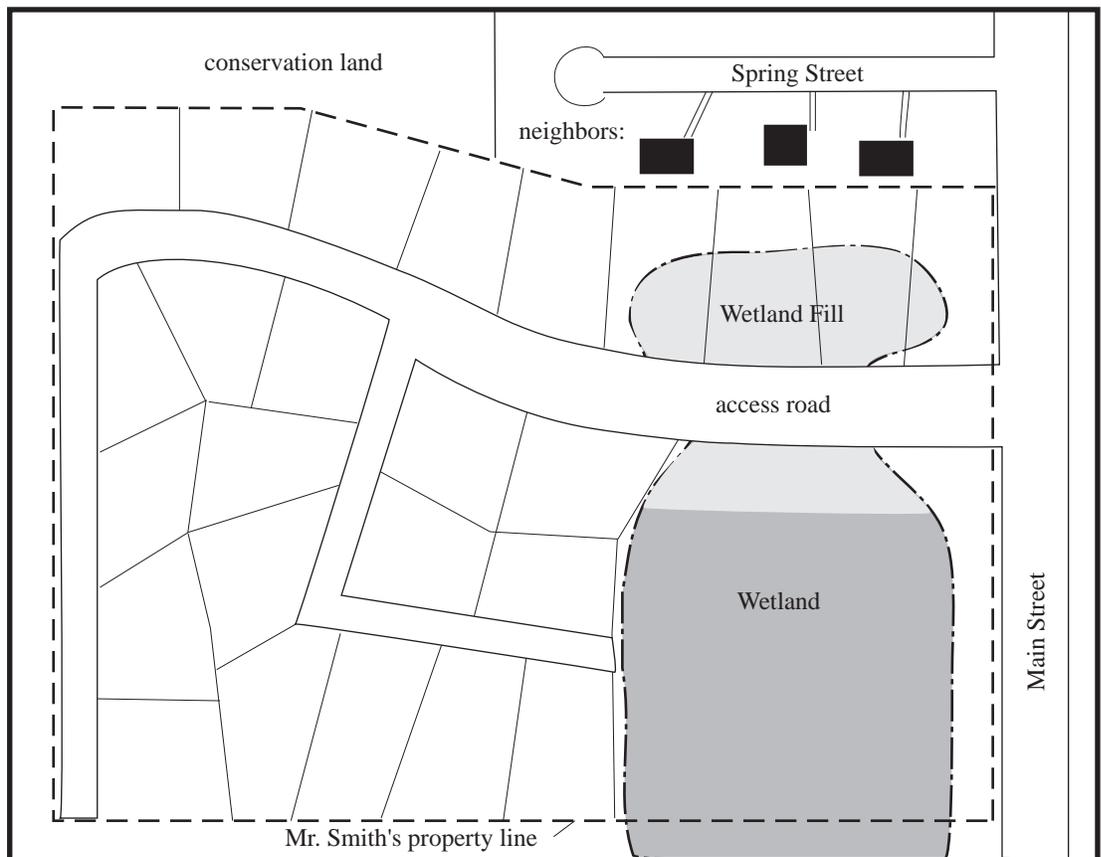
Pre-Site Plan

- 30 acres undeveloped land
- 10 acres wetlands



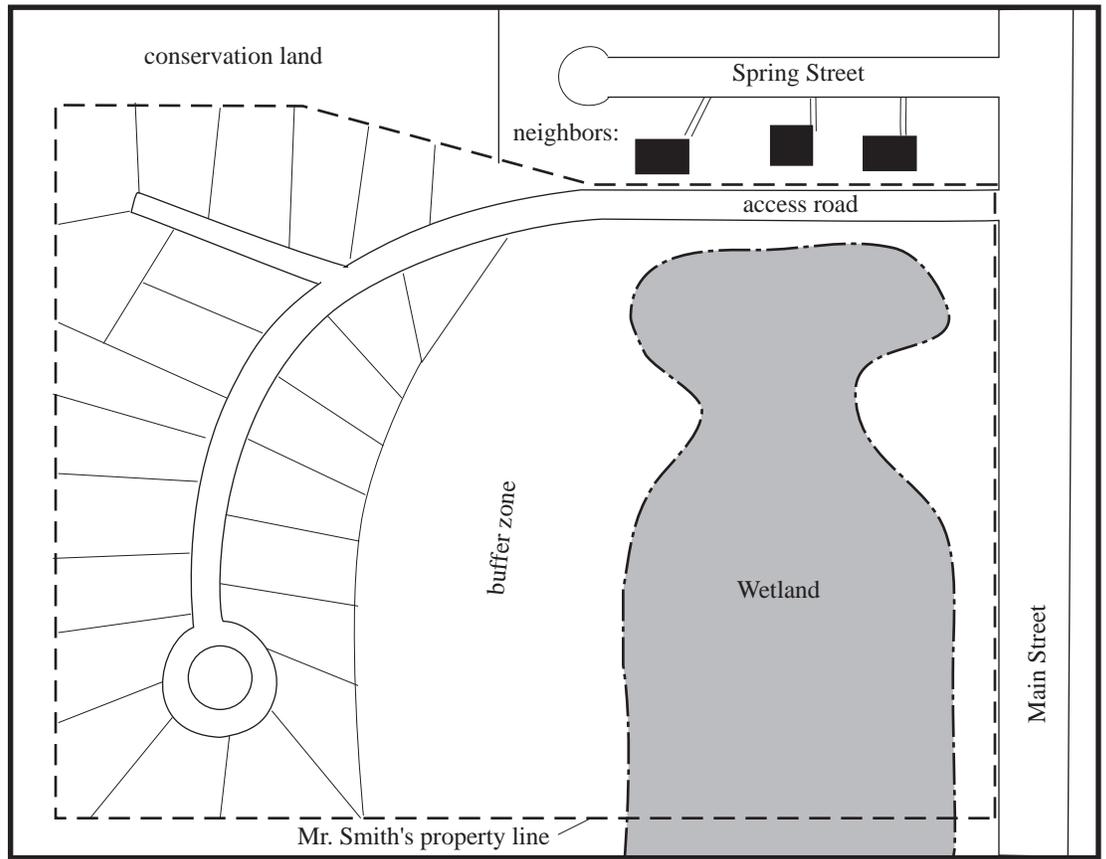
Original Site Plan

- 30 acre site
- (25) 1 acre lots
- 5 acres proposed wetland fill
- 40 ft. wide access road



Ideal Site Plan

- 30 acre site
- (25) 1/2 acre lots
- cluster development
- no wetland fill
- 25 ft. wide access road
- buffer zone



Activity 3: Develop a Wetland Protection Directory

Objective To acquaint students with the different levels of government (local, county, state, and federal) and the officials within these agencies that make land use decisions affecting wetlands.

Background There is probably a small world of organizations and individuals in your community who are involved in one way or another with wetlands. Very few middle school students are aware of this world outside the schoolyard. One of the primary goals of this package is to break down the walls between school and community and to promote dialogue between the two.

Materials Phonebook, paper, pens

Procedure

1. Divide the class into groups, and assign each group one or a few of the local, state, or federal officials listed on the side of this page. Look to the *blue pages* section of the phone book for the addresses of the local, state, and federal agencies.
2. Have students write a letter to their assigned official, inquiring about their role in land use decision-making and/or wetlands protection.
3. As the students receive responses to their written requests, have the whole class create a chart or bulletin board about each of the officials and how they're responsible for protecting wetlands.
4. It is important to remind students that these officials are very busy and that they shouldn't expect a 100% or immediate response for every letter mailed.

Extensions

1. Have the students scan the local and state newspapers for articles on the environment, particularly wetlands issues. Are any of the people in your directory mentioned or interviewed in these articles?
2. Request that one or several of your local officials come to speak to the class about their role in making land use decisions that affect wetlands and have students prepare to interview them. For example, a Department of Public Works employee could explain what a catch basin looks like and how grease traps protect wetlands. See the *Interview with a Local Official* activity in this chapter for other sample questions to ask during an interview.

Wetlands Protection Directory

Local

- Board of Selectmen
- Planning Board
- Conservation Commission
- Zoning Board of Appeals
- Board of Health or Health Officer
- Department of Public Works
- Building Inspector
- Local Environmental Groups & Land Trusts
- Hunting & Fishing Clubs
- Regional Planning Agency
- Watershed Associations
- Soil & Water Conservation Districts

State

- Agricultural Extension Officer
- Water companies
- Department of Environmental Protection
- Fish & Wildlife Department
- Recreation & Parks

Federal

- Environmental Protection Agency
- Army Corps of Engineers
- Fish & Wildlife Service
- Soil Conservation Service
- National Marine Fisheries Service
- Legislators
- State Representatives
- State Senators
- U.S. Representatives
- U.S. Senators

3. Wetland Mentors – have students interview and/or write bibliographies about local wetland advocates or well-known environmental activists.
4. Contact the Conservation Commission and/or Planning Board to find out if any design standards are currently being used in development projects to protect wetlands. Visit a site and photograph them.
5. Have the students decide what criteria they will use to rate the town’s wetland protection capability based on the results of the interview.



Activity 4: Rate Your Community's Wetlands Protection Capability: An Interview with a Local Official

Objective Students will interview a conservation commission or planning board member to determine how well their community is protecting its wetlands and other natural resources.

Procedure

1. Request a visit by a municipal official – conservation commissioner, planning board member, etc. – to your class or incorporate this interview with a visit to town hall.
2. A few days prior to the interview, work with your class to brainstorm interview questions. Ask the students what they'd most like to learn from this interview, what they want to know about their community's wetlands, etc. If your class has already selected a particular wetland to adopt, they should inquire about any development issues that may be coming up that could affect this particular parcel. Refer to the sample questions listed below for more interview ideas.

Sample Interview Questions

1. What kind of wetlands do we have in this town/city? Are they small and isolated or large wetland systems?
2. Are these places fun to visit?
3. What kinds of wildlife live there?
4. What is the general condition of our wetlands? Are they healthy or polluted?
5. What are the local laws, if any, that protect wetlands? What activities are permitted; which are prohibited?
6. Are there exceptions to the laws? Can people "get around" the rules?
7. What could our city or town be doing better to protect wetlands?
8. What is the biggest problem(s) affecting our wetlands, in your opinion?
9. How did you become involved in local government? What is your background?
10. Do you think we should be protecting all of our wetlands or only some of them?
11. Is there anything we can do to protect our community's wetlands?

Use the following sample questions to design an interview that involves older students.

Does Your Community Have:

1. Floodplain zoning?
2. A local wetlands bylaw?
3. Cluster zoning provisions (where houses are sited close together and land is saved for open space)?
4. Zoning which prohibits industrial uses, landfills, and hazardous waste sites next to wetlands or other water bodies?
5. Health codes (Board of Health regulations) that regulate placement of underground storage tanks and/or hazardous materials?
6. Board of Health regulations that regulate the placement of septic tanks by providing a specified distance from:
 - wells and reservoirs?
 - rivers?
 - the water table?
7. Maps of rivers and surrounding lands and related wetlands?
8. A land acquisition program to purchase or protect wetlands or other water bodies?
9. Coordination with state agencies or private land trusts to purchase open spaces, particularly wetlands, and along other water bodies?
10. An approved open space plan which includes recommendations for wetland and water resource protection?
11. A program by the Board of Assessors to give tax breaks to those who have conserved land by placing permanent Conservation Restrictions on the land?
12. A reduced road salt program?
13. Addressed any particular concerns relevant to specific wetlands or other water bodies? If so, what have they done?
14. An official water conservation program explaining the importance of reducing water use to:
 - reduce the need for additional water sources?
 - reduce wastewater?
15. A program to actively encourage industry and business to conserve and recycle water?

Scoring

(count each **yes** as 5 points)

55 – 75	good
35 – 55	improving
25 – 35	fair
under 25	needs more protection

Adapted with permission from the Riverways
Adopt-A-Stream program materials, Massachusetts
Department of Fisheries, Wildlife and
Environmental Law Enforcement.

Introductory Wetlands Questionnaire

1. What is a wetland? _____

2. Have you ever explored a wetland? _____

Would you like to? _____

3. Where would you go to find one in your neighborhood? _____

4. What would you expect to find there? _____

5. What is “good” about wetlands? _____

6. What is “bad” about wetlands? _____

7. Are wetlands important for any reason? _____

For animals? _____

For people? _____
