



## **Topsham Natural Areas Plan**

## **Acknowledgements**

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The authors and the Committee wish to acknowledge several sources that served as inspiration from which portions of the plan's structure and content were taken - *Beginning with Habitat: An Approach to Conserving Maine's Landscape for Plants, Animals and People* (2003); *Collaborative Land Use Planning in the Mt. Agamenticus Region* (2006); *Readfield Open Space Plan* (2006); *Royal River Region Conservation Plan* (2005); *The Greening of Falmouth* (2005); and *From The River To The Bay: A Parks, Recreation & Open Space Plan For Brunswick, Maine* (2002).

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## ***Executive Summary***

The Town of Topsham formed a Natural Areas Planning Committee (NAPC) in 2006 to engage in a natural resources planning process as recommended by the Town's 2005 Comprehensive Plan. The Comprehensive Plan noted that while Topsham has many important natural resources, an inventory of those resources had never been completed. The Comprehensive Plan recommended the town plan for the protection of important natural resources and create a comprehensive approach to protection efforts. To achieve this, the NAPC gathered and mapped data to create an inventory of natural resources, analyzed the information to assess the functions of the natural resources, and gathered input to discern community values about natural resources and their protection. NAPC also developed a common resource vision with supporting goals, policy recommendations, and management strategies.

The vision for conserving Topsham's natural resources states that Topsham will continue to be a town identified and treasured for its abundance of remarkable natural areas, and the charm and practicality of its built environment. It envisions that rural Topsham will exist much as it exists today – large areas of undeveloped land, low density residential development, and working farms and forests – with most of the important wildlife habitats, wetlands, water bodies and scenic areas in the rural part of town protected and access to them improved.

The inventory of natural resources developed in this plan consists of a series of maps that identify the location, extent and type of known natural resources present. The inventory is organized by functional categories based upon resources being suited to, or performing, similar ecological roles or providing similar utility to the natural and human community. The data collected in the inventory provides the basis for analyzing the relative functional value of the resources in such a way as to illustrate variations in value throughout the town.

The planning process also sought to determine community priorities and values concerning natural resources through a series of public workshops. Participants were asked to take part in a voting exercise to reflect how they value each functional category identified in the natural resources inventory. The Habitat category received the highest percentage of votes with 25% of the total while the Land Productivity category received the second highest percentage of votes with 20% followed by Water Quality (15%) and Recreational (15%). The categories Public Health and Safety, Wetlands, and Community Character each received between 8 – 9% of the total votes. These results, when mapped, show some distinct regions of town that seem to rise above others in importance as natural areas to the town. Notable among them are the areas around the Muddy River, areas throughout the Cathance River Corridor, and land between Bradley Pond and Meadow Road.

The public workshops were also a forum to identify issues and preferences through small group discussions. Among the key themes and messages gathered from those workshops were:

- Avoid rapid change to rural landscape and keep rural landscapes relatively undeveloped.
- Strike a “balance” that recognizes property rights but protects rural landscape.
- Be particular about what the town preserves, and focus on areas of highest value.
- Consider ways to reduce taxes on undeveloped land due to assessments based on the land’s development potential.
- Broad public participation, good communication, and adequate representation of interests, is very important to natural areas planning.

Based on the inventory and the public input, the NAPC identified four focus areas - generalized regions of town that contain significant natural areas that might be appropriate for special consideration, further study, or greater attention when considering town policy toward land conservation and land use - the Ward Road area, the Bradley Pond/ Western Cathance River Corridor, Eastern Cathance River Corridor and the Muddy River area.

The NAPC also looked at current conditions and land use. It found that about 8% of the land cover in Topsham is categorized as “developed,” most of which is in the residential and village districts; another 2% of the town land cover consists of roads; some 82% of the town is characterized as forest, fields or wetland; and another 8% is water. Pre-1950 development was mostly concentrated on small lots in the village, with a small amount of development in the rural parts of town occurring on large lots. In each successive time period, larger proportions of development have occurred further away from the traditional center of town and much of that development occurred on smaller lots in the rural areas indicating increased fragmentation of that land. For the time period 2001 – 2007, the great majority of development occurred in or in very close proximity to those areas identified as having the highest natural resource values. Furthermore, much of the land that is likely available for development, is located in the focus areas.

The NAPC reviewed Topsham’s land use regulations to see how they compare with the goals of this plan. Currently, the Town’s regulations do not have any mechanism designed to direct development away from areas that are considered high value natural resource areas, though state mandated shoreland zoning and wetland regulations provide some protection of portions of high value natural resource areas. The town does have a cluster subdivision provision but there is little incentive for developers to pursue cluster subdivision development. The Subdivision process does not require natural resources inventory or analysis nor does it set out a process for evaluating, prioritizing and protecting the higher value resources. The

zoning ordinance contains language that mandates cluster development where development is proposed on a parcel with 10 or more acres of open field and pasture, but this ordinance provision has never been used. The town also has no institutional land preservation effort or funding.

NAPC created eight guiding principles which are fundamental to the implementation of this plan. The Town should:

1. Support long-term development opportunities consistent with the conservation of the Town's high value natural resources.
2. Support forestry and agriculture as a way to conserve rural land for future generations.
3. Work collaboratively with landowners, conservation groups, state and federal agencies, businesses, and other stakeholder groups to conserve natural resources.
4. Concentrate conservation efforts within the Focus Areas identified in the Natural Areas Plan.
5. Focus conservation efforts on larger blocks of ecologically viable rural land or connecting parcels.
6. Use the Geographic Information System (GIS) model described in this report to help set development and conservation priorities.
7. Continue to use the best scientific information available to identify natural resources of highest value within the Focus Areas.
8. Adjust the boundaries of Focus Areas as necessary as new information becomes available.

## ***Introduction***

### *Why do a Natural Areas Plan?*

In 2006 the Town of Topsham decided to engage in a natural areas planning process as recommended by the town's 2005 Comprehensive Plan. The Comprehensive Plan determined that the rate of residential development is projected to increase, that by 2015 the number of housing units will increase by 17% over current numbers, and that "most of this residential development is projected to occur in more rural areas." The Plan went on to state, "Growth in these more rural areas tends to have a greater impact on important natural resources, affect scenic views, increase traffic on the rural transportation corridors, and could cost more for the Town to serve than development in the village."

The Comprehensive Plan noted that while Topsham has many important natural resources - including high-value wetlands, large undeveloped blocks of land and rare/natural communities - a natural resource inventory has never been completed in Topsham and "development in or around these important natural resources could threaten their health." The Comprehensive Plan recommended the town "plan for the protection of important natural and scenic resources" and create "a more formal and comprehensive approach" to protection efforts including "detailed inventories of the town's important natural and scenic resources."

### *Who developed the Natural Areas Plan?*

In 2006, the Topsham Board of Selectmen approved the formation of a Natural Areas Planning Committee (NAPC). This committee is comprised of eight citizens of the Town and is supported by the Town's Planning department staff and a consulting team hired by the town for this project.

The NAPC garnered public input at numerous meetings to develop a scope of work. Several issues surfaced in this process including concerns over determining the Town of Topsham's shared values in regards to its Natural Areas. As a result the committee made public participation and public input a key component of the planning process and



thus much of this plan is a reflection of the insights and comments of scores of citizens that participated in workshops.

The Natural Areas planning process has three primary objectives: 1) to develop an updated Natural Resource Inventory, 2) to identify and prioritize the functional values associated with the natural resource areas, and 3) to create policies to promote and protect these values.

*How did the Natural Areas planning process work?*

To achieve these objectives, the committee, the staff and the consultants gathered and mapped a broad set of data to create an inventory of many of the town's natural resources. The NAPC then analyzed the information to assess the natural resources based on their function and importance to the ecology and the socio-economic structure of the town. The NAPC held a series of public workshops in 2007 to gather input and to discern community values about natural areas. The information gathered from the public workshops was integrated into the mapping and inventory information to depict the natural resources of the town in a manner that reflected the importance of their functions and their value to members of the community.

Following the inventory and analysis portion of the planning process, the NAPC turned its attention to developing a common resource vision with supporting goals, policy recommendations, and management strategies. In 2008 the NAPC held another public workshop to present the draft vision, goals, and policy recommendations and to gather feedback from the participants. In 2009 the NAPC also met with various Town committees including the TCC, TDI, CPIC, and Planning Board while redrafting the policy recommendations. The NAPC received a great amount of feedback in regards to the policy recommendation section, and regrouped to rewrite this section in its entirety. Following that process the committee incorporated the various feedback and developed the final recommendations included in this plan

## ***Vision & Goals***

The vision for conserving Topsham's natural resources over time was developed to provide a general description of the natural resources of the town, to reflect upon what people value the most about those natural resources, to identify what is perceived to be changing or threatening to what people value, and to envision what the natural areas might be like in a generation or two and how to put measures in place to ensure defined natural areas are consistent with Topsham residents values.. The NAPC began with the text of the 2005 Comprehensive Plan and then crafted a Natural Areas Plan vision based on the information gathered during the inventory and analysis, and reflective of the community values, and key messages gathered during the public workshops.

The goals were developed in a similar fashion building on the vision, but with more attention paid to information gathered about the existing conditions – the quality of the land use policies, the patterns and type of development, the amount of land conservation, and the status of natural resources protection. The goals are a response to identified trends, issues, threats and opportunities. The goals are intended to be general directives – those things this plan should achieve - that lead to specific recommendations and actions. The success of the plan can ultimately be evaluated by determining whether the goals have been met.

## **Vision**

*Topsham will, for generations to come, continue to be a town identified and treasured for its abundance of remarkable natural areas, and the charm and practicality of its built environment. The close proximity of the town center to the rural landscape, and the clear distinction between both realms, will, for most members of the community, continue to define their sense of place and nurture their affection for Topsham.*

*Rural Topsham will exist much as it exists today – large areas of undeveloped land, low density and clustered residential development, and working farms and forests. Most of the important wildlife habitats, wetlands, water bodies and scenic areas in this part of our town will be protected and access to them, especially our town’s many rivers and forests, will be improved. Recreational trail networks will expand and connect town resources and neighborhoods.*

*Preservation of the town’s natural areas, rural landscape and community character will be achieved with much work, collaboration and communication in a dynamic setting. The challenge of planning and policymaking in the context of a growing and transforming community, with citizens of diverse perspectives, interests, and backgrounds, will be acknowledged, discussed and utilized to enhance trust and relationships among town citizens. Conservation efforts will be open, inclusive, informative and fair. Sharing ideas and listening to other views will be integral to the process.*

*Development and implementation of policies and strategies for the conservation of the town’s natural resources and rural landscapes will be based on the best information available, will consider the interrelationship of the town’s natural resources to those of the region, and will always seek to reflect the values of the community.*

*Development will occur in locations, and in forms, that align well with the town’s priorities. Preservation of resources identified as providing valuable habitat and preservation of access to land for recreation will be top priorities. Of particular importance will be the creation and conservation of wildlife corridors between habitat areas and a connected network of trails for recreational purposes. Also of high importance will be maintaining the working farms and forests. Water quality, wetland preservation, community character, and public health and safety will also be considered when developing conservation strategies.*

## **Topsham Natural Areas Plan Goals**

1. Retain and protect the community's rural character & important natural resources by:
  - a. Preserving large blocks of undeveloped land for wildlife habitat, recreational activities and protection of wetlands and water quality;
  - b. Protecting the community's high-value natural resources from development or activities that diminish their natural resource values; and
  - c. Encouraging landowners to maintain working farms and forests and by providing assistance from the community where possible.
2. Preserve the quantity, quality, and diversity of outdoor recreation opportunities by:
  - a. Improving public access to water;
  - b. Providing a network of publicly accessible trails including waterways that serve as floating trails; and
  - c. Providing connections between open space areas.
3. Provide viable wildlife corridors between habitat areas.
4. Institute conservation planning practices and processes that build trust and relationships within the community.
5. Continue to increase the information & knowledge about the natural resources, ecological systems, and uses of land within Topsham and improve the dissemination and availability of that information to its citizens.
6. Endeavor to implement a regional approach to natural areas planning by collaborating with adjoining towns and communities as well as regional public, private and non-profit entities with similar interests.
7. Develop methods to ensure the implementation, use, evaluation and regular update of this plan.

## ***Inventory***

The inventory of natural resources for Topsham consists of a series of maps created from available spatial data. The maps identify the location, extent and type of known natural resources present throughout Topsham. In order to manage and organize this vast body of information, and for analytic purposes discussed later, the various resources were grouped into “functional” categories of resources. These functional categories group resources based upon their being suited to, or performing, similar ecological roles or providing similar utility to the natural and human community.

This plan is based on six functional resource categories: Environmental/ Health & Safety, Habitat, Land Productivity, Recreational, Water Quality, and Wetlands. With the exception of the wetlands category, each of these categories is comprised of two or more mapped resources. Because wetlands perform multiple functions (such as flood management and water quality enhancement) this resource was mapped as a single resource category.

In some instances, mapped resources include land areas adjacent to some other resource because the land is an important contributor to the functions of the adjacent resource. For example, streams are part of the water quality category, but so is some of the land area adjacent to the stream (i.e., the riparian corridor) because the use and the condition of that land influences the water quality of the adjacent primary resource – the stream.

No one single category is been prioritized over another in the inventory. Each are linked and generally described as follows:

1. **Environmental, Health & Safety** resources protect people and property from natural hazards like flooding, water supply contamination, and property loss and include flood prone areas, wellhead protection areas, water supply reservoirs, steep slopes and areas with unsuitable soils for development.
2. **Habitat** resources protect plant and animal habitat and include natural areas, rare & endangered habitats, and larger areas of unfragmented forest land.

3. **Land Productivity** resources provide natural resource-based commodities and include areas such as farms, and timber stands that are actively managed and very often critical to the local and regional economy.
4. **Recreational** resources provide places for outdoor active and passive recreation and include parks, trails, water features, and natural areas used for activities like bird watching, boating, fishing, hiking, hunting, picnicking, riding, skiing, snowmobiling, and swimming
5. **Water Quality** resources provide clean surface and ground water and the land resources necessary for preserving clean water and include streams, ponds, rivers and the adjacent riparian uplands.
6. **Wetlands** provide multiple functions, including wildlife habitat, flood protection, water storage and natural filtration of harmful pollutants and include several classifications of wetlands such as forested, coastal, scrub/shrub and vernal pools.

Table 1 sets out each of the functional categories and the resources which were identified and mapped in association with that category.

**Table 1 – Functional Categories and Resources**

<b>Environmental, Health &amp; Safety</b>	<b>Habitat</b>	<b>Land Productivity</b>	<b>Recreational</b>	<b>Water Quality</b>	<b>Wetlands</b>
<i>Aquifer Recharge</i>	<i>Unfragmented Forested Land</i>	<i>Forest Land</i>	<i>Public water access</i>	<i>Proximity to Streams</i>	
<i>Steep Slopes</i>	<i>Deer Wintering Area<sup>1</sup></i>	<i>Farm Land</i>	<i>Trails</i>	<i>Proximity to Lakes, Ponds, Rivers</i>	
<i>Flood Plains</i>	<i>Waterfowl Habitat</i>	<i>Gravel/ Mining</i>	<i>Proximity to Settled Areas</i>	<i>Highly Erodable Soils</i>	
<i>Wellhead Protection</i>	<i>Rare Animal Location</i>		<i>Adjacency to Publicly Accessible Conserved Land</i>		
	<i>Rare Plant Location</i>				
	<i>Adjacent to Conserved Land</i>				
	<i>Fields</i>				
	<i>Focus Areas</i>				

**Notes:**

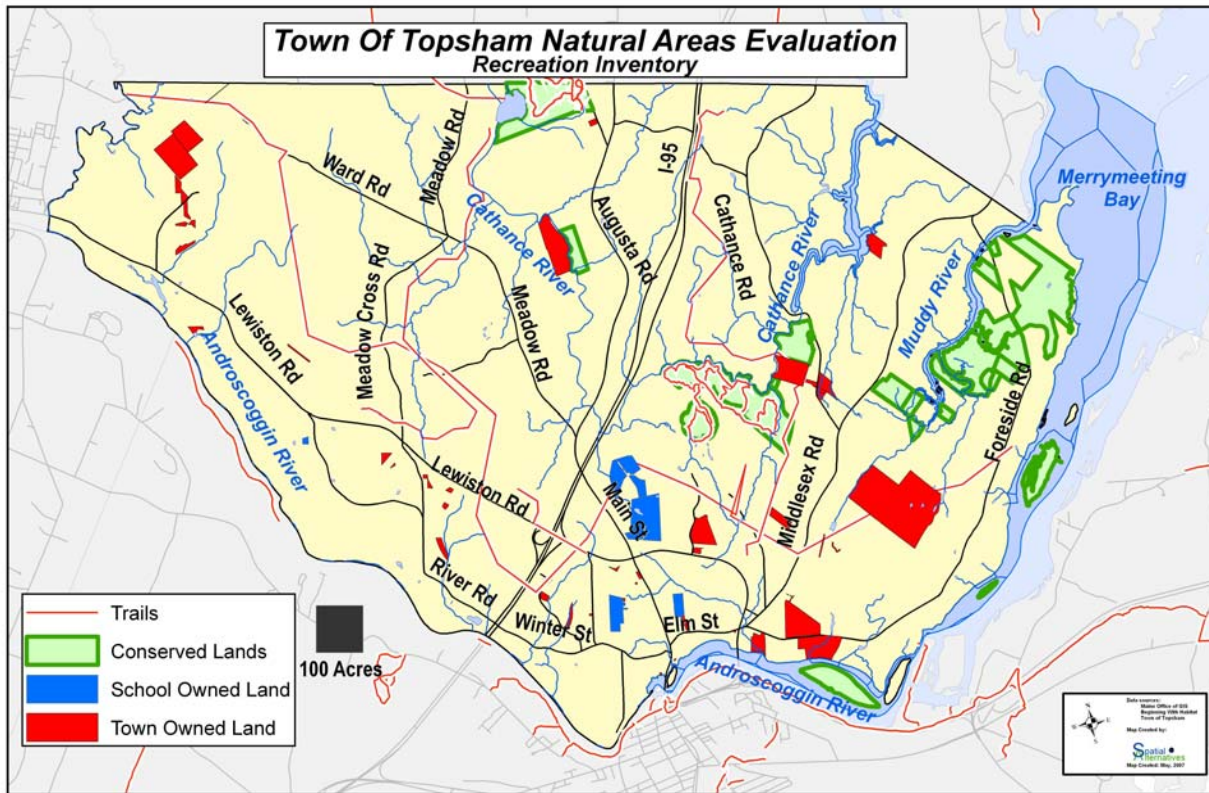
<sup>1</sup> There are no State mapped deer wintering areas in Topsham, however, these areas are known to exist in Topsham. This example points to the need for more detailed local inventory and mapping data for certain natural resources.



## Inventory Maps

The inventory maps were created by synthesizing the best publicly available map data that currently exists for each resource category.

Generally, the data came either from Topsham’s existing data (such as parcel maps) or from the Maine Office of GIS<sup>1</sup>. Where more than one resource exists at the same location, the resources are depicted so as to display each of the multiple “layers” of resources on the map. All maps show rivers, some streams, and major roads to help orient the viewer. Each map also includes a block that is equivalent in area to 100 acres in order to provide a general size scale to the



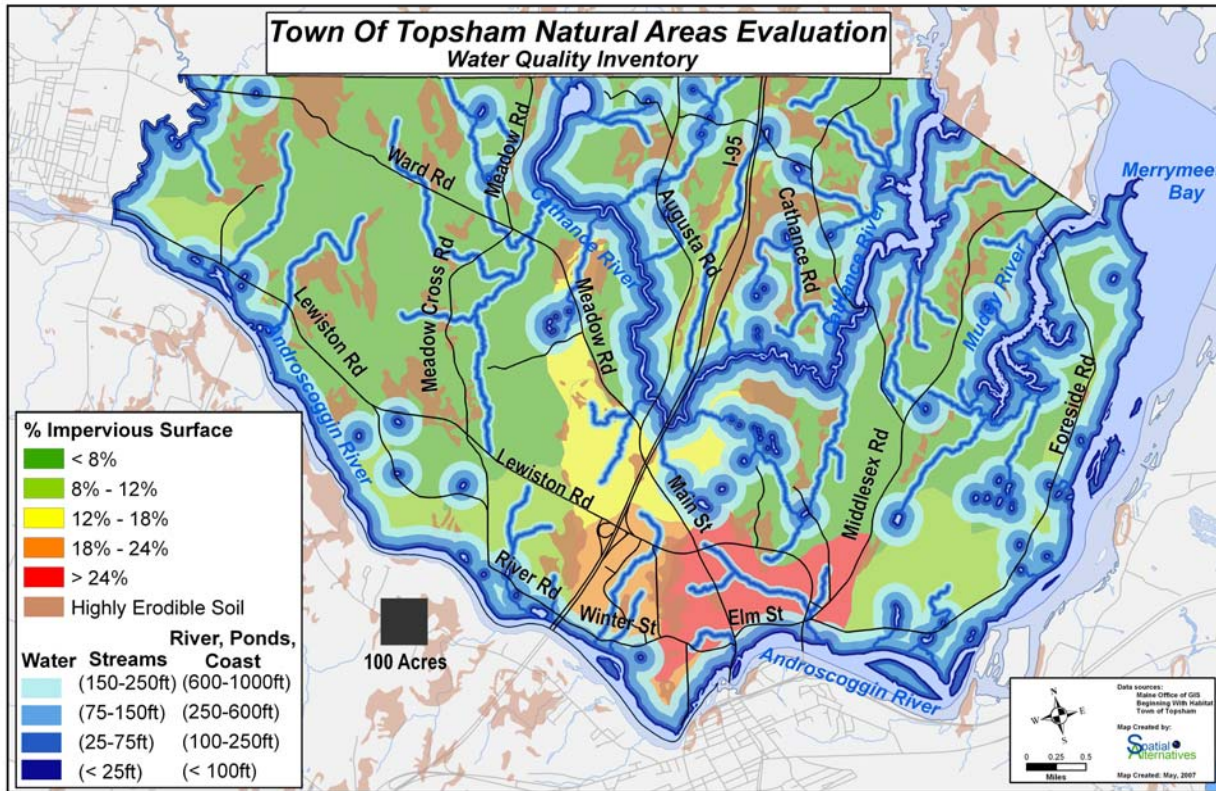
**Map 1, Recreation**

viewer. Finally, each map contains a legend that provides a key to the resources that appear on the maps.

<sup>1</sup> A more detailed description of the source of the data, the proper use of the data, and limitations of the data, is included in the appendix in a document entitled *Description of Topsham Natural Areas Map Data*.

The **recreation** inventory map (Map 1) includes all publicly owned lands within Topsham including school-owned land and conservation land<sup>2</sup> owned by a local, state or federal governmental entity.

The map also depicts the location of some of the public and publicly used trails in town. These do not include all of the recreational trails in town; only those that are generally recognized or accepted as public trails.



**Map 2, Water Quality**

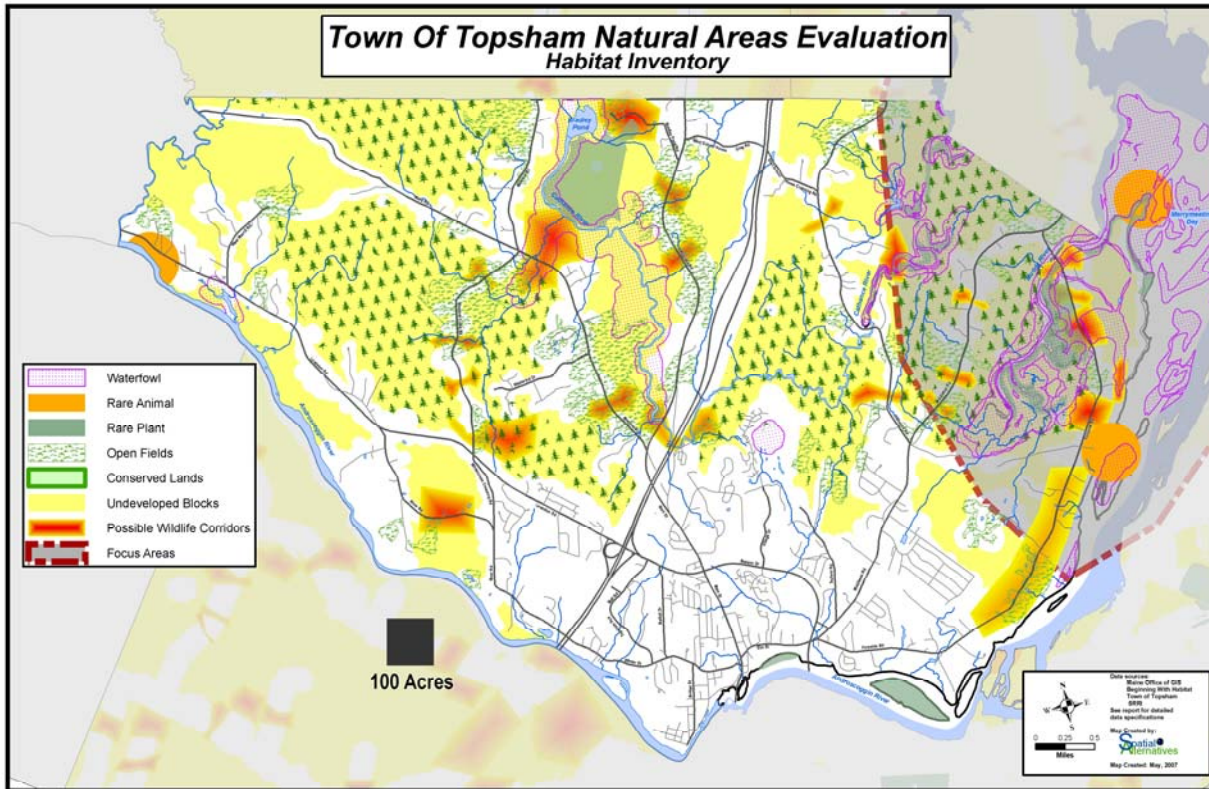
with various buffers from those resources. The map also depicts highly erodable soils – as those are soils most likely to cause water quality impacts through any disturbance associated with development activity. To help

The **water quality** inventory map (Map 2) shows all mapped streams<sup>3</sup>, rivers, ponds, and coastal areas along

<sup>2</sup> Conservation land depicted on this and other maps in this report publicly owned land which includes a conservation easement or other protections from development.

<sup>3</sup> The stream included on this map represent only those previously depicted on original town zoning maps and do not indicate all regulated perennial or intermittent streams in the town.

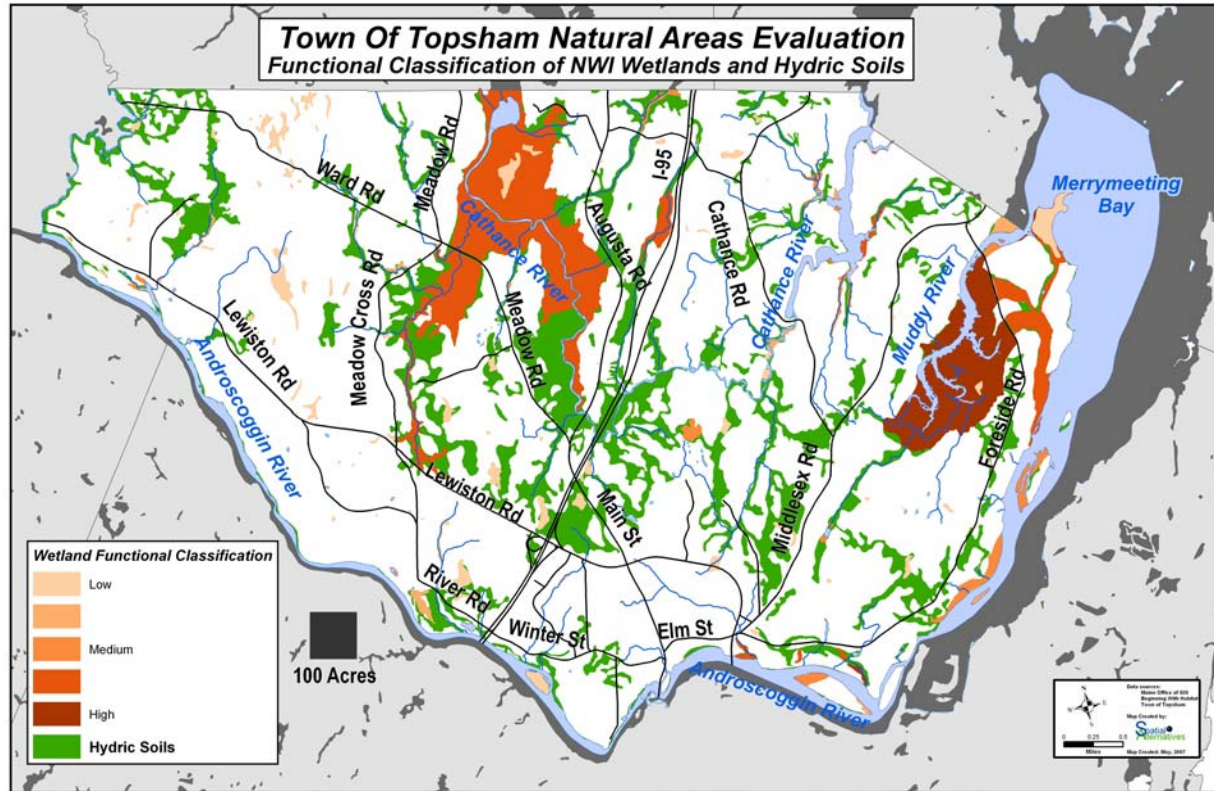
understand which portions of town create the most stormwater runoff, the map also includes impervious surface calculations.



**Map 3, Habitat**

The **habitat** resource inventory map (Map 3) depicts the approximate locations of several types of habitat features. Approximate locations where rare animals or plants have been previously identified, or are known to occur, and locations of state-identified waterfowl habitat are shown on the map. Also depicted are open fields and undeveloped blocks – large contiguous areas of land with little or no development or roads.

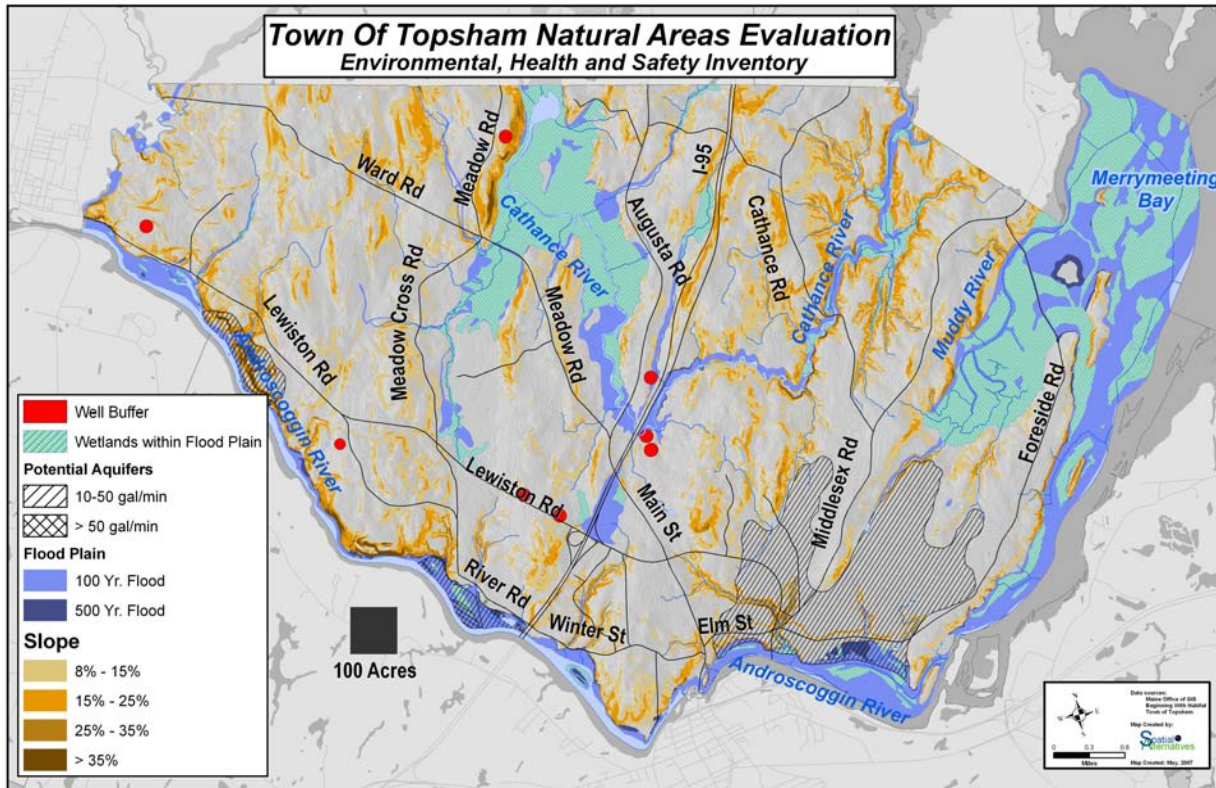
The “potential wildlife corridors” are areas that were determined by the Maine Department of Inland Fisheries and Wildlife to have qualities that would allow animals to readily pass from one habitat area to another. The depicted “focus area” is a federally defined area identified because of its multiple habitat values associated with Merrymeeting Bay, its tributaries, and the adjacent upland. This designation further signifies this as a federally important ecological area, and better positions this focus area for future conservation through federal grants.



Map 4, Wetlands

The **wetlands** inventory map (Map 4) depicts the known state-mapped wetlands in Topsham according to their functional classification based on a system developed by the Maine State Planning Office. Under that system each wetland is rated based on the combinations of ecological functions it serves or the human values it produces. The map also shows hydric soils – soil that formed under conditions of saturation, flooding or

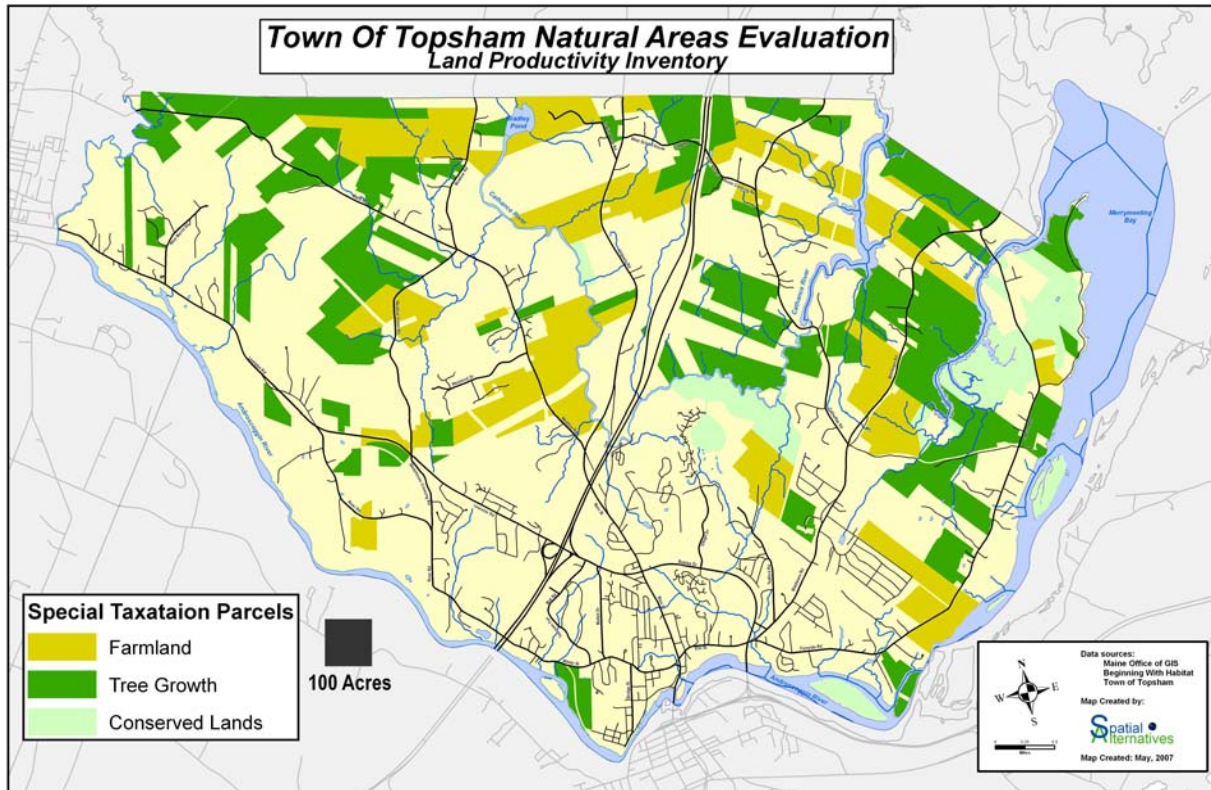
ponding long enough during the growing season to develop anaerobic conditions and which meet many of the characteristics of a wetland.



**Map 5, Environment, Health & Safety**

The **environmental, health and safety** inventory (Map 5) includes locations of well buffers - protection areas for public water supply wells (wells that serve institutions, businesses, etc.) - aquifers categorized by their likely capacity, flood plains categorized by the severity of the storm that would likely cause flooding, and slopes of 8% or greater and which are further categorized by their steepness.

The **land productivity** inventory map (Map 6) shows the location of parcels enrolled in the Farmland taxation program – indicating the land is actively used of agricultural purposes. Also included are parcels enrolled in the Tree Growth taxation program – indicating the land is actively used for silvicultural purposes.



**Map 6, Land Productivity**

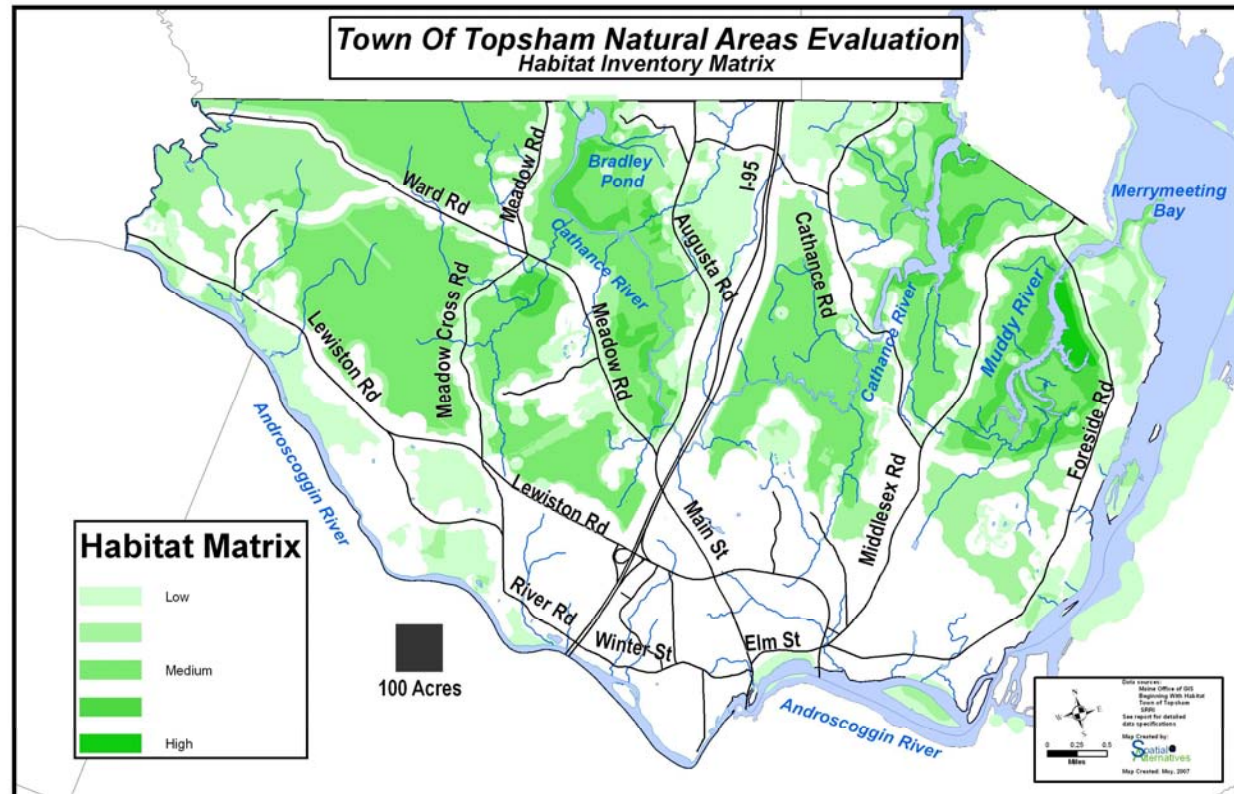
The **special places** inventory (Map 7) is not used in the natural areas analysis described below but is an important component of this plan. It provides an inventory of locations around Topsham that residents have identified in both the comprehensive plan process, and in this natural areas planning process, as sites that hold some special qualities of scenic, cultural or historic importance.



## Analysis

The data collected in the inventory provides the basis for analyzing the relative functional value of the resources and to map those in such a way as to illustrate variations in value throughout the town. To better understand this process, it is useful to consider an example.

The *Habitat Inventory Matrix*<sup>4</sup> map (Map 8) depicts gradations in the total “score” for habitat functions, with the higher scoring areas in darker green, the lower scoring areas in progressively lighter shades of green, and those areas with relatively limited habitat resources identified in the inventory appearing in white.



Map 8, Habitat Matrix

<sup>4</sup> “Matrix” refers to the data compilation format and process that underlies each of these mapping efforts. The data matrix, along with the criteria and scores is included in the appendix to this report.



The map was created by assigning a score on a simple 0-to-4 scale to the resources in the habitat inventory based on certain criteria which indicate functional value. By way of example, one of the habitat resources in the inventory is “undeveloped blocks” – contiguous land over a certain size that is undeveloped. Undeveloped blocks of land provide valuable habitat for a variety of species - generally, the larger the block the more species it is able to support. The criteria used for the analysis was that areas “identified by Maine IF&W as a large undeveloped block of land of 500 acres or more” were assigned a score of 4, areas “identified by Maine IF&W as a large undeveloped block of less than 500 acres but more than 150 acres” were assigned a score of 2, and areas that were not considered to be part of a large undeveloped block of land were assigned a score of 0.

Other resources had different numbers of criteria categories and thus had more variation in the scoring.<sup>5</sup> In each instance, criteria and scores were determined based on existing regulatory framework, scientific understanding of the functional values and some level of committee input.

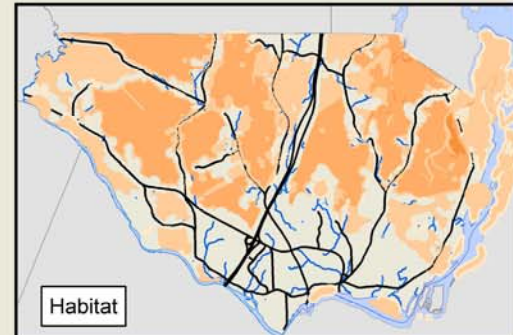
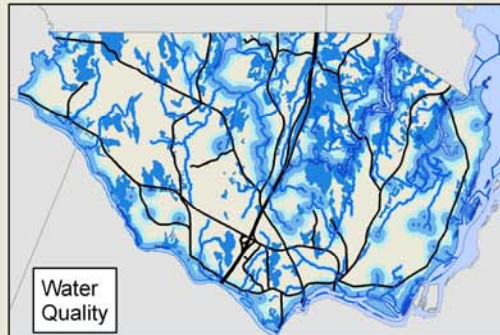
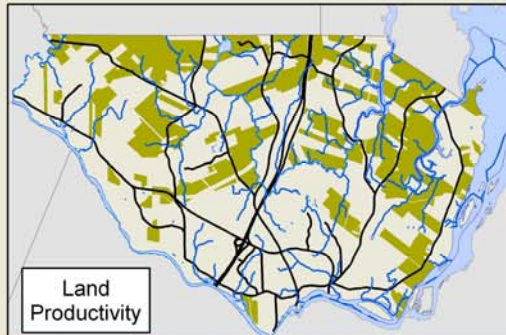
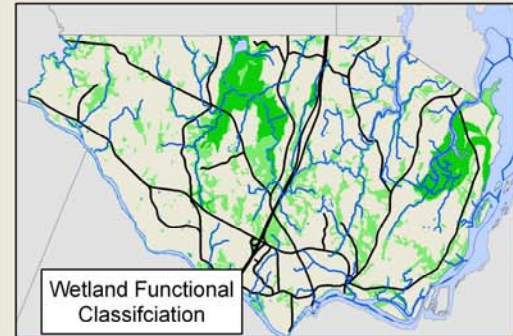
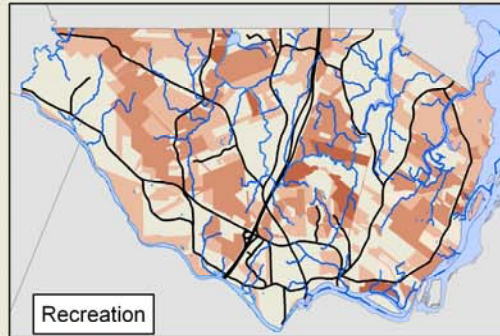
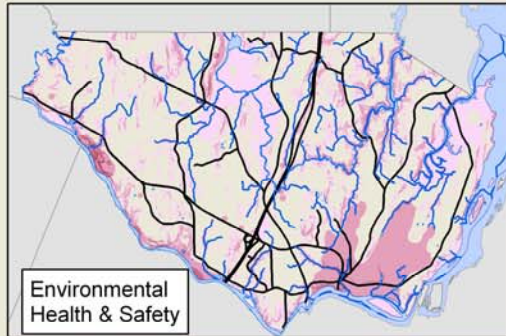
Once the scores were assigned to each criterion, total scores were calculated for each set of the six functional categories of resources by adding all the scores together from any area with overlapping resources. Thus, in the *Habitat Inventory Matrix* map, an area that is identified as a large undeveloped block, and also contains unfragmented forest land and wading and waterfowl habitat, would have the value of each of those criteria added together and would score highly on the map.

This same process was repeated for each inventory category resulting in six composite score maps. These are depicted in the *Matrix Values* map (Map 9).

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<sup>5</sup> For instance, under the water quality inventory, one of the resource criteria was the proximity of land to a stream. Scoring there was divided into 5 categories: 4 = Land is 25 feet or less from a stream; 3 = Land is more than 25 feet and up to 75 feet from a stream; 2 = Land is more than 75 feet and up to 150 feet from a stream; 1 = Land is more than 150 feet and up to 250 feet from a stream; 0 = Land is more than 250 feet from a stream.

### Town Of Topsham Natural Areas Evaluation Matrix Values



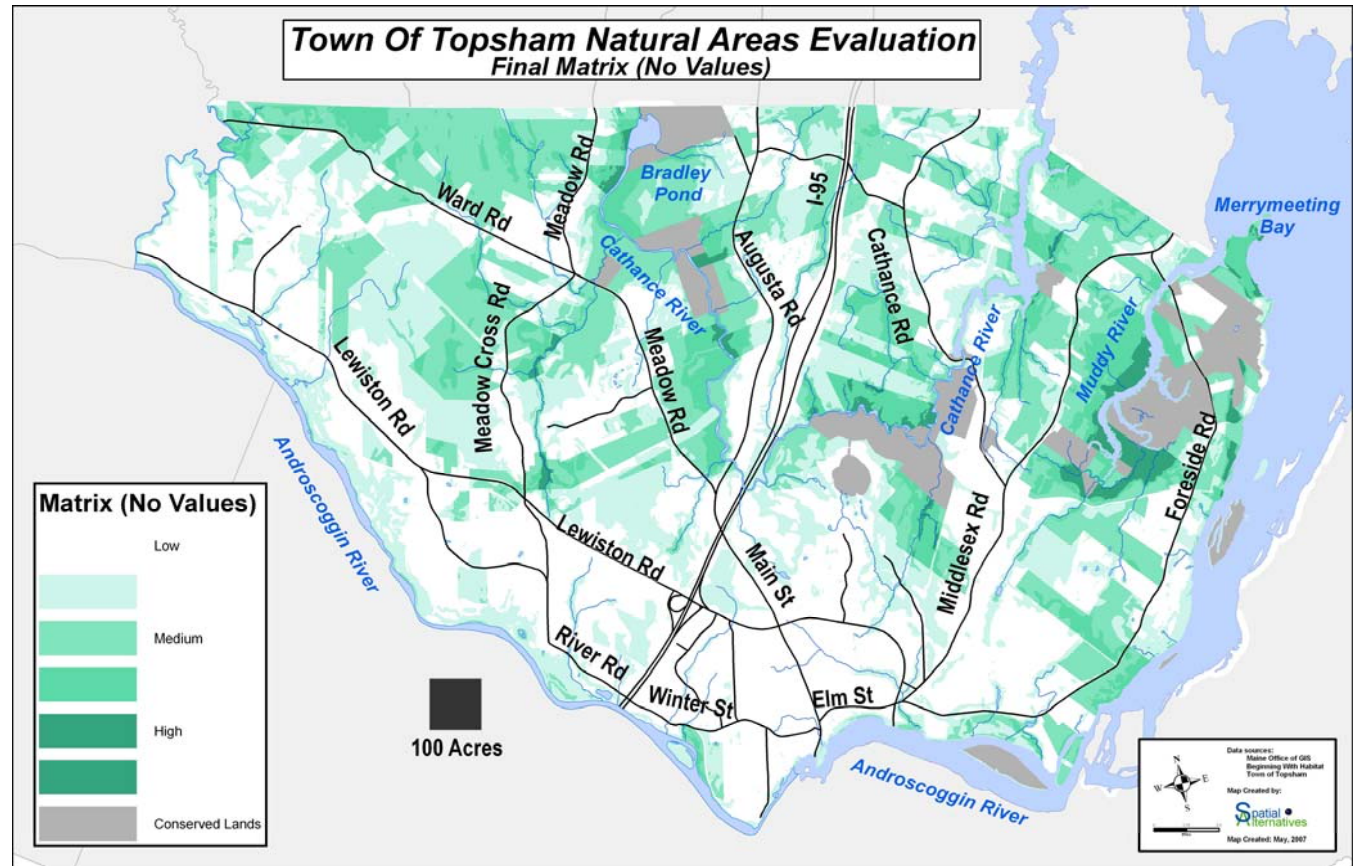
Each component of the inventory was given a "score" (using a matrix) representing its relative value for a given natural resource function. Then all scores occurring within the same area were added together for that resource. All of the scores for each of the inventory maps were then added together for this final matrix map.

Data sources:  
Maine Office of GIS  
Beginning With Habitat  
Town of Topsham

Map Created by:  
**Spatial Alternatives**  
Map Created: May, 2007

Map 9, Matrix Values

Finally, each of these individual analysis maps was combined, in a similar manner, to produce a *Final Matrix* map (Map 10) depicting the range of total scores of all the resource categories. The areas on the map with the lowest total scores appear as the lightest shades and those with the highest scores appear as the darker shades. This map reflects the cumulative scores based on each category of resources being equal – meaning in this map there is no distinction between the relative value to the community of any of the six functional categories of resources.



Map 10, Final Matrix

## **Community Values**

A major component of the planning process was to determine community priorities by understanding how the community values various natural resources. The natural resource scoring that resulted in the *Final Matrix* map does not account for whether the community values one set of open space or natural resource functions over another. For example, is habitat more important than recreation or vice-versa. To discern these community values the NAPC held a series of three public workshops<sup>6</sup>. These sessions included explanations of the inventory and mapping process and discussions about natural resources and community values.

### *Value Voting*

Toward the end of each workshop, the participants were asked to take part in a voting exercise known as “value voting.” In this exercise people were asked to play the role of a citizen that has been appointed to “spend” a set sum of money to protect land containing important natural resources. They were then asked to apportion the money based on how they value each functional category identified in the natural resources inventory.

The votes were collected and tabulated and appear in the following chart (Table 2). The Recreational functional category received the highest percentage of “votes” in the first workshop, with 31%. Habitat received the highest percentage (30%) at the second workshop, and Land Productivity the highest (30%) at the third workshop. Habitat was the second highest at the first and third workshop and the highest when all workshop voting was combined with 25% of the total. Land Productivity received the second highest percentage of votes from all workshops combined with 20% followed by Water Quality (15%) and Recreational (15%). The categories Public Health and Safety, Wetlands, and Community Character each received between 8 – 9% of the total votes.

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<sup>6</sup> The first workshop was targeted toward residents west of Interstate 295, the second toward residents east of Interstate 295, and the third toward landowners with parcels over 10 acres.

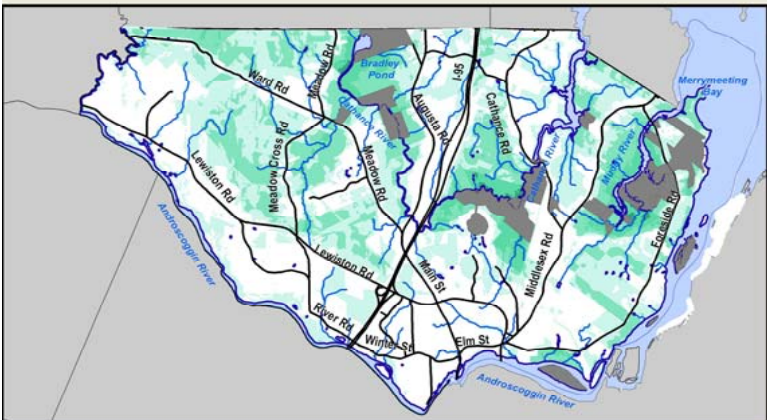
Table 2 Natural Resource Functional Categories Values

	Habitat	Water Quality	Recreational	Land Productivity	Environmental Health, Safety	Wetlands	Community Character	Total
<b>5/29/07</b>								
Vote	58	21	74	13	30	17	27	240
% of Total	24%	9%	31%	5%	13%	7%	11%	100%
<b>6/14/07</b>								
Vote	73	53	16	46	15	26	11	240
% of Total	30%	22%	7%	19%	6%	11%	5%	100%
<b>6/27/07</b>								
Vote	77	51	34	107	21	27	34	351
% of Total	22%	15%	10%	30%	6%	8%	10%	100%
<b>TOTAL</b>								
Vote	208	125	124	166	66	70	72	831
% of Total	25%	15%	15%	20%	8%	8%	9%	100%

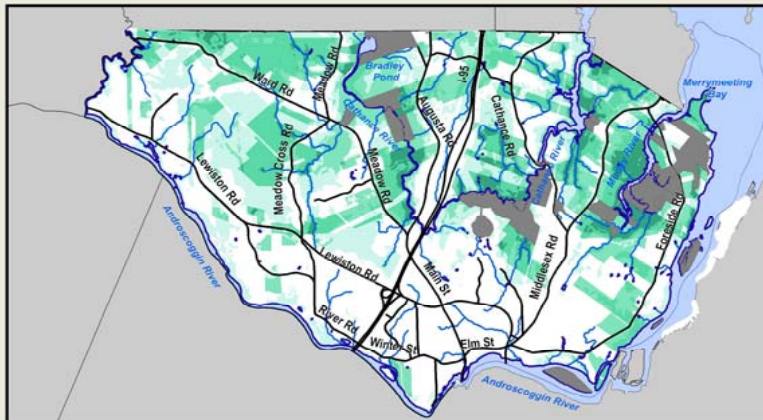
By providing a sense of community priorities for each functional category of natural resources, the results allow for mapping of the town's natural resources based on the inventory data and the values of the community. This value based mapping appears on a series of maps (Map 11) developed by weighting each category by the percentage of the value voting it received at each workshop and then by the total of all workshop. As before, the areas on the map with the lowest total scores appear as the lightest shades and those with the highest scores appear as the darker shades. The maps also show land that is already conserved in some manner in red.

The maps reflect noticeable geographic variations based on the voting from one workshop to another. Nevertheless, the final composite map – *Matrix Analysis with Community Values* (Map 12) – has some distinct regions of town that seem to rise above other in importance as natural areas to the town. Notable among them are the areas around the Muddy River, areas around the Cathance River, particularly in close proximity to already conserved land west of Cathance Road and already conserved land between Bradley Pond and Meadow Road, and to a lesser extent, land north and south of the Ward Road in the northwest corner of Topsham

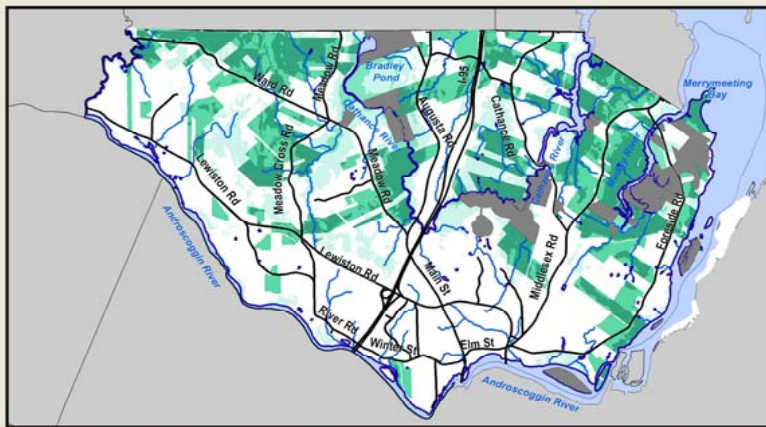
Analysis with Value Voting from Meeting 1



Analysis with Value Voting from Meeting 2





Analysis with Value Voting from Meeting 3



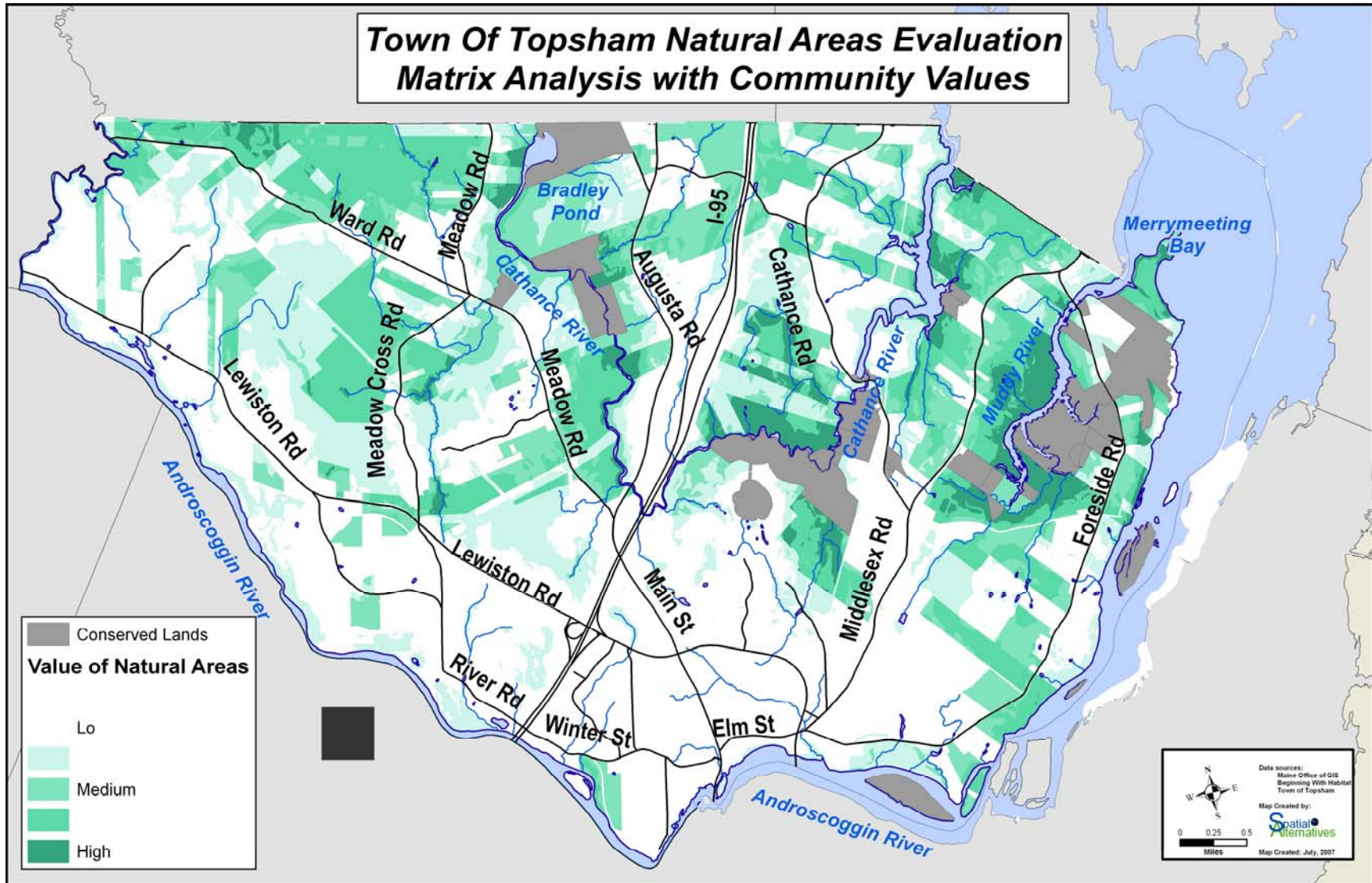
**Town Of Topsham  
Natural Areas Evaluation**

**Legend**

- Conserved Lands
- Natural Areas Values Analysis**
- Lo
- Medium
- High


  
 Data sources:  
 Maine Office of GIS  
 Beginning With Habitat  
 Town of Topsham  
 Map Created by:  
  
 Map Created: May, 2007

Map 11, Value Voting Analysis Maps



Small Group Discussions



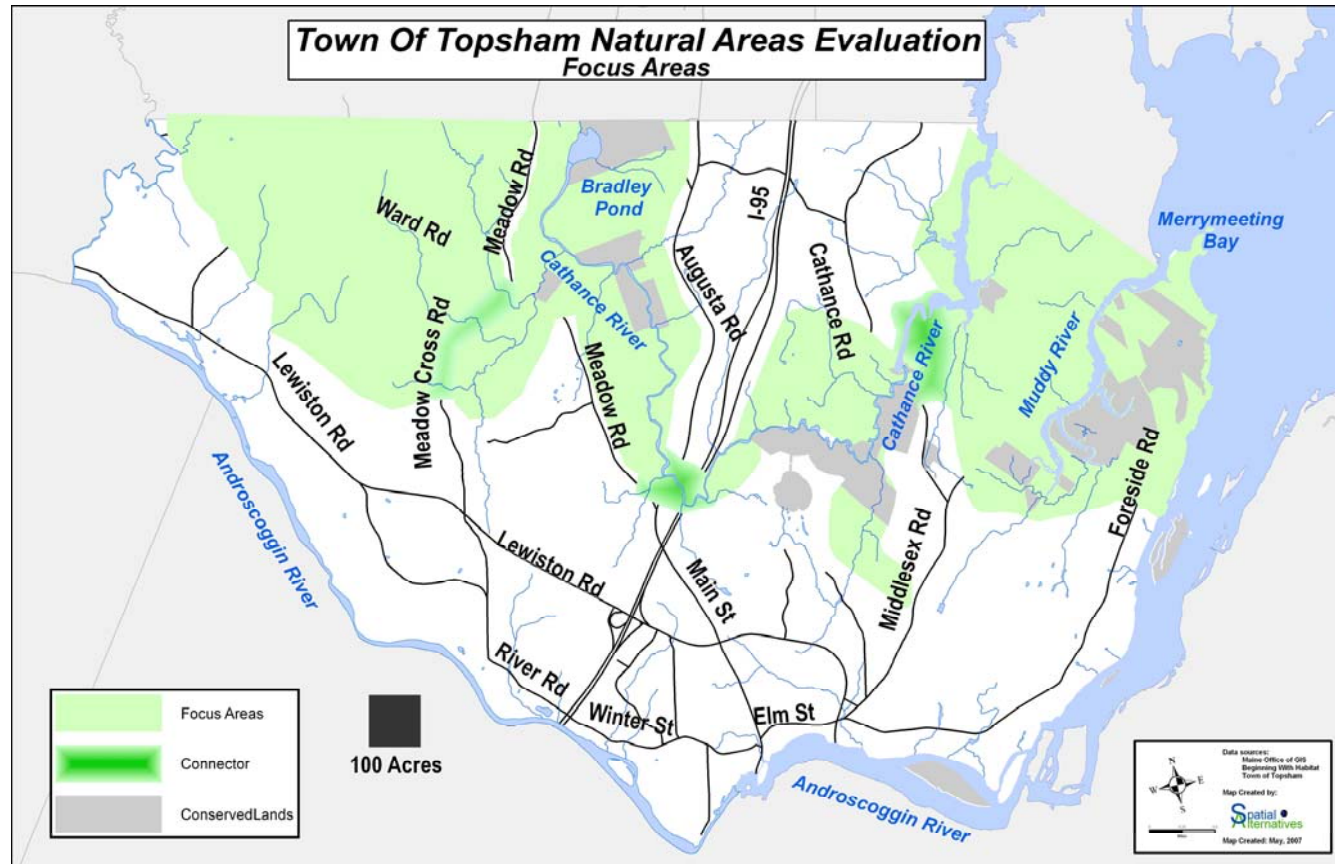
The other major exercise of the public workshops designed to determine community values was small group discussions. The groups were asked to discuss five topics concerning natural resource planning. The essence of each group's discussion – the thoughts, concerns, issues, preferences and other key statements - were captured by a person recording summaries of statements on flip charts and were used to identify issues and preferences. The following is a **Summary of Key Themes & Messages** gathered from those workshops:

- Avoid rapid change to rural landscape and keep rural landscape relatively undeveloped.
- Strike a “balance” that recognizes property rights but protects rural landscape.
- Be choosy about what the town preserves, and focus on areas of highest value – as determined by a broad group of citizens.
- Ensure that the long-time owners of rural land are treated fairly in terms of limiting or reducing the burden of owning that land (taxes, liability, nuisances, etc.) and ensure that those landowners have a way to earn a reasonable return on their land.
- Avoid placing further land use restrictions on landowners.
- Develop processes, forums and systems of communications to address the perceived divide between those living in the rural parts of town and those living in the “in-town” locales.
- Identify and recognize the forces at work which are beyond the control of the town or its citizens (such as federal and state regulations or national and global economic trends).
- Consider ways to reduce taxes on undeveloped land rather than base assessments on the land's full development potential.

- Though part of what makes Topsham desirable are the views and the character within the town, any consideration of preservation based on scenic resources or rural character should be approached very carefully and in a non-regulatory fashion due to the “subjective” nature of such policy.
- Broad public participation, good communication, and adequate representation of interests, is very important to natural areas planning, and specifically when developing policies for the protection of the natural areas and rural landscape.
- All three general conservation strategies (acquisition, regulation, incentives) should be legitimately considered but great caution should be exercised when considering regulation. Incentive based strategies should be generally preferred.
- Explore ways that landowners can receive some compensation for keeping their land open and undeveloped.
- Explore ways that landowners can limit or eliminate personal injury liability when allowing access to their land.
- Plan for additional on-the-ground data gathering especially relating to habitat – identified as the leading value.

## Focus Areas

The GIS allows one to consider the natural areas data in multiple ways. The *Matrix Analysis with Community Values* map depicts land areas by their relative value for achieving natural resource and open space functions in



Map 18, Focus Areas

performed such an analysis and from that developed a *Focus Area* map (Map 13).

combination with the community’s relative valuation of those functions. The resulting map classifies the land by fairly small distinct areas, some of which are contiguous and some which stand apart from others. The appearance is a quilt-like pattern. While this depiction serves a useful purpose, another way to look at and analyze the natural areas is to find groupings or regions that encompass multiple higher value areas in close proximity. The NAPC

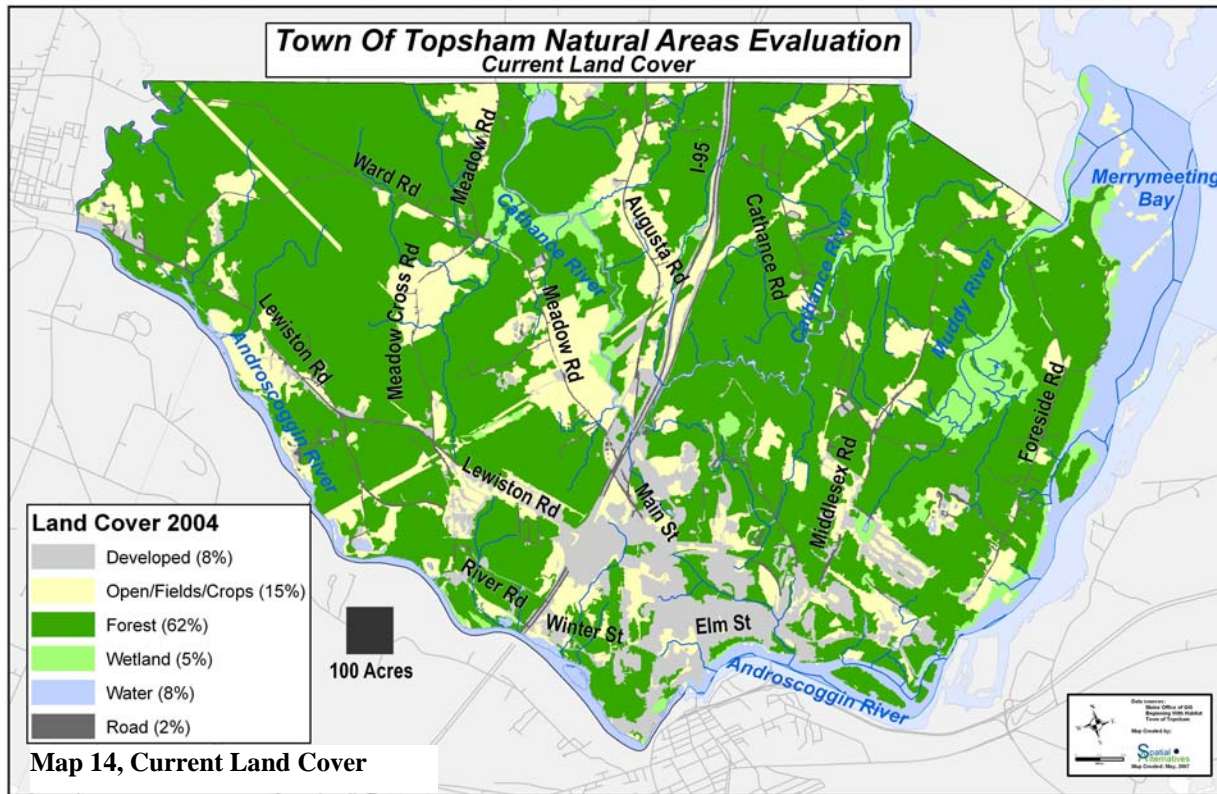
The focus areas are regions of town that contain significant natural areas such that the land within that area might be appropriate for special consideration, further study, or greater attention when considering town policy toward land conservation, land use, and information and outreach efforts. Identification and designation of focus areas is not intended to discount the importance of those areas of high value that are outside of the focus areas.

The committee identified four focus areas, all of which are connected to some extent. Appearing from west to east on Map 13 the focus areas are 1) the Ward Road area, 2) the Bradley Pond/ Western Cathance River Corridor, 3) the Eastern Cathance River Corridor, and 4) the Muddy River area.

**Existing Conditions**

The *Current Land Cover* map (Map 14) was created from satellite imagery that was analyzed in increments of five square meters to categorize that area’s principle land use type. The map shows that about 8% of the land cover in Topsham is categorized as “developed” meaning that more than 21% of the land cover in that area consists of

impervious surfaces such as pavement and buildings. Most of that occurs in the residential and village districts associated with the traditional town center and relatively nearby areas. Another 2% of the town land cover consists of roads. The Land Cover map also shows that some 82% of the town is characterized as forest, fields or wetland and another 8% is water.

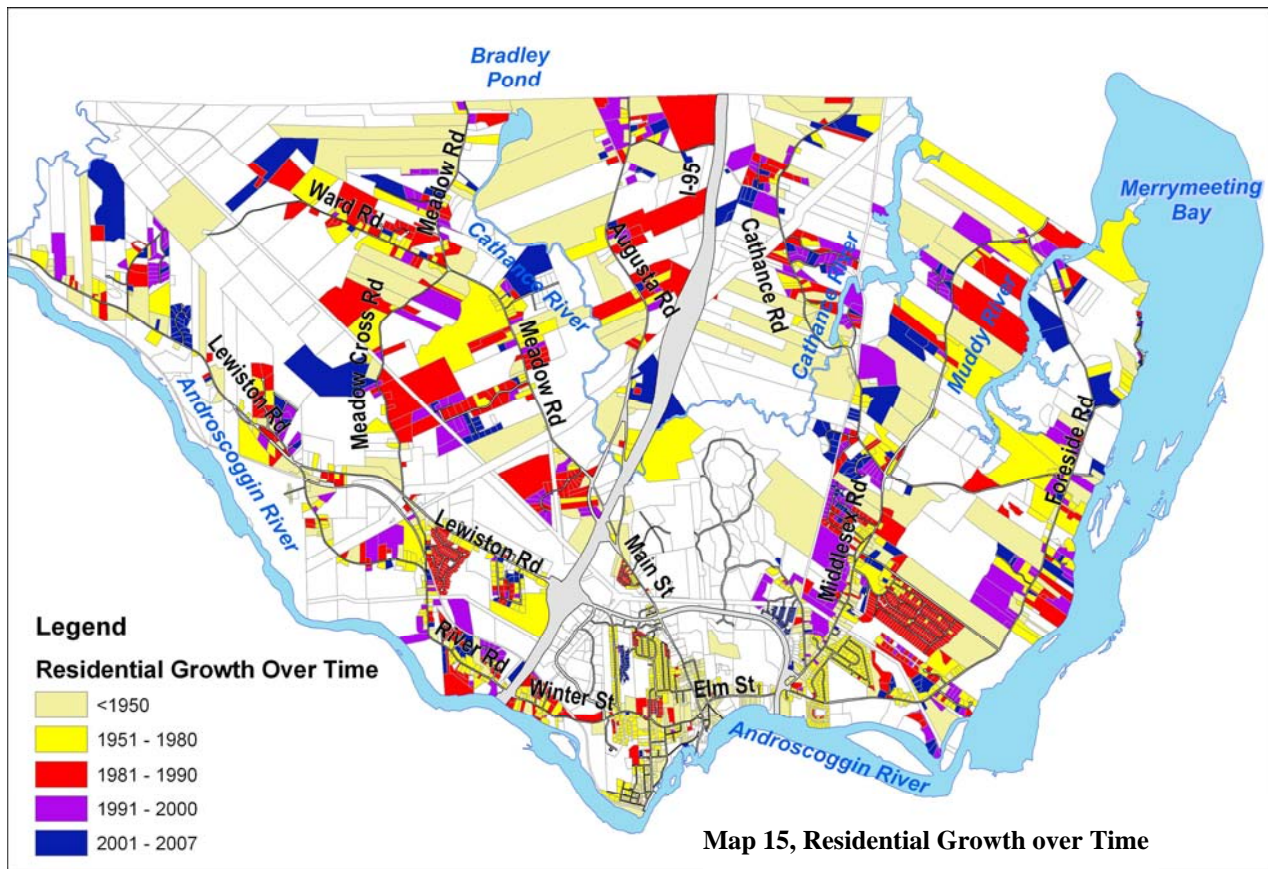


However, the land cover tells only part of the story. The *Residential Growth Over Time* map

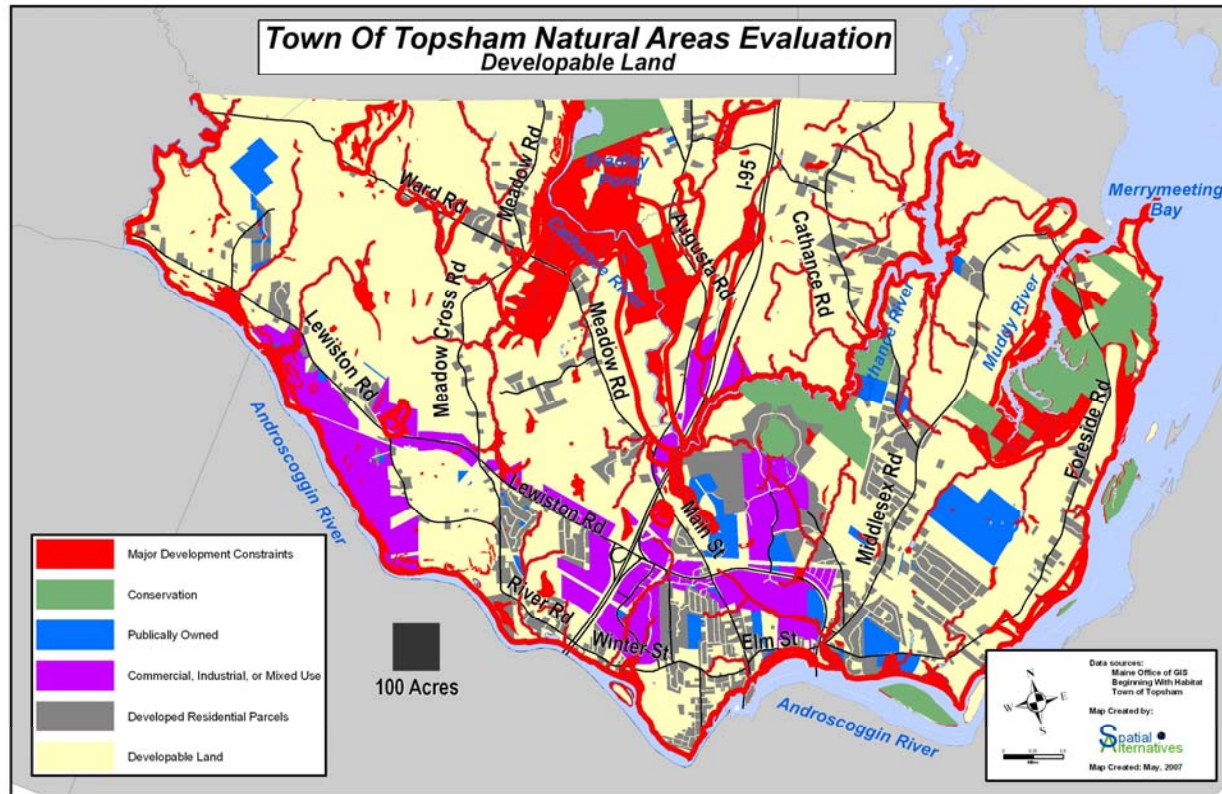
(Map 15) tracks the age of buildings on a given parcel. It shows that pre-1950 development was mostly concentrated on small lots in the village, with a small amount of development in the rural parts of town occurring on large lots. In each successive time period, larger proportions of development have occurred

further away from the traditional center of town and much of that development occurred on smaller lots in the rural areas indicating increased fragmentation of that land.

For the last time period on the map, 2001 – 2007, the great majority of the development occurred in or in very close proximity to those areas identified as having the highest natural resource values.



The *Developable Land* map (Map 16) shows that much of the land that probably remains available for development (because it is not conserved or publicly owned, does not generally have major physical constraints to development, and is not already developed) is located in those broad areas identified as focus areas in map 13. The major development constraints on this map are wetland, flood plains, shoreland zoning, and steep slopes. Viewed in sequence, these maps demonstrate that the land identified as

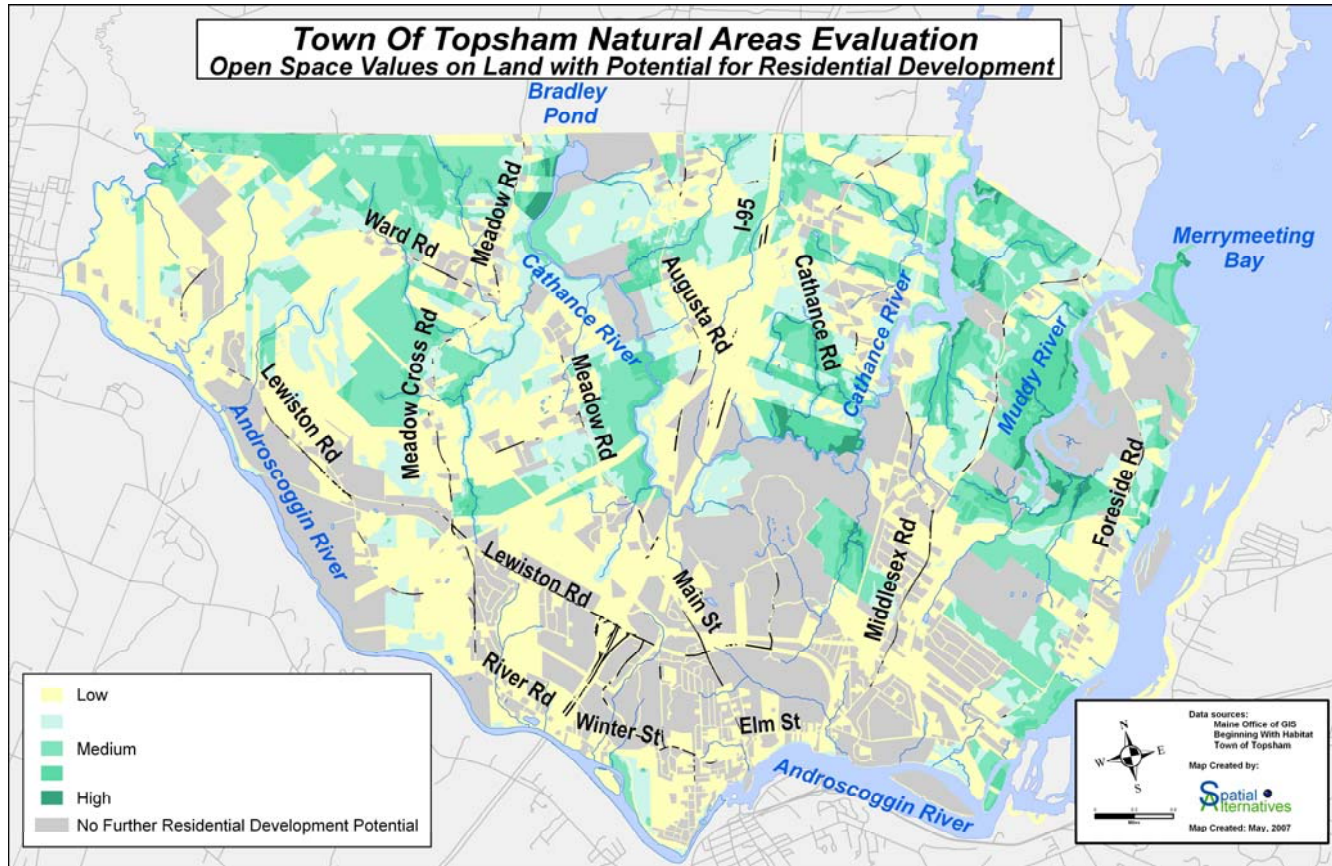


“developable” coincides in large part with those areas that have had most of the recent residential development. But the maps also demonstrate that these same regions of town possess the characteristics, features, and natural resources that are valued in their current undeveloped state and largely make up the focus areas.

**Map 16, Developable Land**

characteristics, features, and natural resources that are valued in their current undeveloped state and largely make up the focus areas.

The map depicting *Open Space Values on Land with Potential for Residential Development* (Map 17), highlights those areas where highly valued natural areas and land available for residential development intersect. Most of the “high” and “very high” valued open space is located in the R3 zoning district. Map 17



shows the open space land values where that land is zoned residential, is not either already conserved or publicly owned, and is not already developed. The depiction of high value open space land does not exclude land that likely has physical constraints to development (wetlands, floodplains and steep slopes).

**Map 17, Open Space Values on Land with Potential for Residential Development**



## **Existing Regulations**

Topsham’s land use regulations do not have any mechanism designed to direct development away from areas that are considered high value natural resource areas. State mandated shoreland zoning and state wetland regulations provide some protection of portions of high value natural resource areas. However, the R3 District contains most of the higher priority natural resource areas and all of the “focus areas” but is zoned for 1 ½ acre minimum lot size and has no requirement for analysis or differentiation, based on the existence of those natural resources, in the development review process. Historically, the town had no institutional land preservation effort or funding, recently the Conservation Commission has developed strategies to address this.

The town does have a cluster subdivision provision but with the relatively small lot size (1 ½ acre) in the R3 District, there is little if any incentive for developers to pursue cluster subdivision development. Moreover “net residential density” calculations (which determine the number of dwelling units a development may be permitted) are not required to deduct “unbuildable” land except when proposing a cluster subdivision. The result is that cluster subdivisions generally would be permitted fewer units than a traditional subdivision thereby creating further disincentive to cluster developments. The cluster subdivision provisions also require open space dedication equal to the amount lots have been reduced below existing minimum lot sizes, are unspecific as to what size lots using on-site septic may be reduced, and require a visual impact assessment. For these reasons, no developer has ever proposed a cluster subdivision in Topsham.

The Subdivision process does not require specific inventory or analysis of the natural resources and features on the development site and does not set out a clear or specific process for evaluating, prioritizing and protecting the higher value resources. Moreover, while the Planning Board has the authority to “vary or modify” all of the subdivision standards, the process does not require any pre-application step in which the applicant and the Planning Board might informally – and prior to any significant investment into engineering and site planning - explore alternatives that could lead to greater natural resource protection.

The zoning ordinance contains language that mandates cluster development where development is proposed on a parcel with 10 or more acres of open field and pasture, but this ordinance provision has never been used.

Subdivision developers are required to dedicate public open space as part of the subdivision based on “the increased demands the proposed development will have on public facilities.” It does not include any provision for assessing open space land for its natural resource values. Often developers make a payment in lieu fee based upon a fixed percentage the pre-subdivision assessed value of the entire parcel.

The town’s Site Plan Performance Standards, which generally apply to commercial and institutional development, requires an applicant to demonstrate that the development will have no adverse impacts on any endangered species, wading bird, or fisheries habitat within 250’ of the development or any deer wintering areas within 1,300’ or any other areas identified in the comp plan as important natural areas.

## ***Natural Areas Conservation Recommendations and Strategies***

The recommendations and strategies were developed first solely as a set of fairly specific strategies designed to achieve the goals of the plan. The NAPC gathered scores of ideas for strategies from the natural resource plans of other towns, from current government publications, from land trust materials, and from a variety of other available sources. The committee then discussed, culled, prioritized, organized and refined the strategies over a series of meetings, settling on 28 potential strategies. Initially the NAPC attempted to organize the universe of potential strategies by matching them to the plan goals, but found that most strategies would help to achieve multiple goals.

Over time, five key recommendations evolved from the committee discussions. Those recommendations then became the organizing structure, under which 28 strategies selected for the plan fit. But more importantly than the organizational structure, the recommendations represent the essential roadmap for the implementation of this plan. While not every strategy listed in the plan may be necessary for successfully achieving the goals of the plan, the five key recommendations are the pillars on which implementation of the plan rest.

### *Public Workshop on Recommendations*

After the NAPC developed the vision, goals, recommendations and strategies, it held a public workshop to inform the town about the content of the plan, to convey the mapping results, and particularly to focus discussions on the proposed recommendations and implementation strategies of the plan. Participants were asked: How they feel about the recommendations and implementation strategies? What they like? What benefits do they see coming from any recommendation? What don't they like? What drawbacks do they see coming from any recommendation?

The group's discussion – the thoughts, concerns, issues, preferences and other key statements – was captured by a person recording summaries of statements on a flip chart and was used to identify issues and preferences. The following is a **Summary of Key Issues** from the workshop:

- I. The inventory, analysis, and the mapping – which describe what natural resources the town has and what functions they serve – provides a good foundation for land conservation and other natural resource protection efforts in town.
  
- II. Organizational capacity and process for carrying this plan forward is essential to the successful implementation of the plan and will require the town to decide on the appropriate organizational structure and to commit appropriate levels of resources.
  
- III. A concern as to whether the plan goes far enough but not too far – does the plan make sufficiently bold recommendations so as to affect some change but also present information and recommendations in such a way that it has a reasonably good chance of adoption?

Following the public workshops to review the NAP recommendations, members of the NAPC attended meetings of the Board of Selectmen, Planning Board, Comprehensive Plan Implementation Committee, Topsham Development Inc, Conservation Commission, Historic District Commission, Tree Committee, and Head of Tide Park Committee. The meetings served three purposes:

1. Provide updates on the status of the NAP and recommendations.
2. Gather input on the recommendations; and
3. Receive endorsements of the NAP.

Where appropriate and feasible, input from these town boards and committees were incorporated into the NAP recommendations.

## **Natural Areas Plan Recommendations**

### **A. Guiding Principles**

1. Support long-term development opportunities consistent with the conservation of the Town's high value natural resources.
2. Support forestry and agriculture as a way to conserve rural land for future generations.
3. Work collaboratively with landowners, conservation groups, state and federal agencies, businesses, and other stakeholder groups to conserve natural resources.
4. Concentrate conservation efforts within the Focus Areas identified in the Natural Areas Plan.
5. Focus conservation efforts on larger blocks of ecologically viable rural land or connecting parcels.
6. Use the Geographic Information System (GIS) model described in this report to help set development and conservation priorities.
7. Continue to use the best scientific information available to identify resources of highest value within the Focus Areas.
8. Adjust the boundaries of Focus Areas as necessary as new information becomes available.

### **B. Setting Priorities for Protection of Natural Resources**

The NAP has used data from a variety of sources to identify Focus Areas. A similar method should be used when evaluating natural resource values on individual parcels. In a method developed by the Conservation Commission, properties are ranked on a scale from very high to low for conservation value based on a number of principal and secondary factors, as shown below. This method should make a good starting point for evaluations performed under the NAP.

### Principal Qualifying Criteria

- Lands located within or adjacent to an identified Focus Area<sup>7</sup>;
- Lands located within or adjacent to identified unfragmented habitat blocks;
- Working farm or forestland;
- High value wetland;
- Permanent stream and/or stream channel;
- Riparian land;
- Wildlife corridor (provides connectivity between high value habitat areas);
- Recreational trail potential and/or connective value supporting outdoor recreation;
- Water access;
- Rare species habitat or state listed natural community;
- Scenic value;
- General outdoor recreational value; and
- Historic or archeological value.

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<sup>7</sup> A Focus Area is defined as focus areas developed in this plan, the federally defined Merrymeeting Bay focus area, and any future identified focus area

Secondary Factors

- Standard measurements of the significance or functional value of the resource (e.g., egg mass counts in vernal pools or the habitat and flood control values of wetlands);
- The number of and quality of natural resources contained within the parcel;
- Parcel size;
- Potential of the parcel to enlarge or improve the conservation quality of a contiguous or adjacent parcel;
- The cost and ease of managing the property for conservation purposes;
- Remediation and monitoring requirements, if any;
- Legal considerations; and
- Threat of resource loss due to development, climate change or other factors.

### **C. Landowner Assistance Program**

The Town should encourage landowners to continue farming, managing their land for wood products, and keeping their land open to the public for traditional outdoor recreation. In order to accomplish these goals, the Town should provide willing landowners with advice and information on earning an economic return from their land in a variety of ways.

The method of providing assistance to Topsham's landowners should depend on each landowner's personal needs and interests. One approach that has been used successfully in the past is to hold a series of workshops on land conservation techniques that are tailored especially for large landowners. The Conservation Commission and Town staff should take the lead in planning these workshops in collaboration with the Town's conservation partners, such as the Brunswick-Topsham Land Trust, the Department of Conservation and the Department of Agriculture.

Landowners who show an interest in one or more of these techniques should also be able to meet individually with representatives of the Town or one of its conservation partners to discuss their options further. The Conservation Commission or Town staff, as appropriate, should maintain contact with the landowner thereafter as necessary to make sure that the landowner's questions are being adequately addressed.

The techniques that should be discussed with landowners should include both traditional and innovative methods of land conservation. The following is a list of the methods that should be included in a robust outreach program:

1. Reducing the cost of agricultural and forestry operations through best management practices, such as soil erosion control and integrated pest management techniques;
2. Reducing property taxes through Maine's current use taxation programs, such as Tree Growth and Farm and Open Space;
3. Increasing revenue through the sale of conservation easements and leases;
4. Raising capital or reducing taxes through the sale or donation of the property or part of the property for conservation purposes;



5. Earning income from state mitigation banks and in-lieu-fee programs (landowners are paid compensation for setting aside land for conservation purposes within a DEP authorized mitigation bank – compensation funds are paid for by developers for impacts caused by their projects elsewhere);
6. Raising capital by subdividing or developing the property in a way that conserves farming, forestry and outdoor recreation opportunities to the greatest extent possible.
7. Providing small business loans to rural businesses such as lumber mills, and agricultural operations to serve multiple purposes, such as land productivity/ conservation, increase tax revenue and local economic development to further a sustainable future.

## **D. Funding NAP Programs**

The Town of Topsham has already begun to pioneer innovative ways to fund the conservation of natural resources with the help of its conservation partners. Some noteworthy examples include Head of Tide Park (short term financing from TDI), the Odell property (a swap of two parcels between the Town and a landowner), and the Roger’s property (a conservation easement placed on town land as mitigation for wetland impacts at Town Hall), among others.

Based on the experience gained from these achievements, there are five main steps the Town can take to strengthen its financial ability to support NAP programs.

### 1. Strengthen Conservation Partnerships

Conservation partnerships provide the advantage of sharing specialized skills, financial knowledge, and resources among a diverse group of organizations. The type of project determines to a large extent the funding source, methods, and which partners are best suited to achieve a particular goal. Topsham’s principal conservation partner is the Brunswick Topsham Land Trust (BTLT), which has been instrumental in conserving natural areas in Topsham for 20 years, but there are many others. These include state and federal agencies as well as a variety of private non-profit organizations. The following partial list of Topsham’s past, present and potential conservation partners suggests the strength and complexity of these relationships.

- Maine Dept. of Conservation (DOC)
- Maine Dept. of Inland Fisheries and Wildlife (IFW);
- U.S. Fish and Wildlife Service (FWS);
- Maine Dept. of Environmental Protection (DEP);
- U.S. Natural Resources Conservation Service (NRCS);
- Maine Dept. of Agriculture (DOA);
- The Towns of Brunswick, Lisbon, Bowdoin and Bowdoinham;
- Brunswick Topsham Land Trust (BTLT);
- Maine Coast Heritage Trust (MCHT);
- The Nature Conservancy (TNC);
- The Trust for Public Land (TPL);
- Maine Farmland Trust;
- Cathance River Education Alliance (CREA);
- Friends of Merrymeeting Bay (FOMB);
- Bowdoin College.

## 2. Provide a Regular Fund Account for Project Planning Expenses

Funds are needed to deal proactively with landowners who wish to participate in a conservation program. Typical upfront expenses include property surveys, appraisals, environmental site assessments, and legal services. These expenses are normally borne by the municipality as a service to the landowner, and often need to be done early in the acquisition process prior to other fund raising activities. A source of funding for these expenses is already available from fees charged in lieu of setting aside recreation and conservation land in new subdivisions. For years, these funds have been deposited in a dedicated account for this purpose, but have never been used.

## 3. Improve Access to Short-Term Financing

Raising the money to purchase an easement or the fee on a property by a conservation partnership often takes one to two years. During this time, the property may have to be purchased with a short-term loan from some source, preferably a regional or national conservation short-term loan fund such as those administered by the Maine Coast

Heritage Trust or the Trust for Public Land. Unfortunately, these funds are not always available. A solution would be to create a permanent source of funds within Topsham for such purchases. The use of TDI Enterprise Funds to acquire Head of Tide Park provides a good example of this approach (see Recommendation 5).

#### 4. Make Funds Available for Matching Grants

Most grants require the Town to pay part of the cost on a conservation project. Some examples of the ways that funds can be raised for this purpose are described below.

- a. If the Town places a conservation easement on a property that the town owns, and the parcel meets the criteria of the granting organization involved, the value of the development rights on that property (usually about 60-80% of total market value) can be credited as the Town's match toward the project. This approach does not require the use of tax revenues. The Conservation Commission has identified a number of publicly owned parcels in Topsham that can potentially be used for this purpose.
- b. The Quality of Life Fund (QOL) that appears annually as a budget item in the Town warrant could include a line item for matching grants on a regular or periodic basis. The QOL Committee is currently rewriting the ordinance that establishes this fund in an attempt to make it more accountable and transparent for this purpose, as well as for establishing money for the long-term management and maintenance of conservation properties and outdoor recreation facilities, such as bike paths, trails, and boat ramps.
- c. The Comprehensive Plan Implementation Committee (CPIC) has developed a Development Transfer Ordinance (DTO) to meet the goals of the Comprehensive Plan for reducing density in the Town's rural areas. This well-thought out proposal can generate significant funds from developers who wish to participate voluntarily in the program (their incentive is higher density in the Town's designated growth area).
- d. The Town's subdivision ordinance allows developers to pay a fee in lieu of setting aside recreation and conservation land in new subdivisions. The money is deposited into a dedicated account for the purchase of property that is useful for outdoor recreation and conservation elsewhere in Topsham. The ordinance has recently been amended to make the fees more substantial.

#### 5. Seek Support from Topsham Development Inc. (TDI) for NAP Programs

The role of TDI in acquiring Head of Tide Park was pivotal. It purchased the property with its own Enterprise Funds when the land was put onto the market, and then held the title for almost two years until BTLT (acting as fiscal agent for the Head of Tide Park Committee) raised the money for take-out financing. This timely intervention on the part of TDI probably made the difference between success and failure on this project. Given that the availability of natural areas and outdoor recreation are an important factor in recruiting a highly skilled labor force and new businesses to the community, TDI may wish to continue supporting projects similar to Head of Tide Park in the future.

With sufficient funding and administrative support available, some of the ways that TDI might support NAP programs include the following:

- Administer a revolving loan fund for short term loans to the Town or other conservation partners;
- Purchase and sell property as part of a conservation project, thus enabling the Town to take advantage of land acquisition projects with a restricted time frame;
- Engage in limited land development as a way to finance some land acquisition projects (a limited land development program pays part of the cost of buying a property for conservation purposes through the sale of a small part of the property for residential or commercial use).

#### 6. Develop a Mitigation Bank

The Maine DEP now allows developers to purchase credits from a state authorized mitigation bank, or, to pay indirectly through the In-Lieu-Fee Program (ILF). A mitigation bank is a property where natural resource areas that are regulated under the state's Natural Resource Protection Act (NRPA) and which are at risk from development are protected or improved as compensation for impacts caused by development elsewhere. Under DEP rules, municipalities and qualified non-profit environmental organizations may operate mitigation banks.

A mitigation bank will normally require a cooperative arrangement between a private landowner and the municipality. The landowner would provide the natural resource area selected for protection and the municipality would oversee the planning, restoration and long-term management of the area as a mitigation bank. Both the landowner and the municipality are compensated for these services through the purchase of mitigation credits or ILF fees. Areas eligible for mitigation banking include wetlands and adjacent upland areas that meet NRPA criteria for wetland habitat, vernal pool habitat, inland and tidal wading bird habitat, and shorebird habitat.

## **E. Trails and Water Access**

Recreational trails have a special role to play in providing opportunities for outdoor recreation in Topsham. Although they occupy very little land and have a very small impact in the landscape when properly managed, they allow the general public access to large areas of rural and semi-wild terrain that would otherwise be very costly to purchase and maintain solely for recreational purposes. The same is true for old road rights-of-ways, boat ramps and other small shoreline properties that allow the public access to water for boating, fishing and other outdoor activities.

Topsham currently has two main trail systems that have emerged over the past fifteen years. One is the network of ATV and snowmobile trails maintained by the Topsham Trail Riders Association. The other is a smaller network of hiking and cross country ski trails maintained on various properties owned by the Town, the Highlands Retirement Community, and the Brunswick Topsham Land Trust. A network of trails along the Androscoggin River and a bikepath paralleling the Route 196 corridor are also being planned. In contrast, public access in Topsham to Merrymeeting Bay and the navigable rivers in the area is not well developed.

Considering the many benefits of recreational trails and public access to water, the Town should:

1. Properly maintain and protect trails and water access areas so that they remain in attractive and safe condition;
2. Protect these facilities from development;

3. Develop new trail connections within Topsham and regionally in collaboration with willing landowners, trail organizations, and adjacent communities;
4. Develop new locations where the public can access Merrymeeting Bay and the Town's other navigable waterways for boating, fishing and other recreational uses;
5. Develop a database for planning purposes that identifies all publicly accessible trails and water access areas, and classifies them according to use;
6. Develop public information on publicly accessible trails and water access areas to encourage public knowledge and stewardship of these facilities; and,
7. Establish an independent standing committee, or, a subcommittee of the Conservation Commission, as appropriate, in order to oversee the implementation of the Town's recreational trail and water access programs.

## **F. Subdivision Review**

New residential subdivisions in Topsham's rural zone typically consume about 3 acres or more of land per lot (as determined by the total area of the subdivision divided by the number of lots). Thus, a relatively small subdivision of only 10 homes often consumes 30 acres or more of rural land. When located in the center of a large habitat block, such a subdivision can split an entire 150 acres of contiguous land into small fragments that may be unusable or severely diminished in value for farming, forestry, outdoor recreation, or wildlife habitat. Paradoxically, these spacious rural subdivisions are popular with many homeowners and developers. Is there a solution to this dilemma?

There may be a way, if we as a community are willing to change the incentives we provide development through our land use ordinances. After much debate and discussion among town boards, committees, developers, landowners and the public, three main strategies have emerged about how we can do this in the R-3 Zone, where most of the Focus Areas are located.

In determining regulatory measures as part of this plan, the NAPC were extremely sensitive to the feedback from large land owners in Topsham. It was widely recognized that the rural landowners in Topsham have acted as impressive land stewards thus far, and Topsham has largely retained much of its rural character, and undeveloped acreage. With this in mind, the committee worked with the Comprehensive Planning Implementation Committee to recommend future subdivision rules that both meet the intent of the 2005 comprehensive plan, while meeting the goals of the NAP.

Exerpt from the 2005 Comprehensive Plan:

*Special Issues to Address* –Topsham should provide a higher level of protection to the character and resources in the rural area while ensuring landowners have enough financial incentives and flexibility to create a more appropriate pattern of development. In an effort to retain the character of rural Topsham, the minimum lot size in the rural designation should be increased from the current R3 zoning density, with financial and market-based incentives to create opportunities for density bonuses for projects that balance development with conservation (for example, open space developments that set aside undeveloped areas contiguous with existing undeveloped land, or for projects that conserve identified significant natural resources).

1. Encourage developers and property owners to consider mapped significant natural resources identified in the NAP in the design of subdivisions. Currently, most subdivisions go through a three step process in Topsham, a sketch plan, a preliminary plan, and a formal final plan application. However, even though this is common practice, there is no provision in the current ordinance for the sketch plan. The NAPC recommends that a sketch plan phase be placed into any future subdivision amendments. There is no application fee for this stage, and it provides the applicant, Planning Board, and public guidance in a crucial phase of the planning process.

Amend the submission requirements for a preliminary subdivision plan in Chapter 191 to require an applicant to provide:

1. Information on significant natural resources on the site as identified in the NAP (such as wetlands, vernal pools, floodplains, and significant wildlife habitat); again, currently this is common practice for all subdivision applicants to submit this information, but is not implicit in our current ordinance. In

fact, if applicants do not submit this, they often do not receive any preliminary application approval from the Planning Board, and are requested to add this information.

2. The location of Focus Areas on the property identified in the NAP; and,
3. A plan and/or narrative statement demonstrating how the subdivision design will minimize the impact on significant natural resources identified in the NAP, especially in the Focus Areas.

2. Encourage developers and property owners to design subdivisions that maximize the protection of mapped significant natural resources identified in the NAP by increasing the types of subdivisions that can be developed.

The NAPC recommends that the subdivision ordinance be amended to allow three distinct options for landowners/ developers.

The three options include conventional standards found in our current ordinance, an added conservation subdivision ordinance, and a third large lot subdivision ordinance. Each are described in general terms below.

Conventional Subdivision

A conventional rural subdivision is how we divide land into lots for residential/ commercial purposes. It follows strict standards without much flexibility in regards to considering specific site elements of any given piece of land. The intent is to create similar looking subdivisions that have very little creativity in the design and review process. It creates a pattern of land use that disregards many natural elements, erodes the rural character (wildlife, agriculture, and forestry), and places a cost to the landowner/ developer by requiring strict dimensional requirements and road standards. However, it is familiar, and common among suburban developments.

- a. The CPIC, in determining how best to protect natural resources under our current subdivision ordinance, may choose to use net residential density requirements to steer development away from mapped significant resources. In doing this, undevelopable land is identified and subtracted from the overall acreage. That being said we recommend reducing the minimum lot size in the R3 from the current 1.5 acres in order to regain the loss in “buildable” acreage. This meets the intention of our 2005 comprehensive plan by protecting resources in the rural area without creating a perceived “financial penalty” to rural land owners.
- b. Retain the current road standards, frontage requirements, in order to maintain the familiar rural subdivision.



Conservation Subdivision

Conservation subdivisions are characterized by common open space and clustered compact lots. The purpose of a conservation subdivision is to protect farmland and/or natural resources while allowing for the maximum number of residences under current community zoning and subdivision regulations. In some cases a greater density (density bonus) may be offered in the ordinance to encourage this approach to residential development planning.

- c. Eliminate the current cluster provisions in the Subdivision Ordinance that base density on soil drainage, which have the effect of allowing fewer homes and building lots in an open space subdivision than in a conventional subdivision. Replace the cluster provisions found in 225-43 with a conservation subdivision ordinance that allows for better protection of natural resources, while allowing much greater flexibility in design standards and layouts.
- d. Create greater flexibility in road standards and frontage requirements in conservation and large lot subdivisions in order to reduce road length (and cost) and to increase flexibility in siting lots for conservation purposes.
- e. Create a density bonus mechanism for conservation subdivisions based upon percentage and quality of open space provided. Quality on provided open space may be determined by the criteria found in Section B above.

Large Lot Subdivision

Large lot subdivision allows for a very low density development that has far less impact (due to minimal road requirements, and separation of units) on natural resources and rural character. Even though it has less of an impact on common wildlife species and natural resources, there still exists the impact that any land subdivision creates on current agriculture and forestry.

- f. Allow the creation of subdivisions in which the lots are a minimum of 7-10 acres without the requirement to have frontage on a public street. Access through private roads and/or shared driveways would be permitted,

provided that the subdivision is designed so that the layout of the lots and the location of the buildings on the lots minimizes the impact of the development on open space and protects natural resources.

- g. Create greater flexibility in road standards and frontage requirements in conservation and large lot subdivisions in order to reduce road length (and cost) and to increase flexibility in siting lots for conservation purposes.

Charge the CPIC with establishing clear criteria in the subdivision ordinance, that meets the intent of the comprehensive plan, to be used by subdividers and the Planning Board to evaluate what areas are most important to protect in the design of subdivisions, in order to implement the strategies described in Items a through d above in a scientifically sound and practicable manner.

3. Encourage development that could occur in designated rural areas to be transferred to growth areas in accordance with the Comprehensive Plan.

- a. Enact the Development Transfer Ordinance proposals (DTO) developed by the Comprehensive Plan Implementation Committee.

## **G. Research**

Implementing the goals of the NAP requires the best scientific data available on the natural resources within the community. Although a great deal of information was collected and reviewed in the development of this plan, we must continue to seek new data and achieve a better understanding of the ecological functions of the landscape. This new knowledge will enable us to implement the goals of the NAP with greater efficiency, fairness and precision.

### 1. Retain and Improve the Town's Geographic Information Systems Capability

The development of computerized GIS technology has transformed natural resource planning and management since it was first introduced twenty years ago. Not only can more information be gathered, shared and stored, but it can also be used to analyze natural systems like never before. Moreover, the educational value of GIS systems is unparalleled. Consequently, the Town should make a commitment to the retention of its existing GIS capabilities and to expand them as needed in the future. The Planning Office should continue to take the lead in identifying the Town's GIS needs and making sure that GIS products and research remain available for use by Town boards and committees and by the public.

### 2. Continue Data Gathering

A number of research needs were identified during the inventory phase of the NAP, which the Committee has been unable to address at the time.: In order to meet the intent of the 2005 comprehensive plan to conduct a comprehensive natural resource inventory, and to better prioritize conservation planning efforts, the NAPC recommends that the following data be gathered:

- a. Vernal pool survey (two year project currently underway);
- b. Identification of high value forested wetlands (rare plant and wildlife habitat value varies depending on species);
- c. Mapping and evaluation of old field habitat (these habitat types are declining in New England);

- d. Identification and mapping of Deer Wintering Areas; Identification and mapping of areas with especially high scenic quality;
- e. Watershed analysis, to include their geomorphology, stream identification, sources of non-point source pollution, water quality, and land use; and
- f. Study and mapping of wildlife corridors (underway)
- g. Recreational Trail Corridors (underway)
- h. Water access identification (underway)

The Natural Resource Planner, working in coordination with the Conservation Commission, is the appropriate person to initiate funding applications and organization for these surveys. Volunteers from the rest of the community and consultants will usually also be needed.