Town of Bedford Open Space Plan

Prepared For the Bedford Planning Board and Town Council

Prepared by the Bedford Open Space Task Force

Funding and Technical Assistance provided through the CTAP and the Southern New Hampshire Planning Commission

November 2009
Acknowledgements

The Planning Board and Conservation Commission of the Town of Bedford wish to thank the following individuals for volunteering their time and energy to complete this Open Space Plan:

Bedford Open Space Task Force

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Photo: Joppa Hill Farm, Bedford

Bedford Open Space Plan
This Report has been prepared for the Bedford Planning Board and Town Council
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Executive Summary
The Bedford Open Space Plan was developed as a tool for future open space management planning. When the Town of Bedford moves forward to buy, make plans for existing open space within the town, or review parcels for future development, this plan will help determine the best parcels to be used for each situation. It will also act as a way to ensure that the open space within the town will be maintained so that it benefits the high quality of life for all residents.

Section 1, Introduction

Foreword
This Open Space Plan has been prepared by the Town of Bedford’s Open Space Task Force (OSTF) with funding and technical assistance provided through the I-93 Community Technical Assistance Program (CTAP)\(^1\) and the Southern New Hampshire Planning Commission (SNHPC).

While only a draft report at this time, this report should be considered and accepted by the Planning Board and Town Council as the Town of Bedford’s official Open Space Plan. This plan can be adopted as a stand alone document or as part of the Town’s Master Plan.

An Open Space Plan contains policies and actions that will assist the town with future development, while also encouraging town leaders to promote open space protection. The plan is also an inventory of the environmental features in the community, including water, soil, habitat, forests, and a number of other elements. When these elements are layered over each other, the areas with the highest potential for open space protection become apparent. The plan helps identify and prioritize the town’s remaining open space and gives options in protecting these key properties.

Much attention has been given to open space protection in 1990 Bedford Master Plan and has continued to be a major focus since that time. In 1998, Bedford began developing an open space plan and established a committee to identify key land parcels that should be protected in Bedford. This plan is intended to update and supplement this information as the town looks to protect their open space.

The Town of Bedford, Town officials, along with the Planning Board and Conservation Commission and other Boards and Committees, should look to this Open Space Plan to guide future open space planning and protection actions of the Town, particularly as various modes of protection, (voluntary, educational, regulatory or land acquisition) are implemented.

\(^1\) CTAP – The Community Technical Assistance Program (CTAP) is a New Hampshire Department of Transportation (NHDOT) 5 year initiative to assist 26 communities that will be affected by rebuilding and expansion of Interstate 93 by providing technical assistance and access to tools for innovative land-use planning. These 26 communities include Allenstown, Atkinson, Bedford, Bedford, Bow, Candia, Chester, Concord, Danville, Deerfield, Bedford, Dunbarton, Fremont, Goffstown, Hampstead, Hooksett, Hudson, Litchfield, Londonderry, Bedford, Manchester, Pelham, Raymond, Salem, and Sandown. For more details, go to the CTAP website at [www.nhctap.com](http://www.nhctap.com).
In the development of this Open Space Plan, the charge of the OSTF was:

“The Bedford Open Space Task Force shall identify and develop a prioritized list of agricultural, open, and undeveloped land that should be protected from residential, commercial and industrial growth to preserve the Town’s natural and cultural resources and, agricultural character and quality of life. In subsequent efforts, the Task Force shall, in collaboration with other Town Boards, Commissions and staff, undertake other tasks identified in the Bedford Master Plan aimed at implementing the protection of the lands identified”.

By carrying out and implementing this plan, the Town of Bedford will be able to protect the open space and natural resources that the town highly values.

**Background**

This open space plan can be viewed as a guide for the community to recognize the need for preservation of open lands. Open space planning in New Hampshire is an ongoing activity that is conducted mainly through the work of the Conservation Commission and Planning Board. The Bedford Open Space Task Force (OSTF) is an integral part of this open space planning effort.

In preparing this plan, the OSTF met five times during 2009 on the following dates; February 12\textsuperscript{th}, March 11\textsuperscript{th}, March 26\textsuperscript{th}, April 9\textsuperscript{th}, and April 23\textsuperscript{rd}.

The first effort of the OSTF was to identify the natural resources and important natural and cultural features of the town’s landscape and to assign relative values to these various resources through the Delphi Process as explained further in Section 2. Mapping these resources throughout the community provides a delineation of the town’s natural resource network or “green infrastructure”. As key parcels are identified from this network, the OSTF has suggested strategies and priorities to guide Bedford’s future open space protection efforts. The estimated cost associated with protecting these lands is also determined.

This report is organized into the following five sections including this Introduction, Plan Development, Priorities, Financial Planning, and Recommendations. Detailed information on the technical methods is contained in the appendices to this report. The final appendix is the list of parcels that the Town of Bedford should consider protecting. The entire list of parcels that contribute to Bedford’s open space is available in electronic form from the Bedford Planning Department.
Section 2, Plan Development

Step 1
The first step in the development of this Open Space Plan is the identification of “high value” natural resources within the town. The SNHPC staff presented a series of Geographic Information Systems (GIS) maps of various natural and scenic resource data, including hydric soils and wetlands, aquifers, floodplains, prime agricultural soils, steep slopes, forested lands, wildlife habitats, scenic views, ridgelines and hilltops, and unfragmented lands over 50 acres in size. The data source of these maps is located in the Technical Reference, Appendix A. The OSTF then reviewed these maps and selected as shown in Table 1 below the most important natural resources and features within Bedford. These natural resources and features are grouped into the five broad categories as shown in yellow highlight in Table 1.

Table 1, Resource Data and Weighting Scheme

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Round 1</th>
<th>Round 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soil Conditions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Important Forest Soil Group I</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Important Forest Soil Group II</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Local Agricultural Soils</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Prime Agricultural Soils</td>
<td>0.0</td>
<td>6.0</td>
</tr>
<tr>
<td>State Agricultural Soils</td>
<td>0.0</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Soil Condition Total Score</strong></td>
<td>6.7</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Open Space Continuity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfragmented Areas &gt; 50 acres</td>
<td>0.0</td>
<td>20.0</td>
</tr>
<tr>
<td>Unfragmented Areas &gt; 100 acres</td>
<td>0.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Unfragmented Areas &gt; 500 acres</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>NH WAP Highest Ranked Habitats</td>
<td>0.0</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Open Space Continuity Total Score</strong></td>
<td>33.3</td>
<td>30.0</td>
</tr>
<tr>
<td><strong>Water Quality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquifer Transmissivity 0 - 2,000 ft³/day</td>
<td>0.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Aquifer Transmissivity &gt; 2,000 ft³/day</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Wellhead Protection Area</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Named wetlands and perennial streams &amp; 250' connectivity resource area</td>
<td>0.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Unnamed wetlands and intermittent streams &amp; 100' connectivity resource area</td>
<td>0.0</td>
<td>5.0</td>
</tr>
<tr>
<td><strong>Water Quality Total Score</strong></td>
<td>29.2</td>
<td>30.0</td>
</tr>
<tr>
<td><strong>Views / Quality of Life</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scenic Views/Ridgelines &amp; Hilltops</td>
<td>0.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Farms/Open meadows</td>
<td>0.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Heritage Trail</td>
<td>0.0</td>
<td>10.0</td>
</tr>
<tr>
<td><strong>Views / Quality of Life Total Score</strong></td>
<td>26.0</td>
<td>30.0</td>
</tr>
<tr>
<td><strong>Slopes</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slopes &gt; 25%</td>
<td>4.8</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Slopes Total Score</strong></td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

2 High value natural resources are defined by the town as the most important natural features to conserve.
Step 2
The second step was to assign relative weights to the various natural resources to establish their suitability for protection. Weights were assigned through a “Delphi” process during which each individual OSTF member suggested a weighting scheme by dividing 100 points up between each category. The members then compared each of their individual results to the group average, discussed differences and revised their schemes. In the second step of this process the members reached near consensus on how to divide the points within each category. Table 1 shows the relative weight, on a percentage basis, placed on each of the resources.

SNHPC staff then computed resource values across the entire town based on the weighting scheme shown in Table 1. Map 1 is a co-occurrence map that shows where multiple resources occur in the same area. The subsequent maps show, respectively, where areas of productive soils (Map 1A), water quality (Map 1B), forest continuity (Map 1C) and views/quality of life (Map 1D). Each map is graduated by standard deviation to highlight areas of exceptional resource value. These maps provide the basis for all subsequent work by locating, in a spatial context, the highest value natural resource areas and therefore those areas of town most in need of protection.

Step 3
The third step was to define a “green infrastructure”. The OSTF members worked on maps with clear overlays. The members collectively drew out open space corridors that they felt were important for the town to concentrate on protecting. The group then connected these corridors to create one open space corridor. This is the area that, if protected from disturbance, should ensure that the services provided by nature to the town’s residents will continue indefinitely. These services include:

- Maintaining the quality of ground and surface water.
- Improving air quality.
- Providing sufficient habitat for plant and animal species now in Bedford to remain in Bedford, even in the face of a significant disturbance such as fire, flood, or insect infestation.
- Providing connected open space for all Bedford residents to enjoy at a reasonable distance from their homes.
- Creating a pleasant and scenic environment in which to live.
- Creating interconnected green spaces that allow for the movement of wildlife and for allow for trails connecting the various parts of town.

In addition to the previous maps of natural resources, the OSTF consulted one other map. Map 2, called the “gravity model”, and gave extra weight to certain areas of special

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3 Delphi process is a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem. One approach is to have a monitor team design a questionnaire to send to a larger respondent group. The questionnaires are returned and the monitor team summarizes the results and, based upon the results, develops a new questionnaire for the respondent group. The respondent group is given at least one opportunity to reevaluate its original answers based upon examination of the group response. (Linstone and Murray, ed.: The Delphi Method: Techniques and Applications, 2002)
Three key conservation areas (Pulpit Rock, Ash Bog, and Joppa Hill) were identified by the OSTF. The land that was next to these three key conservation areas was given an extra 30% weight. The land that neighbored other conservation lands in town was given an extra 20% weight. The northwest section of town was given an extra 50% weight since it was one of the vast areas of unfragmented open space in town. In defining the green infrastructure (Map 3) the OSTF followed these general guidelines and constraints:

- Include areas of exceptionally high resource value for a particular category.
- Include areas where multiple resource values occur in the same place.
- Give added consideration to lands near existing conservation lands.
- Give added consideration to lands that allow each Bedford resident reasonable access to open space.
- Avoid areas slated for industrial or commercial development, unless they contain exceptionally high quality resources.
- Include at least 25% of the town’s land area to ensure the sustainability of natural processes.
- Do not include over 50% of the town’s land area, to allow for future development.

As defined, the Green Infrastructure in Bedford includes approximately 7754 acres or 36.65% of the Town. This includes a wide diversity of land uses, including vacant properties and already developed or protected lands.

It is extremely important to note that landowners whose land falls within the green infrastructure are free to dispose of their land as they see fit, consistent with applicable laws and regulations. Inclusion of land within the green infrastructure is NOT an indication that the Town of Bedford has any legal interest in the land or has any intention of taking the land for a public purpose.

**Step 4**

In this step the green infrastructure was superimposed over the town’s tax maps to determine which ownerships or parts of ownerships were included in the green infrastructure. The GIS Analyst computed the natural resource value of each parcel or partial parcel lying within the green infrastructure.

From the large set of parcels in the green infrastructure (approximately 2,800 parcels), the GIS Analyst, took out parcels that were already in conservation according GRANIT data. From those remaining parcels, the top 50 parcels of the highest adjusted resource value score were selected for consideration. The OSTF worked their way through the list and determined which parcels should be included or excluded from consideration. Parcels that were dropped from the list included town or state property, conserved or developed land, or undevelopable land (i.e. steep slopes, wetlands, etc.). As the group moved from the top 50 parcels, parcels beyond the first 50 were considered. The OSTF also added parcels, while not initially weighed highly; that they felt should be considered. This

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4 The New Hampshire Geographically Referenced Analysis and Information Transfer System (NH GRANIT) is a cooperative project to create, maintain, and make available a statewide geographic data base serving the information needs of state, regional, and local decision-makers. ([http://www.granit.unh.edu/](http://www.granit.unh.edu/))
included a couple larger parcels of unfragmented open space in the northwest section and a few key farm lands in town.

The OSTF examined each of these undeveloped 45 parcels, shown on Map 4, to determine a protection strategy for each parcel. The strategies were further grouped into “high cost” and “low/no cost” protection strategies. These strategies include:

<table>
<thead>
<tr>
<th>Protection Strategies</th>
<th>Low/No Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase by the town to be held as town-owned conservation.</td>
<td>Protection by regulation, such as state wetland regulations and the shoreline protection act.</td>
</tr>
<tr>
<td>Purchase of a conservation easement by the town over part or all of the property</td>
<td>Establishment of a management agreement that would ensure the land was managed in a way compatible with maintaining the green infrastructure.</td>
</tr>
<tr>
<td>Landowner education by partnering with organizations such as UNH Cooperative Extension and Society for the Protection of NH Forests.</td>
<td></td>
</tr>
</tbody>
</table>
Section 3, Priorities

Introduction
The OSTF was charged to recommend a prioritized list of land to be protected. This list is available at the planning office and is presented in tax map and parcel number order. The relative position of a parcel on this list does not indicate a priority relative to the other parcels on the list. Rather, the list elevates these 45 parcels in priority over the other roughly 2800 parcels in Bedford. The list also separates properties to be protected by high versus low/no-cost strategies.

Criteria
The OSTF believes that every parcel that is recommended is worthy of protection as each is an important link in the green infrastructure that should be protected using appropriate, site specific means. Further, the OSTF believes protection priorities should be based on three broad criteria:

1. The **threshold** criterion of being within the green infrastructure.
2. The **competitive** criterion of cost per resource value, computed at the time a purchase is considered.
3. The **qualitative** set of criteria that include: geography (key links, abutting land); threat of development; ability to get outside money; sales price; possible bargain sale; cost avoidance if no development (self-paying).

The **threshold** criterion acts as a broad filter that identifies both parcels of interest to the town and parcels that are best dedicated to further development. The **competitive** criterion is a strictly computational criterion that assumes that all other factors are equal. The OSTF has recommended this competitive criterion over total parcel resource value, because financial resources are the limiting constraint in executing the open space plan. This criterion promotes the greatest amount of conservation value for the least amount of dollars. Unfortunately, the competitive criterion can only be applied to a specific parcel at a specific sale price. This means that the cost per resource value cannot be used to compare a large number of parcels, such as the 45 parcels recommended for protection. Nonetheless, this criterion can be used to evaluate specific offers from willing sellers of land or conservation easements, and these offers can then be compared to the cost effectiveness of other open space purchases made in the past and adjusted for inflation. The **qualitative** factors provide for the intervention of human judgment on a case-by-case basis. This judgment must be exercised by the Conservation Commission, as they recommend parcels for protection, and the Town Council, as they consider the Conservation Commission’s recommendations. All recommendations are subject to input from the public.

In reality, it is the **qualitative** criteria that will play the most important role, for the simple reason that the town can only acquire interests in open space from willing sellers. At any given point in time the number of willing sellers is likely to be few in number.
Section 4, Financial Planning

Current Situation
Currently, Bedford has 7,547 housing units and 5,094,719 square feet of commercial floor area according to 2005 aerial photography data. Some preliminary projections show that Bedford could potentially be built out within the next 30 years, given the population growth of each year from 1990 to 1999 and the population estimate from 2005 to 2030. What are not accounted for in the build out analysis are fluctuations in the real estate market such as the recent boom and subsequent downturn. Even with the build out analysis, it is difficult to predict the exact time of when Bedford would be considered build-out. Factors such as the rate of inflation and the level of real estate values even ten years into the future would be highly speculative. This makes it difficult to calculate the total cost of the Open Space program.

One solution is to take an adaptive approach to financial planning. The recommendations of this plan represent a “best guess” as to what we need to do in the short term to execute the Open Space Plan. Since our ability to predict costs beyond the near term is very limited, it is recommended that the open space financial plan be reviewed on an annual basis.

Funding
A percentage of the Land Use Change Tax (LUCT) is used to fund conservation funding. The LUCT is a state-mandated tax that is assessed when a property owner takes land that is enrolled in Current Use for uses other than open space, agriculture, or forestry. The owner pays 10% of the fair market value of the land at the time it is removed from Current Use. That income is reserved for the municipality where the land is located. Many communities choose to allocate a certain percentage of that penalty money to fund open space conservation. Currently, Bedford allocates 70% of LUCT to the Conservation Trust Account in Bedford. For the period of fiscal years 2004 through 2008, a total of $775,280 was reserved for this account, which includes $514,633 of a remaining balance that can be applied to conservation projects for an annual average of $155,056 per year (see Table 2). Some communities have taken a step to further fund conservation projects by having a 100% allocation of LUCT to fund conservation efforts (see sidebar on this page for a case study on Sandown).

Case Study: Funding Land Conservation in Sandown

The town of Sandown has allocated 100% of their Land Use Change Tax (LUCT) income into a town conservation fund for the purpose of preserving conservation lands. The Land Use Change Tax is a tax assessed to properties that come out of Current Use. In 2008, Sandown passed a $1 million bond issue to supplement its conservation fund.

The funding was used to purchase the “Minton Property Mill Site”. This 138-acre property has both environmental and historical significance. It also abuts the Town Forest and creates 260 acres of contiguous open space. Work is currently being done to connect the trail system so that the public will be able to enjoy this large tract of forested land.
Case Study: Corneliusen Farm in Derry and the Trust for Public Land

In 2002, the Town of Derry worked with the Trust for Public Land to conserve 130 farmland acres. Eighty-six of these acres were part of the Corneliusen Farm while the remaining 30 acres were adjacent to the farm and owned by the Ferdinando Family. In the first phase of this creative project, the Town purchased the majority of the Corneliusen farm, approximately 76 acres, for just under $784,000. Sources of funding for this purchase included $125,000 from New Hampshire's Land and Community Heritage Investment Program, $100,000 from the federal Land and Water Conservation Fund, $95,000 from the USDA Natural Resource Conservation Service's Farmland Protection Program, $150,000 from the Town of Derry, just under $189,000 from the Derry Conservation Commission's Land Fund, and $125,000 from close to 50 private contributors. adjoining landowners purchased the remainder of the Corneliusen farm, just over 10 acres, for roughly $111,000.

This land is permanently protected from development by restrictions held by the Derry Conservation Commission. In phase two, the town acquired an agricultural preservation easement over 30 acres of land that lie adjacent to the Corneliusen farm and are owned by Philip and Diane Ferdinando, whose family operates J&F Farm. In exchange for this easement, the Town deeded a 38-acre portion of the former Corneliusen farm to the Ferdinando family. Before transferring ownership of this land to the Ferdinando family, the Town placed an agricultural preservation easement over the property. The easement guarantees that the property will never be developed and will continue to be managed as active farmland. By partnering with land owners and land trusts, and securing funding from outside sources, the town was able to not only conserve open space but also protect active farming in town.

<table>
<thead>
<tr>
<th>Year</th>
<th>Conservation Funding (from LUCT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>$67,552</td>
</tr>
<tr>
<td>2005</td>
<td>$54,079</td>
</tr>
<tr>
<td>2006</td>
<td>$11,083</td>
</tr>
<tr>
<td>2007</td>
<td>$106,162</td>
</tr>
<tr>
<td>2008</td>
<td>$21,770</td>
</tr>
<tr>
<td></td>
<td>Remaining Balance</td>
</tr>
<tr>
<td></td>
<td>$260,646</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>$52,129.20</td>
</tr>
<tr>
<td></td>
<td>Average</td>
</tr>
<tr>
<td></td>
<td>$155,056</td>
</tr>
</tbody>
</table>

Table 2, Conservation Trust Account Funding from years 2004 to 2008

It should be also noted that the Town of Bedford paid $3.6 million for protection of 312 acres for the area known as Joppa Hill Farm in 2002. By actively pursuing grant opportunities and partnering with land trust organizations, funds can be further leveraged to acquire more open space (see the Derry case study below). Potential funding sources have been reviewed by the OSTF are listed in Appendix B.
Financial Strategy
By assuming an equal level of effort over the period of open space protection, and since it is not possible to exactly predict how much time is left before the town is essentially built out, the question of how much funding to dedicate on an annual basis is largely a question of risk. The risk is that the point of build out will be reached before the open space plan acquisition effort is complete. At too low a level of annual funding, the town may not be able to protect the parcels recommended for protection in this report, because they will be developed before the town has raised sufficient funds to protect them. At too high a level of annual funding, taxpayers may feel they simply cannot afford to support open space acquisition, even if they support the concept of open space protection.

The solution to this dilemma is to follow the adaptive financial management approach discussed above. The OSTF recommends that the town consider annual funding levels that voters have supported in the past and that the town commits to annual reviews of this level of funding. This will ensure the risk of not completing the planned open space acquisitions does not become too high.

The following tables illustrate three levels of annual funding. The first column is based on the average over the past five years. The second column is based on the highest funding level of the past five years and the last column shows lowest funding level in the past five years. The years to completion is based on if the town acquires parcels at roughly at their current equalized valuation of 97%. Table 3 shows the funding and the years of completion based on the current percentage of the LUCT of 70% of the total. Table 4 shows what the funding and years of completion would look if the 100% allocation was used.

One issue with these assumptions is that it does not consider that costs are likely to rise over time. However, it gives a starting point on how much funding is potentially needed to implement the Open Space Plan if all the parcels were to be purchased. Also, by using bonds to pay for large open space projects such as Joppa Hill, the town can make a significant impact in preserving open space.

<table>
<thead>
<tr>
<th></th>
<th>average</th>
<th>high</th>
<th>low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual LUCT Income</td>
<td>$155,056</td>
<td>$106,162</td>
<td>$21,770</td>
</tr>
<tr>
<td>Years Until Completion</td>
<td>42</td>
<td>31</td>
<td>57</td>
</tr>
</tbody>
</table>

Table 3, Years of Completion to implement the Open Space Plan at three levels of funding based on past funding levels. The current level of 70% of the total LUCT to fund conservation projects was applied.

<table>
<thead>
<tr>
<th></th>
<th>average</th>
<th>high</th>
<th>low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual LUCT Income</td>
<td>$221,509</td>
<td>$138,010</td>
<td>$28,301</td>
</tr>
<tr>
<td>Years Until Completion</td>
<td>29</td>
<td>22</td>
<td>40</td>
</tr>
</tbody>
</table>

Table 4, Years of Completion to implement the Open Space at three levels of funding based on past funding if the town if 100% of the total LUCT was applied to fund conservation projects.
Does Open Space Pay?

A study conducted during the mid 1990s by Philip A. Auger, Extension Educator, Forest Resources, University of New Hampshire Cooperative Extension, looked at the cost of community service for residential, commercial, industrial, and open space land uses within the communities of Stratham, Dover, Fremont, and Deerfield. In each community, residential land use expenditures exceeded revenues by an average of approximately 12 percent. Conversely, for open space land use, revenues exceeded expenditures. The results of this study, published in 1996, still ring true today as evidenced by a similar study for the Town of Brentwood, NH. This small town in southeastern New Hampshire had a population of 3,197 in 2000. Tax revenue generated from residential property in this town fell short of the cost of school and town services by 17 percent, while revenue from open space lands exceeded town service costs by 17 percent.¹

While each town in New Hampshire has a unique blend of land uses, revenues and expenditures, these studies point out some fiscal consistencies that are likely to apply in most circumstances. One of these is that residential land use very often costs communities more than they generate in revenues. Traditional residential housing brings with it a tremendous cost load for community services, roads, landfills and schools. Open space lands contribute to the stability of community tax rates. This has been supported by other well-documented fiscal impact studies in New Hampshire communities, including Milford and Londonderry.

The publication, Managing Growth in NH ², notes that, on average, taxes on the median value home in New Hampshire communities are:

- Higher in more developed towns,
- Higher in towns with more year-round residents, and
- Higher in towns with more buildings (more value of buildings)

Section 5, Recommendations

Summary of Recommendations
The Bedford Open Space Task Force recommends:

1. The green infrastructure identified in this plan should be adopted as the town’s goal for open space preservation.
2. The parcels identified should be pursued for protection using the strategies indicated.
3. The town should work expeditiously and cooperatively with owners of developed parcels within the recommended green infrastructure to ensure their appropriate management.
4. The Town should re-examine the recommendations of this OSTF at no more than three year intervals and review the open space financing plan annually, as part of the Capital Improvement Plan process.

Implementation
There are several approaches to protect open space. Regulatory controls, voluntary options and purchase agreements all need to be examined to find what would be best way for Bedford to protect its’ most highly valued natural resources. By using a variety of these protection methods, Bedford will be able to achieve their conservation goals.

Regulatory Land Protection
One approach to land protection involves the use of zoning or municipal regulations to prohibit unnatural disturbance or total development of each parcel. Regulatory measures are perhaps the most cost-efficient means of land preservation, and if implemented according to the open space priorities of the town, can be extremely effective in curbing sprawl and protecting land. One primary method of regulatory land preservation is Conservation Subdivisions. Additionally other subdivision ordinances may be added to zoning regulations in order to reflect priorities on smaller scales.

Conservation Subdivision
A Conservation Subdivision requirement has the same result as conservation subdivision option but the requirement regulates that qualified development must be in conservation subdivisions. This ordinance would lower the lot size of houses built in new subdivision developments in Bedford. However, it would also significantly increase the amount of conserved open space.

Non Regulatory Strategies
There are other approaches to land protection that does not involve regulation. This includes landowner education, Transfer of Development Rights (TDR) and voluntary land protection.

Landowner Education
By educating landowners about the benefits of open space, the economic implications and potential tax advantages, they are more likely to want to conserve their open space. Therefore, by offering this information and making it readily available can be one of the most effective ways to conserve open space. Establishing a good working relationship
between the landowner and the Conservation Commission is essential step in protecting open space. Much information on open space protection is readily available from such resources as the Society for Protection of New Hampshire Forests (SPNHF) and University of New Hampshire Cooperative Extension.

**Transfer of Development Rights**

Transfer of development rights (TDR) is a market based technique that encourages the voluntary transfer of growth from places where a community would like to see less development (called *sending areas*) to places where a community would like to see more development (called *receiving areas*). The *sending areas* can be environmentally-sensitive properties, open space, agricultural land, wildlife habitat, historic landmarks or any other places that are important to a community. The *receiving areas* should be places that the general public has agreed are appropriate for extra development because they are close to jobs, shopping, schools, transportation and other urban services.

TDR is driven by the profit motive. The *sending area* site owners permanently deed-restrict their properties because the TDR program makes it more profitable for them to sell their unused development rights than develop their land. Developers buy the development rights and use them to increase the density of *receiving area* site projects; they do that because these larger projects are more profitable than the smaller projects allowed when development rights are not transferred. In addition to pleasing both property owners and developers, TDR solves a seemingly intractable dilemma for communities: it gives them away to achieve critical land use goals using little or no public funding\(^5\).

**Voluntary Land Conservation**

A voluntary conservation easement involves the donation or sale of the development rights over the land. The landowner makes the decision that they wish to prohibit development on their land and preserve the natural state. They donate or sell the development rights to the Town or a land trust as the easement holder. The owners continue to use their land and pay property taxes on it. However, some or all of the value of any donation can be deducted from federal income taxes.

**Purchase**

The final method of open space protection is through the purchase of the land or acquisition of development rights to that land. Depending on the needs of the landowner and sources of available funding, land and development rights can be purchased at varying cost to the town.

**Outright Purchase**

The town buys the property at market value from the current landowner. There are no tax benefits or exceptions for either party, and the Town no longer receives taxes on the land. This is the most costly method of land protection but requires no special arrangements with the landowner and leaves future use of the land completely in control of the Town.

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**Bargain Sale**

A bargain sale is an agreement of discounted sale of property to the Town. The landowner agrees to sell his/her land below market value, and the difference between fair market value and the sale price becomes a tax-deductible charitable donation. Bargain sales are also useful for the landowner in minimizing the liability of a long-term capital gains tax associated with selling a large estate. After the sale, the Town retains all rights and responsibilities over the land.

**Conservation Easements**

The Town purchases development rights, which is usually calculated to be the fair market value of the land for development purposes minus the value of the land for open space or agricultural purposes. The Town gains the responsibility of easement stewardship, which means monitoring the land to ensure that the agreements of the easement (generally a lack of development or disturbances) are being followed.
Appendix A

OSTF Technical Supplement

**Step 1: Base Map Production**

A series of 16 datalayers describing natural resource conditions and organized into four thematic groups were considered the base layers for this analysis. If possible, local information from the Bedford GIS was applied in order to secure the highest accuracy. The 16 datalayers (see table below) were identified by the GIS Analyst and the OSTF and were selected due to the relevancy and availability of data. A critical point was the ability to characterize ground features as positively in or out of the mapped data and to identify features that were separate and distinct from each other so as to permit tabulation of the number of co-occurrences between features with minimal double counting.

<table>
<thead>
<tr>
<th>Soil Conditions</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Important Forest Soil Groups I and II</td>
<td>USDA NRCS Soil Survey of Hillsborough County. Downloaded from GRANIT. Query: FORSOILGRP = {IA, IB, IC, IIA or IIB}</td>
</tr>
<tr>
<td>Local Important Agricultural Soils</td>
<td>USDA NRCS Soil Survey of Hillsborough County. Downloaded from GRANIT. Query: FARMCLASS = {Farmland of local importance}</td>
</tr>
<tr>
<td>Prime Important Agricultural Soils</td>
<td>USDA NRCS Soil Survey of Hillsborough County. Downloaded from GRANIT. Query: FARMCLASS = {All areas are prime farmland}</td>
</tr>
<tr>
<td>State Important Agricultural Soils</td>
<td>USDA NRCS Soil Survey of Hillsborough County. Downloaded from GRANIT. Query: FARMCLASS = {Farmland of statewide importance}</td>
</tr>
<tr>
<td>Open Space Continuity</td>
<td></td>
</tr>
<tr>
<td>Unfragmented Forest Areas &gt; 50 Acres</td>
<td>SNHPC CTAP Land Use digitized from 2005 one foot imagery. Data derived from Land Use Category as described below.</td>
</tr>
<tr>
<td>Unfragmented Forest Areas &gt; 100 Acres</td>
<td>SNHPC CTAP Land Use digitized from 2005 one foot imagery. Data derived from Land Use Category as described below.</td>
</tr>
<tr>
<td>Unfragmented Forest Areas &gt; 500 Acres</td>
<td>SNHPC CTAP Land Use digitized from 2005 one foot imagery. Data derived from Land Use Category as described below.</td>
</tr>
<tr>
<td>NH WAP Highest Ranked Habitat</td>
<td>New Hampshire Fish and Game Department, Wildlife Action Plan, Highest Ranked Wildlife Habitat by Ecological Condition. Selection where Value = 1 or Value = 2 (Tier 1 and Tier 2)</td>
</tr>
<tr>
<td>Water Quality</td>
<td></td>
</tr>
<tr>
<td>Aquifer Transmissivity 0 – 2,000 ft³/day</td>
<td>Selection from GRANIT Aquifer Transmissivity dataset where field TMAX &lt; 2000</td>
</tr>
<tr>
<td>Aquifer Transmissivity &gt; 2,000 ft³/day</td>
<td>Selection from GRANIT Aquifer Transmissivity dataset where TMAX &gt; 2000</td>
</tr>
<tr>
<td>250’ Resource Area of named wetlands and perennial streams</td>
<td>250’ Resource Area applied to selection set of named wetlands and streams from NHHD data from GRANIT</td>
</tr>
</tbody>
</table>
Unfragmented Forest Areas were mapped by the GIS Analyst. This was done using 2005 aerial imagery at a 1-ft scale. The land use category was interpreted from this imagery. Land that was categorized as agricultural land, brush or transitional between open and forest, forest land, outdoor recreation, and wetlands were selected. The next step involved a dissolve operation in ArcGIS by where adjacent polygons were merged into larger polygons. A selection of those polygons was done for each of the three forest sizes 50 to 100 acres, 100 to 500 acres and 500+ acres.

**Step 2: Delphi Process**

The Delphi Process represents a consensus building model that was applied to assign value scores to each of the natural resource classes. At the first meeting, following a review of the geography, sources and strengths/weaknesses of each mapped resource, Task Force members were asked to distribute 100 points between each resource type. The distribution represented each individual’s opinion on the types of resources of value to the Town of Bedford. Each individual response was tallied and a group average for each data type was presented to the group. Individuals whose own scores deviated significantly from the mean were offered a chance to describe their reasoning. Following discussion, a second round of scoring, with members reconsidering their initial scoring based on feedback from the group. Individual scores were again tallied and compared to the group mean. When the group felt that there were few significant deviations, it was determined that a consensus had been reached. The mean score for each resource type was considered the “natural resource score”. This score was carried on into each of the remaining steps of the Task Force Analysis.

**Step 3: Gravity Model**

A gravity model analysis was carried out using Spatial Analyst for conservation parcels in the I-93 CTAP region. This analysis was used to identify broad areas that had connective potential between large conservation blocks. The model takes into account parcel/area size and applies a decay model⁶ where geographic points close to the parcel score higher than points distant. The approach is based on work conducted by Pete Ingraham, formerly of the Society for the Protection of New Hampshire Forests and John Vogl, GIS Manager in Londonderry.

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⁶ A mathematically constructed function that expresses the inverse relationship between the quantity of a particular material and the distance from its source.
The first step involved dissolving the conservation parcels layer into areas so that a single polygon represented the entirety (or many tracts) of a single conservation area. This erased interior lot lines and allowed for the totality of a conservation area to be calculated. Major water features, such as the Merrimack River, given their natural connecting role, were considered conservation shapes in this analysis and added into the feature class. The areas were then separated into four layers according to feature weight, as follows: 10.1 to 50 acres: Weight 1, 50.1 to 100 acres: Weight 2, 100.1 to 500 acres: Weight 3, 500.1 + acres: Weight 4. Class separation values were based on a review of natural breaks. Anything smaller than 10 acres and located distant from other parcels was considered too small to be part of the connective tissue of the conservation network as they tended to be isolated lots.

A straight-line distance surface was carried out for each weight layer reaching to the full regional extent of the conservation layer. Following this, the following map algebra statement was applied:

\[ V = m \times \sqrt{D} + w \]

Where,

\[ V \] = model value
\[ m \] = constant (-weight/maximum distance)
\[ D \] = straight line distance
\[ w \] = weight*

*The value “w” added a bonus for large conservation blocks, and was applied as follows: weight 1: 0, weight 2: 5, weight 3: 10, and weight 4: 25.

The four resulting calculation rasters were then added together to create a single, final gravity model map.

**Step 4: 10:10 Analysis**

Open Space Task Force members support the goal of providing 10 acres of open space within a ten-minute walk of all Bedford residents, thereby assuring equal access across town. This principle is referred to as “10:10”. For the GIS analysis, a selection set of conservation areas in total excess of 10 acres was identified. A buffer of ¼ mile (assumed 10 minute walk distance) was carried out. This new polygon represented the accessible areas and those in agreement with the 10:10 principle. The inverse was considered underserved areas.

**Step 5: Transfer of Delphi Scores to GIS Layers and Co-Occurrence Calculation**

Following the Delphi process, each feature in each natural resource polygon layer was coded with its’ appropriate score. Unique field names were added that allowed the 15

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7 Raster data is an abstraction of the real world where spatial data is expressed as a matrix of cells or pixels with spatial position implicit in the ordering of the pixels.
layers to be unioned into one layer that would carry the complete set of attributes. Following the union operation, a total natural resource score was summarized for each feature in the dataset. Maps were generated displaying this total score in both an ordinal range and in standard deviations. Areas with the highest score or the highest standard deviation represented the areas of with the most overlapping resources ad thus the richest resource environments. A second map displaying the “best of the best” was prepared that illustrated the areas of Bedford with the highest total resource score in each of the four thematic groups.

**Step 6: Interpretation of datalayers to generate Green Infrastructure area**

The results of steps 1 through 5 were presented to Task Force members to facilitate a detailed interpretation of the local green infrastructure. A series of maps, including (1) regional context, (2) gravity model results, (3) total resource score, 4) highest scoring specialist resources and (5) 10:10 underserved areas. The members used markers and acetate to review the various layers and synthesize the resources into areas of contiguous green infrastructure. This work was undertaken with the understanding that there needed to be a balance between future conservation areas and future economic development areas. Features such as water bodies, contiguous forest, utility corridors and protected lands served as key connectors. The infrastructure areas were sketched in with an attempt to include both specialist and generalist resources and to provide for town-wide connectivity and town-wide access. Task Force members formed two groups who each created an independent map. Following each group’s completion, the two maps were combined, differences were discussed, and a final sketch representing the group consensus was finalized.

**Step 7: Digitizing Green Infrastructure area**

A refinement of the committee’s work from step 6 was completed using GIS software to map the green infrastructure at a 1:100 scale. The hand drawn delineation was digitized. From this digitization, the delineation was edited to improve accuracy and agreement with shared features using those features’ boundaries and aerial photo interpretation as edge guides. For the most part, the feature edges from the unfragmented forest areas polygons were traced. In this way, the green infrastructure was able to extend as close as possible to the actual edge of use. Where possible, corridors were digitized to be 1,000 feet wide. The final product, a contiguous polygon, represented the green infrastructure and was used to identify the area of interest for conservation protection.

Following completion of the Green Infrastructure layer, the Natural Resource Co-Occurrence layer was clipped to its boundaries.

**Step 8: Parcel-Based Analysis**

A parcel selection was taken from the Town-wide parcel base for those lots intersecting the area of green infrastructure, henceforth “study area parcels”. The next step involved a union operation in ArcInfo to split resource attributes at parcel lines and to permit calculating a summary of resource scores by parcel.
The extent of each natural resource score was normalized by resource acreage, using the formula:

\[
\text{area score} = (\text{natural resource value}) \times (\text{natural resource acreage})
\]

A total areascore for each parcel was obtained through a summary function. This information was transferred to the whole parcel as a unique attribute.

Two bonus values were applied for conservation abutters. Parcels that abutted the Pulpit Rock, Ash Bog, and Joppa Hill, where the gravity model values were strongest, received a bonus of 30% of total resource value. Parcels that abutted other conservation parcels received a slightly lower bonus of 20%. A large unfragmented block (over 500 acres) in the northwest section of town, was given an extra 50% weight. A map depicting the top 50 scoring parcels was produced.

**Step 9: Parcel Selection Refinement**

Following extensive review of the top 50 parcel selection, Task Force members felt that an additional selection process was necessary to identify a larger number of target parcels and to limit the list by removing parcels with pending development proposals or with limited development potential. This set was further culled by removing parcels with any of the following criteria: parcels slated for industrial or commercial development, parcels that would have no development due to natural constraints (wetlands, sleep slopes, etc.), parcels that are town or state property, and parcels that are already conserved or developed.

High priority areas were further identified as low cost or high cost. Low cost parcels were those that had significant development limitations that would effectively hinder development, including wetlands or limited access. All other parcels were considered high cost.

**Step 10: Conclusions**

Following review of the parcel selection refinement in step 9, Task Force members opted to include all of the high and low cost parcels as equal priorities. Information was culled from the GIS to include each parcel’s location, relative natural resource value, priority type, GIS appraisal value and acres. This information was presented in table form to the group.

Additionally, further analysis was presented to establish a marketing case for the program and to illustrate the scope of recommendations. Estimates of the relative percent of open space existing and proposed was calculated, as well as an estimate of the total number of potential housing units was tallied from the GIS appraisal information.
Appendix B

Funding Sources
There are numerous State and Federal grant programs available that can be used to promote open space protection. The status of grant programs is subject to change. However, the following include some current programs that could be used by the Town to further the open space plan goal, objectives and recommendations.

State Programs:

Community Conservation Assistance Program. UNH Cooperative Extension. Assistance for project guidance and training for community projects through municipalities and non-profit conservation groups. Contact Amanda Stone at (603) 364-5324 or amanda.stone@unh.edu

Community Impact and Express Grants Program. The New Hampshire Charitable Foundation. Provides funding to non-profit and public agencies in the fields of environment, arts and humanities, education, and health and social and community services. Contact www.nhcf.org or call (603) 430-9182.

Conservation License Plate Grant Program. NH State Conservation Committee. To promote natural resource related programs throughout NH. Conservation districts, Cooperative Extension, conservation commissions, schools, groups, and other non-profits can apply for funding. Contact Michele L. Tremblay, Executive Director, (603) 271-1092 or visit www.SCC.nh.gov

Fisheries Habitat Conservation Program. NH Fish and Game Department. To conserve fisheries habitat through a watershed approach. Landowners wishing to protect/enhance fisheries habitat can apply for funding. Contact Scott Decker, (603) 271-2744 or sdecker@wildlife.state.nh.us

Forest Legacy Program. Provides up to 75% of the purchase price for development rights to forestlands from willing sellers. Streamside land is among program priorities. Rights are held by the state in perpetuity, while the landowner retains all other rights, including the right to harvest timber. Contact NH DRED at (603) 271-2411.

Land and Community Heritage Investment Program. This is a grant program for conserving and preserving New Hampshire’s most valuable natural, cultural, and historical resources. Grant applications for the purchase of land/buildings or restoration of structures are accepted from tax-exempt organizations, municipalities, or other political subdivisions of the State. Contact the SNHPC or visit www.lchip.org.

Land and Water Conservation Fund Program. The LWCF is a federal 50/50 matching grant program targeted at enhancing New Hampshire’s outdoor recreational opportunities. Contact NH DRED Division of Parks and Recreation at (603) 271-3556.

Local Water Protection Grants (Drinking Water Source Protection). To protect public drinking water sources. Protection projects funded through this program have included...
delineation of wellhead protection areas, inventorying potential contamination sources, development of local protection ordinances, performing land surveys as a precursor to land acquisitions, groundwater reclassification, shoreline surveys, drinking water education and outreach activities, and controlling access to source. For more information, contact Johnna McKenna at (603) 271-7017 or johnna.mckenna@des.nh.gov.

**Watershed Restoration Grants for Impaired Waters and High Quality Waters.** For watershed based projects to address water quality issues. Grants are given to associations, organizations, and agencies. This grant program helps to fund all aspects of watershed management including organization, building, planning and assessment. Contact Eric Williams at (603) 271-2358 or www.des.nh.gov/wmb/swqa

**Transportation Enhancement Program.** New Hampshire Department of Transportation provides funding for Environmental mitigation to address and reduce water pollution due to a highway runoff, and vehicle-caused wildlife mortality while maintaining connectivity. Cities, towns, state agencies, private industry and special interest groups may apply for Transportation Enhancement funding for their project. Federal funds will pay up to 80% of the cost of the project, with the applicant being responsible to provide matching funds. Contact SNHPC at (603) 669-4664.

**Small Grants Program for Wildlife Habitat Restoration and Enhancement.** NH Fish and Game Department. The Small Grants Program helps landowners with a minimum of 25 acres restore or enhance habitat for wildlife. Funding of up to $2,000 per year (no more than $6,000 over a ten-year period) is available for the creation and/or maintenance of wildlife habitat within the property. Examples of projects that may qualify for funding include: brush clearing or mowing to maintain grasslands and shrub-lands; release of old apple trees; and maintenance of woodland openings. In exchange for the grant, landowners agree that their land will remain open for non-motorized public access activities, including hunting. For more information, contact the Wildlife Division at (603) 271-2461, or wildlife@wildlife.nh.gov.

**Federal Sources:**

**Coastal America Corporate Wetlands Restoration Partnership.** U.S. Army Corps of Engineers. Voluntary public-private partnership in which corporations join forces with federal and state agencies to restore wetlands and other aquatic habitats. Contact (978) 318-8238.

**Conservation Reserve Program (CRP).** USDA Farm Service Agency. For converting highly erodible land to vegetative cover. Annual rental or other incentive payments for certain activities are offered. Cropland owners and operators who have owned or leased the land for at least 1 year can apply for funds. Contact your local USDA Service Center or www.fsa.usda.gov for more information.

**Conservation Stewardship Program (CStP).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). CStP is a voluntary conservation program that rewards good land stewards and encourages producers to address resource concerns in a comprehensive manner by undertaking additional conservation activities and improving,
maintaining and managing existing conservation activities. Contact the state office at (603) 868-9931 for information.

**Cooperative Conservation Partnership Initiative (CCPI).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). The Cooperative Conservation Partnership Initiative (CCPI) is a voluntary conservation initiative that enables the use of certain conservation programs with resources of eligible partners to provide financial and technical assistance to owners and operators of agricultural and nonindustrial private forest lands. Contact the state office at (603) 868-9931 for information.

**Conservation Innovation Grants (CIG).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). CIG is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies while leveraging Federal investment in environmental enhancement and protection, in conjunction with agricultural production. Under CIG, Environmental Quality Incentives Program funds are used to award competitive grants to non-Federal governmental or non-governmental organizations, Tribes, or individuals. Contact the state office at (603) 868-9931 for information.

**Environmental Quality Incentives Program (EQIP).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). EQIP is a voluntary program that provides assistance to farmers and ranchers who face threats to soil, water, air, and related natural resources on their land. Through EQIP, NRCS provides assistance to agricultural producers in a manner that will promote agricultural production and environmental quality as compatible goals, optimize environmental benefits, and help farmers and ranchers meet Federal, State, Tribal, and local environmental requirements. Visit [http://www.nh.nrcs.usda.gov/gettingconservation.html](http://www.nh.nrcs.usda.gov/gettingconservation.html) for more information.

**Farmland and Ranchland Protection Program (FRPP).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). This program provides matching funds to help slow the conversion of farmland to non-agricultural uses. An entity holds the conservation easement deed, and land must contain important farmland soils, and a conservation plan. The easements are for 30 years, but priority is given to perpetual easements. The Farmland Protection Program is a voluntary program implemented by the United States Department of Agriculture (USDA) and the Natural Resources Conservation Service (NRCS), and provides funding to State or local governments with existing farmland protection programs to purchase conservation easements. To be eligible for the FPP, the land must be: part of a pending offer from a non-governmental organization, state tribe, or local farm protection program; on prime, unique, or other important farmland soil; covered by a conservation plan developed with/through the Natural Resources Conservation Service; privately owned; large enough to sustain agricultural production; accessible to markets for what the land produces and surrounded by parcels of land that can support long-term agricultural production. Contact Jody Walker at (603) 868-9931 ext. 103 or jody.walker@nh.usda.gov.
Healthy Forests Reserve Program (HFRP). U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). HFRP is a voluntary program established for the purpose of restoring and enhancing forest ecosystems to: 1) promote the recovery of threatened and endangered species, 2) improve biodiversity; and 3) enhance carbon sequestration. Contact the state office at (603) 868-9931 for information.

Grassland Reserve Program (GRP). U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). The Grassland Reserve Program (GRP) is a voluntary program offering landowners the opportunity to protect, restore, and enhance grasslands and shrubland on their property. The Natural Resources Conservation Service and Farm Service Agency coordinate implementation of GRP. The program will conserve vulnerable grasslands from conversion to other uses and valuable grasslands for wildlife uses in New Hampshire. GRP offers producers several enrollment options: permanent easements, 30-year easements, rental agreements (10, 15, 20, or 30-year duration) and restoration agreements. For permanent easements, USDA makes a payment based on the fair market value of the property less the grazing value. For 30-year easements, USDA pays 30 percent of what would be paid for a permanent easement. For rental agreements, USDA pays 75 percent of the grazing value in annual payments for the length of the agreement. Contact Betty Anderson at 603-868-5301 or betty.anderson@nh.usda.gov.

North American Wetlands Conservation Fund. The North American Wetlands Conservation Act (NAWCA) of 1989 provides matching grants to organizations and individuals who have developed partnerships to carry out wetlands conservation projects in the United States, Canada, and Mexico for the benefit of wetlands-associated migratory birds and other wildlife. There is a Standard and a Small Grants Program. Both are competitive grants programs and require that grant requests be matched by partner contributions at no less than a 1-to-1 ratio. Funds from U.S. Federal sources may contribute towards a project, but are not eligible as match. Contact Division of Bird Habitat Conservation at (703) 358-1784 or dbhc@fws.gov.

Partners For Fish and Wildlife. U.S. Fish and Wildlife Service. The Partners Program provides technical and financial assistance to private landowners and Tribes who are willing to work with us and other partners on a voluntary basis to help meet the habitat needs of our Federal Trust Species. The Partners Program can assist with projects in all habitat types which conserve or restore native vegetation, hydrology, and soils associated with imperiled ecosystems such as longleaf pine, bottomland hardwoods, tropical forests, native prairies, marshes, rivers and streams, or otherwise provide an important habitat requisite for a rare, declining or protected species. Locally-based field biologists work one-on-one with private landowners and other partners to plan, implement, and monitor their projects. Partners Program field staff help landowners find other sources of funding and help them through the permitting process, as necessary. Contact the Eric Derleth or Greg Mannesto at (603) 223-2541 or Eric_Derleth@fws.gov or Greg_Mannesto@fws.gov.

Scenic and Cultural Byways Program. Federal Highway Administration (FHWA). Roads designated under the New Hampshire Scenic and Cultural Byways Program may be eligible for federal grant money for purchase of conservation easements for scenic values along designated byways. Such funds may be used to ensure the long-term
protection of open spaces along the byways. Contact Dean Eastman at (603) 271-3914 or deastman@dot.state.nh.us

**Wetlands Reserve Program (WRP).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). The Wetlands Reserve Program is a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. The USDA Natural Resources Conservation Service (NRCS) provides technical and financial support to help landowners with their wetland restoration efforts. The NRCS goal is to achieve the greatest wetland functions and values, along with optimum wildlife habitat, on every acre enrolled in the program. This program offers landowners an opportunity to establish long-term conservation and wildlife practices and protection. Jody Walker at (603) 868-9931 ext. 103 or jody.walker@nh.usda.gov.

**Wildlife Habitat Incentives Program (WHIP).** U.S. Department of Agriculture Natural Resources Conservation Service (NRCS). The Food, Conservation, and Energy Act of 2008 reauthorized WHIP as a voluntary approach to improving wildlife habitat in our Nation. The Natural Resources Conservation Service administers WHIP to provide both technical assistance and up to 75 percent cost-share assistance to establish and improve fish and wildlife habitat. WHIP cost-share agreements between NRCS and the participant generally last from one year after the last conservation practice is implemented but not more than 10 years from the date the agreement is signed. Contact Jim Spielman at (603) 868-7581 or james.spielman@nh.usda.gov.