

2015

# A Model Ecotourism Master Plan Chapter for Rural Massachusetts Communities: A Case Study of Hardwick, MA

Sarah Lang  
*Univeristy of Massachusetts - Amherst*

Madison Burke  
*Univeristy of Massachusetts - Amherst*

Follow this and additional works at: [https://scholarworks.umass.edu/ced\\_techrpts](https://scholarworks.umass.edu/ced_techrpts)

 Part of the [Growth and Development Commons](#), [Urban, Community and Regional Planning Commons](#), and the [Urban Studies and Planning Commons](#)

---

Lang, Sarah and Burke, Madison, "A Model Ecotourism Master Plan Chapter for Rural Massachusetts Communities: A Case Study of Hardwick, MA" (2015). *Center for Economic Development Technical Reports*. 167.  
Retrieved from [https://scholarworks.umass.edu/ced\\_techrpts/167](https://scholarworks.umass.edu/ced_techrpts/167)

This Article is brought to you for free and open access by the Center for Economic Development at ScholarWorks@UMass Amherst. It has been accepted for inclusion in Center for Economic Development Technical Reports by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact [scholarworks@library.umass.edu](mailto:scholarworks@library.umass.edu).

# A Model Ecotourism Master Plan Chapter for Rural Massachusetts Communities: A Case Study of Hardwick, MA



*Photo Credit: Sarah Lang*

Final Approval Date: 25 December 2015

Prepared for the Town of Hardwick, MA and University of  
Massachusetts, Amherst by:  
Sarah Lang and Madison Burke

University of Massachusetts, Amherst  
Department of Landscape Architecture and Regional Planning

**LA&RP**  
Landscape Architecture  
& Regional Planning



# 1 TITLE PAGE

Title: A Model Ecotourism Master Plan Chapter for Rural Massachusetts Communities: A Case Study of Hardwick, MA

Area of Study: Hardwick, Massachusetts and rural Massachusetts

Brief Description: To create a model ecotourism master plan chapter for rural communities in Massachusetts, using Hardwick, MA as a pilot.

Name of Sponsor: The Town of Hardwick Master Planning/Community Development Advisory Committee

Name and Affiliation of Author(s): Sarah Lang  
Madison Burke  
University of Massachusetts, Amherst  
Department of Landscape Architecture and Regional Planning  
  
Center for Economic Development  
109 Hills North  
University of Massachusetts  
111Thatcher Road, Ofc 1  
Amherst, MA 01003-9357  
  
Tel 413-545-2255

Date of Report: 25 December 2015

## 2 EXECUTIVE SUMMARY

<p><b>Title of Study:</b> A Model Ecotourism Master Plan Chapter for Rural Massachusetts Communities: A Case Study of Hardwick, MA</p>
<p><b>Consultants:</b> Town of Hardwick, Massachusetts</p>
<p><b>Study location(s):</b> Hardwick, MA and rural Massachusetts communities</p>
<p><b>Studied period:</b> 4 months</p>
<p><b>Purpose:</b> The primary purpose of this project is to create a model chapter on ecotourism to better leverage the available natural resources within rural towns (under 50,000 population) in MA as an economic development strategy.</p>
<p><b>Methodology:</b> Inventory of literature review, meetings, site visits and case studies; analysis of master plans and ecotourism programs</p>
<p><b>Summary of Results and Conclusions:</b></p> <p><b>Recommendations-</b></p> <p><i>0-5 years:</i> The town of Hardwick should hire an intern to focus on the development of ecotourism within the town and identify available funding and grants. This position should also bring clarity to the potential ecotourism projects that the town of Hardwick would like to invest funds and time into. By the end of five years, projects should be identified and funding should be sourced.</p> <p><i>6-10 years:</i> The town of Hardwick should implement ecotourism activities and make them available to the public for use. Once ecotourism activities are developed, marketing should begin in order to draw visitors to town.</p> <p><b>Next Steps-</b></p> <p>For the UMass Center for Economic Development:</p> <ul style="list-style-type: none"> <li>-Youth Charrette (February 2016)</li> <li>-State of the Town Forum (May 2016)</li> </ul> <p><b>Conclusion-</b></p> <p>Ecotourism is a viable economic development opportunity for rural Massachusetts communities. Case studies and precedent materials provide examples of successful ecotourism initiatives, giving best-practices as a foundation for a model ecotourism master plan chapter. Impediments are inevitable, but proactively addressing road blocks will heighten the success of ecotourism as an economic development strategy. Through the objectives of economic development, recreation, wildlife, culture, heritage, marketing, and image, a community can successfully plan for ecotourism.</p> <p><b>Date of the report:</b> 25 December 2015</p>

### 3 TABLE OF CONTENTS

<b>1</b>	<b>TITLE PAGE</b>	<b>2</b>
<b>2</b>	<b>EXECUTIVE SUMMARY</b>	<b>3</b>
<b>3</b>	<b>TABLE OF CONTENTS</b>	<b>4</b>
<b>4</b>	<b>LIST OF ABBREVIATIONS AND DEFINITIONS OF TERMS</b>	<b>9</b>
<b>5</b>	<b>ACKNOWLEDGEMENTS</b>	<b>10</b>
<b>6</b>	<b>INTRODUCTION</b>	<b>10</b>
<b>7</b>	<b>PURPOSE</b>	<b>10</b>
<b>8</b>	<b>GOALS AND OBJECTIVES</b>	<b>11</b>
8.1	GOALS	11
8.2	OBJECTIVES	11
<b>9</b>	<b>METHODOLOGY</b>	<b>11</b>
9.1	INVENTORY	11
9.2	ANALYSIS	13
9.3	RECOMMENDATIONS	13
<b>10</b>	<b>MODEL MASTER PLAN CHAPTER</b>	<b>13</b>
<b>11</b>	<b>CONTEXT AND BACKGROUND</b>	<b>13</b>
11.1	STUDY AREA	13
11.2	DEMOGRAPHICS	14
11.3	HISTORICAL CONTEXT	14
11.4	EXISTING CONDITIONS	17
11.4.1	Current Land Use	17
11.4.1.1	The Quabbin Reservoir	19
11.4.1.2	Hardwick Pond	20
11.4.1.3	Mandell Hill Preserve	20
11.4.1.4	Dougal Range	21
11.4.1.5	Muddy Brook River and Valley	22
11.4.1.6	Ware River and Valley	22
11.4.2	Transportation and Accommodations	23
11.4.3	Current Events	23
11.4.3.1	Hardwick Community Fair	23
11.4.3.2	King’s Tour of the Quabbin	23
11.4.3.3	Backroads Studio Tours	24
11.4.4	Local Businesses and Centers	25
11.4.4.1	Rose 32 Bread and Bakery	25
11.4.4.2	Ruggles Hill Creamery	25
11.4.4.3	Hardwick Sugar Shack	26
11.4.4.4	Hardwick Vineyard and Winery	26
11.4.4.5	Chestnut Farms	27
11.4.4.6	Robinson Farm	27

11.4.4.7 Eagle Hill Cultural Center.....	28
<b>12 RURAL COMMUNITIES IN MASSACHUSETTS.....</b>	<b>28</b>
<b>13 PRECEDENT MATERIALS.....</b>	<b>28</b>
<b>14 ECOTOURISM MASTER PLAN CHAPTER.....</b>	<b>29</b>
14.1 GOAL 29	
14.2 OBJECTIVE E.1: ECONOMIC DEVELOPMENT.....	29
14.2.1 Strategy E.1.A .....	29
14.2.2 Strategy E.1.B .....	30
14.2.3 Strategy E.1.C .....	30
14.2.4 Strategy E.1.D .....	30
14.2.5 Strategy E.1.E .....	30
14.2.6 Strategy E.1.F.....	30
14.3 OBJECTIVE E.2: RECREATION AND WILDLIFE .....	31
14.3.1 Strategy E.2.A .....	31
14.3.2 Strategy E.2.B .....	31
14.3.3 Strategy E.2.C .....	31
14.3.4 Strategy E.2.D .....	32
14.3.5 Strategy E.2.E .....	32
14.3.6 Strategy E.2.F.....	32
14.3.7 Strategy E.2.G .....	32
14.4 OBJECTIVE E.3: CULTURE AND HERITAGE .....	32
14.4.1 Strategy E.3.A .....	33
14.4.2 Strategy E.3.B .....	33
14.4.3 Strategy E.3.C .....	33
14.4.4 Strategy E.3.D .....	33
14.5 OBJECTIVE E.4: MARKETING AND IMAGE .....	33
14.5.1 Strategy E.4.A .....	34
14.5.2 Strategy E.4.B .....	34
14.5.3 Strategy E.4.C .....	34
14.5.4 Strategy E.4.D .....	34
14.5.5 Strategy E.4.E .....	34
<b>15 CASE STUDIES.....</b>	<b>35</b>
15.1 BIG STONE GAP, VIRGINIA.....	35
15.2 COLUMBIA, NORTH CAROLINA .....	37
15.3 ETOWAH, TENNESSEE .....	40
<b>16 IMPEDIMENTS.....</b>	<b>41</b>
<b>17 RECOMMENDATIONS .....</b>	<b>42</b>
<b>18 NEXT STEPS .....</b>	<b>42</b>
18.1 YOUTH CHARRETTE (FEBRUARY 2016).....	42

18.2 STATE OF THE TOWN FORUM (MAY 2016) ..... 43

**19 CONCLUSION..... 43**

**20 REFERENCES ..... 44**

**21 APPENDICES ..... 45**

21.1 APPENDIX I: TABLE OF ACTIVITES ALLOWED AND RESTRICTIONS ON THE QUABBIN RESERVOIR DCR LAND (SOURCE: COHEN AND LOOMIS, 2003)45

21.2 APPENDIX II: TABLE OF ACTIVITIES NOT ALLOWED ON THE QUABBIN RESERVOIR DCR LAND (SOURCE: COHEN AND LOOMIS, 2003) ..... 46

**LIST OF IN-TEXT TABLES**

The following is a list of the tables included in the body of this report.

Table 1: Population by Age in 2010 in Hardwick, MA (Source: American Community Survey, Five Year Estimates)..... 14

Table 2: Acres of Permanent and Temporary Open Space (Source: 2013 Hardwick Open Space and Recreation Plan) ..... 19

Table 3: Statistics of Big Stone Gap, VA (Source: Lambe, 2008) .....36

Table 4: Statistics of Columbia, NC (Source: Lambe, 2008).....38

Table 5: Statistics of Etowah, TN (Source: Lambe, 2008) .....40



**LIST OF IN-TEXT FIGURES**

The following is a list of the figures included in the body of this report.

Figure 1: Asset Map of the Town of Hardwick (Source: Master Planning/Community Development Advisory Committee and Google My Maps)..... 12

Figure 2: The Town of Hardwick and Worcester County in Massachusetts (Source: MassGIS) 13

Figure 3: The town of Hardwick, MA and its villages (Source: Google Map)..... 16

Figure 4: Open Space Map (Source: 2013 Hardwick Open Space and Recreation Plan)..... 18

Figure 5: Time lapsed images of the construction of the Quabbin Reservoir (Source: wgbhnews.org)..... 20

Figure 6: Mandell Hill Preserve is part of the Eastern Quabbin Land Trust (Source: Sarah Lang) ..... 21

Figure 7: Ledges in the Dougal Range (Source: Flicker Hive Mind of Hardwick, MA)..... 21

Figure 8: The Ware-Hardwick Covered Bridge crossing the Ware River (Source: Madison Burke) ..... 22

Figure 9: Winner of the frog jumping contest at the Hardwick Community Fair (Source: m.telegram.com) ..... 23

Figure 10: Vegetable contest at the Hardwick Community Fair (Source: m.telegram.com)..... 23

Figure 11: Riders of the King's Tour of the Quabbin (Source: www.easycrider.com) ..... 24

Figure 12: Tour map of the Backroads Studio Tour (Source: www.backroadsstudiotour.com) .. 24

Figure 13: Rose 32 Bakery in renovated Gilbertville service station (Source: Sarah Lang) ..... 25

Figure 14: Ruggles Hill Creamery cheese maker Tricia Smith (Source: MassLive) ..... 25

Figure 15: Hardwick Sugar Shack owners Joe and Megan Raskett (Source: www.hardwicksugarshack.com) ..... 26

Figure 16: Hardwick Vineyard and Winery (Source: www.colonialspirits.com) ..... 26

Figure 17: Chestnut Farm owners Rich Jakshtis and Kim Denney (Source: www.communityfarms.org)..... 27

Figure 18: Robinson Farm owners Ray and Pam Robinson (Source: freshnewenglandeats.com) ..... 27

Figure 19: Eagle Hill Cultural Center built in 2008 (Source: www.consigli.com)..... 28

Figure 20: Cumberland Mountain Range (Source: http://city.expert/big-stone-gap)..... 35

Figure 21: Sunrise in Columbia, NC (Source: objjoe.wordpress.com) ..... 37

Figure 22: Tyrrell County Visitors Center in Columbia, NC (Source: www.historicalbemarletour.org) ..... 38

Figure 23: Eastern 4-H Environmental Education and Conference Center in Columbia, NC (Source: sustainability.ncsu.edu) ..... 39

Figure 24: Baby Falls in Cherokee National Forest in Etowah, TN (Source: http://tennesseehill.com/waterfalls/)..... 40

Figure 25: Train excursions from Etowah, TN through the Cherokee National Forest (Source: www.tvrail.com)..... 41

## 4 LIST OF ABBREVIATIONS AND DEFINITIONS OF TERMS

CSA	Community Supported Agriculture
DCR	Department of Conservation and Recreation
EQLT	East Quabbin Land Trust
FRCOG	Franklin Regional County of Governments
GDP	Gross domestic product
L&N Railroad	Louisville & Nashville Railroad Company
MassBike	Massachusetts Bicycle Coalition
NEFF	New England Forestry
OSRP	2013 Hardwick Open Space and Recreation Plan
TIES	The International Ecotourism Society
UMass CED	University of Massachusetts, Amherst Center for Economic Development
USDA	United States Department of Agriculture

## 5 ACKNOWLEDGEMENTS

We would like to thank the Town of Hardwick and their Master Planning/Committee Development Advisory Committee for giving us depth and insight into Hardwick that we would have otherwise lacked. Their suggestions and advice are what tie this report together. We would also like to thank John Delconte and Dr. John Mullin for their advice and guidance. Without them, this project would not be possible.

## 6 INTRODUCTION

Ecotourism is defined as “responsible travel to natural areas that conserve the environment, sustain the wellbeing of the local people, and involve interpretation and education” (TIES, 2015). For this project, we used ecotourism as a foundation for economic development within rural Massachusetts communities. Many of these communities have an industrial past which is no longer relevant as companies have moved out of town and taken jobs with them. The UMass Center for Economic Development (CED) strive to find innovative strategies for towns and cities that are struggling to gain an economic footing.

Rural communities in Massachusetts, especially surrounding the Quabbin Reservoir, possess unadulterated natural resources and scenic beauty. Through ecotourism, UMass CED suggests ways for communities to harness these natural resources to provide an economic base without depleting or damaging them. Each community’s strategies will be based on their uniqueness, specialty, and cache which help them stand apart and gain notoriety.

One way to incorporate ecotourism into a community’s economy is to plan for it. After ample community participation and support, the addition of an ecotourism master plan chapter can help shape the future and guide appropriate development and funding geared towards ecotourism. The master plan chapter should include objectives based on economic development, recreation and wildlife, culture and heritage, and marketing and image. These categories help frame the foundation of ecotourism and should be related and interwoven.

For this project, we utilized Hardwick, Massachusetts as a case study. We created an ecotourism master plan chapter that is unique to the town’s character and natural resources. It is to be used as an example for other rural communities who are interested in incorporating ecotourism into their master plan. For each strategy, precedent material are referenced, giving a strong defense to their inclusion in the chapter. Grey boxes within the chapter give reasoning to why each objective included is crucial to the chapter.

In this report, we give a detailed background on the town of Hardwick in order provide a variety of examples of existing local businesses and natural resources and assets. Hardwick is essentially the complete package and this ecotourism master plan chapter is a way to tie all of their resources into a cohesive economic development plan.

## 7 PURPOSE

The primary purpose of this project is to create a model master plan chapter on ecotourism to better leverage the available natural resources within rural towns (under 50,000 population) in Massachusetts as an economic development strategy. The secondary purpose of this project is to apply the model master plan chapter to the town of Hardwick, Massachusetts, producing a specific ecotourism master plan chapter for the town that stimulates potential sustainable economic opportunities emerging from its natural resources, local culture, and heritage.

## 8 GOALS AND OBJECTIVES

The primary task of this project is to create an ecotourism master plan chapter for rural Massachusetts communities. Discussed below are the specific goals and objectives of this project.

### 8.1 GOALS

The specific goal of this project is for communities to be able to better integrate ecotourism into their future economic development plans, as well as align the goals of ecotourism with the values of a community. It is our hope that rural communities can adopt an ecotourism chapter into their master plan in order to better prepare them for the future or to help revitalize their community.

### 8.2 OBJECTIVES

The specific objective of this project is to create an ecotourism master plan chapter for the town of Hardwick, MA that provides reasoning, relevant explanations, and reference material to the inclusion of specific goals, objectives, and strategies in the master plan chapter.

## 9 METHODOLOGY

This study follows the UMass, Amherst Center for Economic Development's (CED) three-pronged process: 1) Inventory, 2) Analysis, and 3) Recommendations.

### 9.1 INVENTORY

Our inventory phase incorporated a literature review, contacting the MassPlanners listserv, conducting site visits, and meetings with the Master Planning/Committee Development Advisory Committee (here after known as the "Committee").

Our literature review examined the *2013 Hardwick Open Space and Recreation Plan* to acclimate ourselves with the town and gain basic knowledge on open space in Hardwick. Literature on the Quabbin Reservoir was also reviewed for recreational opportunities; "Outdoor Recreation and the Quabbin Reservoir: An Exercise in Political Maneuvering?" by Cohen and Loomis and the 2008 Watershed Protection Plan Update by the Department of Conservation and Recreation (DCR). Various case studies regarding ecotourism were utilized along with similar/comparable ecotourism plans. The plan most heavily relied on for the structure of this report was the *2010 Amherst Master Plan*.

An inquiry to the MassPlanners list serve was sent to acquire existing information regarding ecotourism across Massachusetts. The MassPlanners list serve consists of planners across the state of Massachusetts and provides a platform for questions of best-practices. Although there were helpful tips from the list serve such as, were to find mentions of ecotourism within master plans, we found that there is no master plan chapter created exclusively for ecotourism in Massachusetts.

Site visits and meetings with the Master Planning/Committee Development Advisory Committee (here after known as the "Committee") were conducted once a month. During the site visits, we visited areas in town which have potential for ecotourism. In the meetings with the Committee, our team asked questions regarding open space and community ideals to better shape recommendations for ecotourism within the town of Hardwick. During one of our meetings we conducted a map exercise where committee members marked their community assets on a map, which we transferred onto an online, interactive map (see Figure 1).

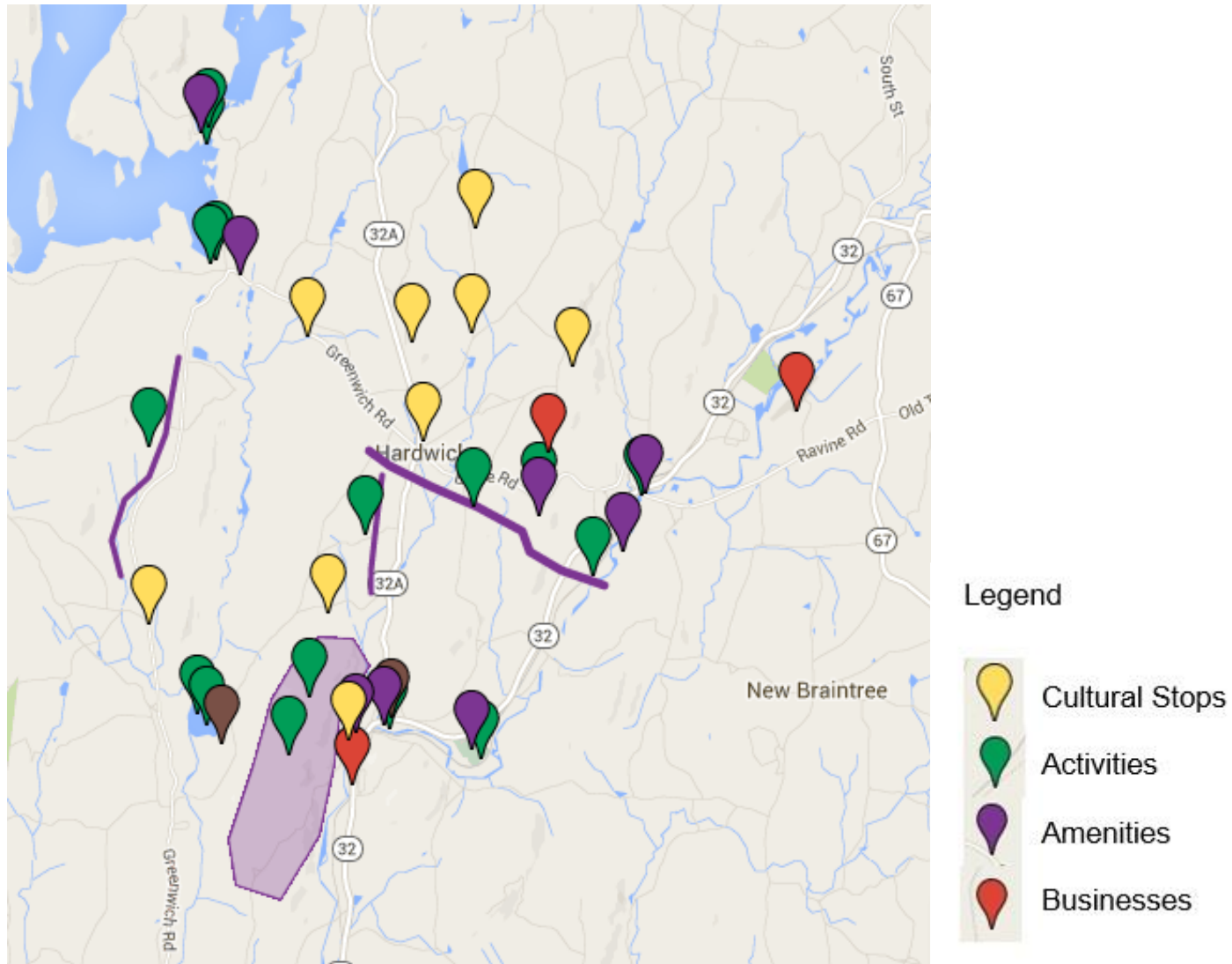


Figure 1: Asset Map of the Town of Hardwick (Source: Master Planning/Community Development Advisory Committee and Google My Maps)

## 9.2 ANALYSIS

Information gathered from our inventory phase was analyzed and synthesized to form our ecotourism master plan chapter and our recommendations. Existing conditions and best-practices were combined to design a site-specific ecotourism master plan chapter, as well as forming a model for other rural Massachusetts towns to utilize.

## 9.3 RECOMMENDATIONS

Our analysis of the literature and the information provided by the Committee resulted in an ecotourism master plan chapter and recommendations by the UMass CED. The recommendations are given in five year and ten year benchmarks. These recommendations are based off of the existing condition within the town, the comparable approaches taken by case studies that were reviewed, and the information regarding an appropriate time scale provided by members of the Committee.

# 10 MODEL MASTER PLAN CHAPTER

As stated in the purpose of this project, we created an ecotourism master plan chapter for the town of Hardwick, Massachusetts. Within the chapter (14 Ecotourism Master Plan Chapter), grey boxes give potential users the reasoning behind the inclusion of the goals and objectives and explain why they are pertinent to the mission of ecotourism. The strategies for each objective are specific to the town of Hardwick; footnoted are each of the precedent materials used that guided the creation of each strategy. If a community is wanting to create an ecotourism master plan chapter for their community, they must be sure to reference the precedent materials to gain a contextual understanding of the goals and objectives of their community and of ecotourism as a whole.

# 11 CONTEXT AND BACKGROUND

## 11.1 STUDY AREA



**Figure 2: The Town of Hardwick and Worcester County in Massachusetts (Source: MassGIS)**

Hardwick is a rural, New England town in Worcester County (see Figure 2) with a rich heritage and outstanding natural resources, including brooks, open fields, agricultural homesteads, and vast tracks of forests. It is located 30 miles to the west of the city of Worcester and 64 miles from Boston. A portion of the town lies within the pristine watershed of the Quabbin Reservoir and several farms remain active in this picturesque town. The Quabbin Reservoir forms the northern and western boundary of Hardwick; Ware lies to the south; Petersham to the north; Barre to the northeast, and New Braintree to the east.

## 11.2 DEMOGRAPHICS

The total population of Hardwick is 2,990 (2010 U.S. Census) with the majority located in the two former mill villages, Gilbertville and Wheelwright. Hardwick is mainly an Irish and French-Canadian town, and in 2010 was 96.4 percent white, 2.3 percent African American, and 1.4 percent Hispanic or Latino. The medium income of Hardwick is \$45,752 with 5.5 percent of families and 7.5 percent of individuals living below the poverty line.

Hardwick has a population density of 67.9 people per square mile. Their household makeup is similar to the state, with 63.5 percent of the households in Hardwick being family households and 36.5 percent non-family households. Family households are 29.3 percent “married without children”, 15.3 percent married with children, and 9.1 percent single parent. Older adults (45-64) make up the largest portion of the population at 34.2 percent followed by young adults (25 to 44) at 21.3 percent (see Table 1).

**Table 1: Population by Age in 2010 in Hardwick, MA (Source: American Community Survey, Five Year Estimates)**

	<b>Hardwick Population</b>	<b>Percent</b>
Total	2,990	100%
Preschool (0 to 4)	156	5.8%
School Age (5 to 17)	498	18.6%
College Age (18 to 24)	175	6.0%
Young Adult (25 to 44)	622	21.3%
<b>Older Adult(45 to 64)</b>	<b>1,000</b>	<b>34.2%</b>
Older (65 plus)	475	16.2%
Median Age	45.1	

## 11.3 HISTORICAL CONTEXT

Hardwick has a rich historical past dating back to the King Philip War in 1675, where a portion of the conflict occurred in Winnimisset, an area that was later included in Hardwick. In 1687, the English purchased a plot of land that was twelve miles long and eight miles wide for twenty pounds. The land was purchased from John Magus and other Indians Sachems. After much legal entanglement, Hardwick was incorporated in 1739 and named in honor of Lord Hardwicke (Town of Hardwick, 2015).

Hardwick experienced great prosperity before the Revolutionary War, both industrially and socially. General Timothy Ruggles, a representative from the General Court, introduced the Hardwick Community Fair in 1762 which is still a social highlight for the community to this day.

Hardwick saw industrial success with the creation of saw and grist mills which harnessed mechanical power from Ware River, Muddy Brook, Danforth Brook, and Moose Brook. In the 1800's, the availability of railroads allowed Hardwick to ship agricultural products and manufactured goods, such as cannon balls, to larger cities which became an important part of the local economy (Town of Hardwick, 2015).

As industry grew, the town developed into four district villages: Old Furnace, Gilbertville, Wheelwright, and Hardwick (see Figure 3). From the 1860s to the 1930s, George H. Gilbert expanded his wool factories and built up the factory village of Gilbertville. The available work at the mill attracted many Irish, French-Canadian, and Polish immigrants, who created a tight-knit community in the village. There was a similar story in Wheelwright village, which grew to host a high quality rag paper factory and its employees. Old Furnace also created its own living and working village, with its main economic base an iron foundry. The foundry produced hollow ware castings that utilized wood from the forests in Hardwick Village. In contrast to the industrial villages, the village of Hardwick retained its agricultural roots in dairy farming, which provided economic stability through the production of milk and dairy products (Town of Hardwick, 2015)

The Quabbin Reservoir, Hardwick's eastern and northern border, was created in the 1930s to provide a drinking water supply to the city of Boston. Its creation required flooding the land of surrounding communities including Hardwick. Hardwick's western upland area was flooded displacing four communities. The Quabbin Reservoir is currently a recreational asset as well as a point of frustration in the community due the strict regulations associated with it (Town of Hardwick, 2015).

As industry began to decline in the early- to mid-1900s, Hardwick saw a drop in population and began to rely more heavily on their agricultural roots. Hardwick began to expand in dairy farming, animal husbandry, and vegetable crops. Hardwick continues to identify as an agricultural community, and takes pride in its existing open space and agricultural heritage (Town of Hardwick, 2015).





Figure 3: The town of Hardwick, MA and its villages (Source: Google Map)

## **11.4 EXISTING CONDITIONS**

### **11.4.1 Current Land Use**

Nearly one-half of Hardwick is permanently protected or enrolled in one of the State's "current use" property taxation categories under General Law Chapter 61, 61A, and 61B. These General Law Chapters discuss: the classification and taxation of forest land and forest products, the assessment and taxation of agricultural and horticultural land, and the classification and taxation of recreational land.

Permanently protected land is owned by the Commonwealth with various departments managing the land (see Table 2). The Massachusetts Department of Conservation and Recreation (DCR) Division of Water Supply owns 4,278 acres that they maintain in its natural state due to its proximity to the Quabbin Reservoir. The Department of Fish and Game holds roughly 1,600 acres, primarily in the Muddy Brook Wildlife Management Area, along Moose Brook, and along the Ware River. Two additional land trusts own a total of 900 acres, the New England Forestry Foundation (NEFF) and East Quabbin Land Trust (EQLT). These land trusts work to collect money to buy large tracts of open space that can also be put into permanently protected land. The organizations that own permanently protected land provide a means for landowners to sell or donate land or receive grant conservation restrictions to avoid development. Figure 4 displays permanently protected land in Hardwick.

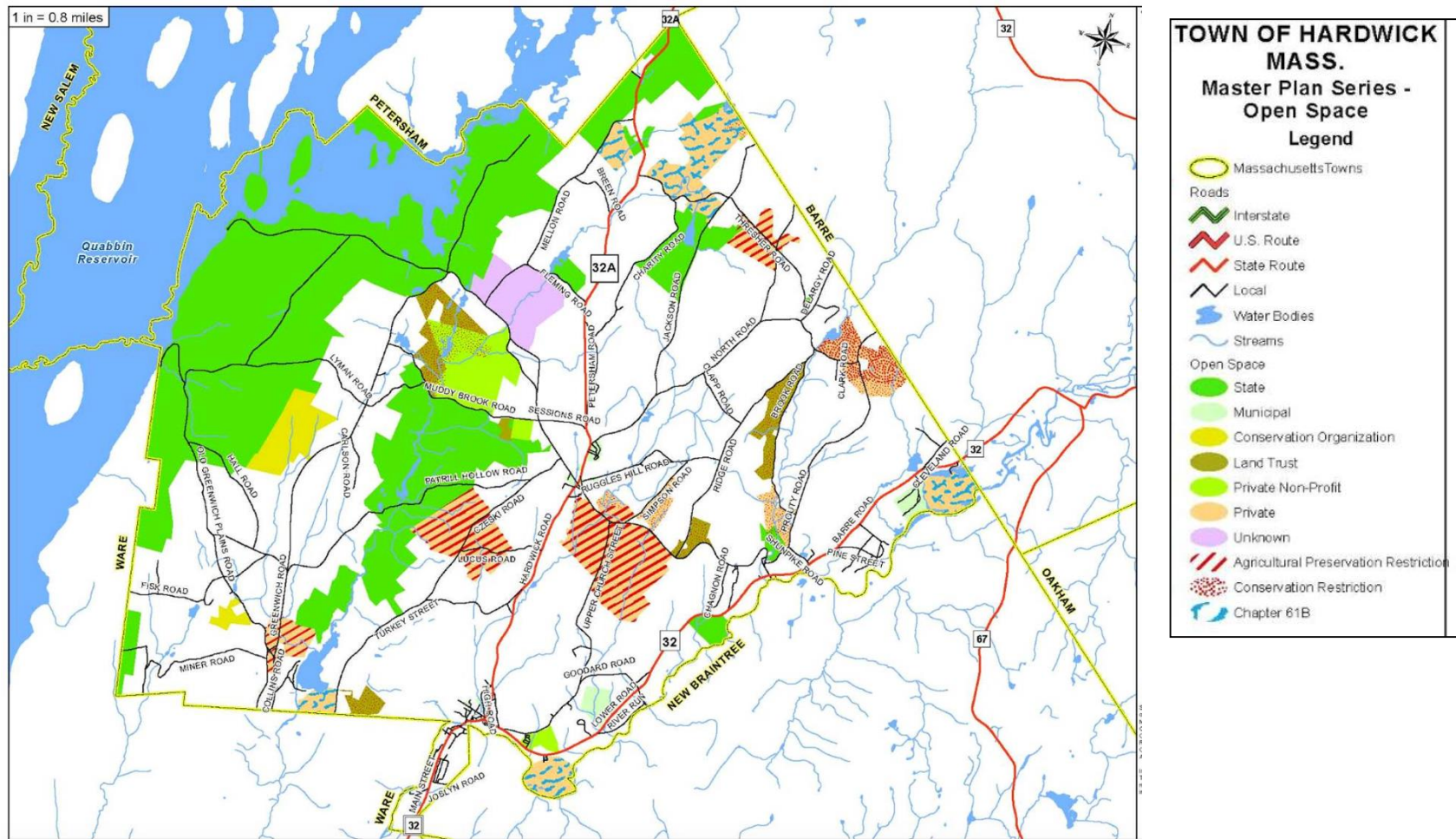


Figure 4: Open Space Map (Source: 2013 Hardwick Open Space and Recreation Plan)

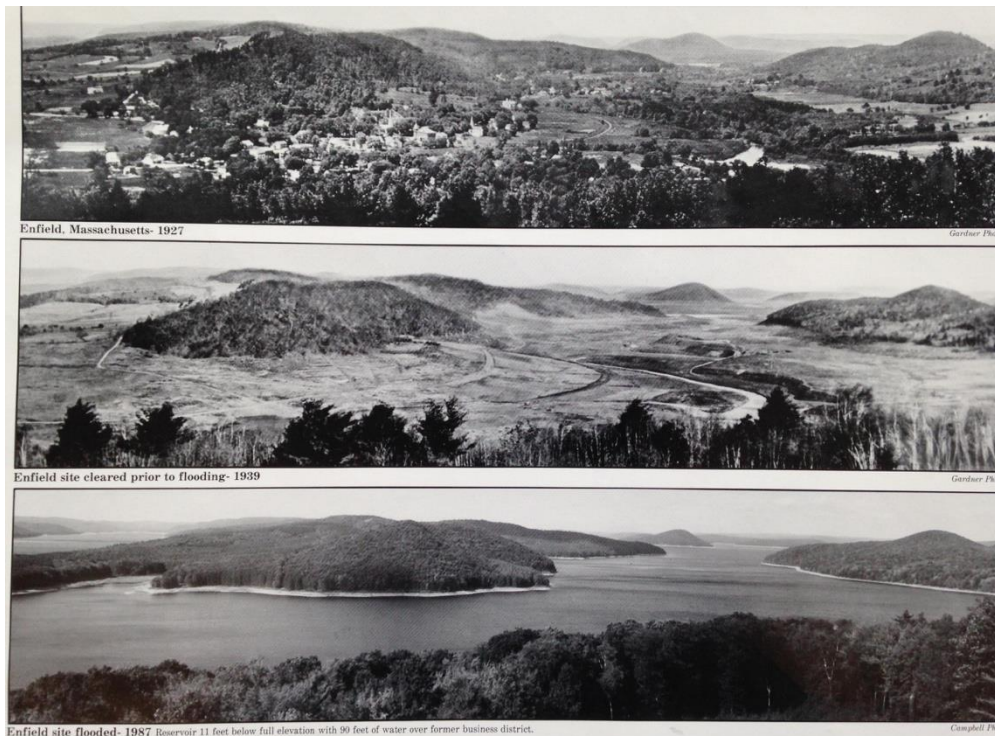
**Table 2: Acres of Permanent and Temporary Open Space (Source: 2013 Hardwick Open Space and Recreation Plan)**

**Permanent and Temporary Open Space**

<b>Permanently Protected Land</b>	<b>Acres</b>	<b>% of Town</b>
Dept. of Conservation and Recreation	4,278.0	16.4%
Dept. of Fish and Game	1,631.0	6.2%
East Quabbin Land Trust	609.6	2.3%
New England Forestry Foundation	281.0	1.1%
Town of Hardwick	109.5	0.4%
Other Conservation Restrictions	820.1	3.1%
Agricultural Preservation Restrictions	791.1	3.0%
Gilbertville Water District	215.0	0.8%
Wheelwright Water District	19.0	0.1%
Subtotal	8,754.3	33.5%
<b>Temporary Open Space</b>		
Summer Camp	51.2	0.2%
Golf Course	100.1	0.4%
Chapter 61, Forest	421.4	1.6%
Chapter 61A, Agriculture	2,594.8	9.9%
Chapter 61B, Recreation	832.1	3.2%
Subtotal	3,999.5	15.3%
<b>Mixed Residential and Forest, Agriculture, or Recreation</b>	4,752.3	18.2%
<b>Total</b>	<b>17,506.1</b>	<b>66.9%</b>

**11.4.1.1 The Quabbin Reservoir**

The Quabbin Reservoir (see Figure 5) and surrounding land owned by the DCR takes up one-sixth of Hardwick’s total area at 4,278.3 acres. The DCR owns this land for watershed protection. The Quabbin is the main source of drinking water for Boston and holds up to 412 billion gallons for water (OSRP, 2013). A list of the recreational activities that are allowed (with restrictions) are shown in Appendix 21.1. A list of the recreational activities that are prohibited are shown in Appendix 21.2.



**Figure 5: Time lapsed images of the construction of the Quabbin Reservoir (Source: wgbhnews.org)**

#### **11.4.1.2 Hardwick Pond**

Hardwick Pond is the largest pond in Hardwick at 99 acres. Hardwick Pond is utilized as a recreational resource. There is access to the pond via the boat ramp on the southwest end for those who would like to fish or conduct other water based recreational activities.

#### **11.4.1.3 Mandell Hill Preserve**

Mandell Hill Preserve (see Figure 6) is owned by the EQLT and is actively managed agricultural and wooded land. There are also numerous streams, wetlands, and passive recreations trails on the land (OSRP, 2013). Recently, a birding platform was built on Mandell Hill to provide a space for birdwatching.



**Figure 6: Mandell Hill Preserve is part of the Eastern Quabbin Land Trust (Source: Sarah Lang)**

#### **11.4.1.4 Dougal Range**

Dougal Range, over 2000 acres of uninterrupted forest, is the most notable landscape in the town and is utilized for passive recreation such as hiking and birdwatching. It is easily accessible due to its close proximity to Gilbertville Center and is owned by the EQLT (see Figure 7).



**Figure 7: Ledges in the Dougal Range (Source: Flicker Hive Mind of Hardwick, MA)**

#### 11.4.1.5 Muddy Brook River and Valley

Muddy Brook River flows south and enters the Hardwick Pond. It then flows into the Ware River. The river has important habitats for beavers, fish and other wildlife and the Mass Audubon society describes the area as “holding a great representation and density of interior forest breeding birds” (OSRP, 2013, p.29).

Muddy Brook Valley runs north to south and has an elevation of 500-600 feet above sea level. The valley has numerous streams, wetland areas, and ridges which are visually pleasing and create a habitat for a large mix of animals, insects, and plants (OSRP, 2013).

#### 11.4.1.6 Ware River and Valley

Ware River is part of the Chicopee River watershed and flows in a southerly direction through Gilbertville into Ware. Fishermen utilize the river for brook trout, rainbow trout, and brown fish. Wetlands and different riparian habitats can be found along the river. The Massachusetts Division of Fisheries & Wildlife (MassWildlife) indicate that the river has one of the most diverse fish communities in Massachusetts and the Massachusetts Natural Heritage and Endangered Species Program lists the river as having critical habitats for rare mussels, dragonflies, and Wood Turtles (OSRP, 2013). The Ware-Hardwick covered bridge that spans the Ware River is shown in Figure 8.



**Figure 8: The Ware-Hardwick Covered Bridge crossing the Ware River (Source: Madison Burke)**

## 11.4.2 Transportation and Accommodations

The town of Hardwick, although rural, has many transportation options. Route 32 and Route 32A transect the town. Interstate 90 is a 20-minute drive south and Route 2 is a 30-minute drive north. The Massachusetts Central Railroad goes through Hardwick and is primarily a cargo carrying train. There are two airports in the area, the private Tanner-Hiller Airport in New Braintree, just outside of Hardwick, and the international Bradley Airport just north of Hartford, Connecticut. This puts Hardwick in an ideal position for easy access by travellers, yet little inundation of heavy traffic.

## 11.4.3 Current Events

### 11.4.3.1 Hardwick Community Fair

The Hardwick Community Fair began in 1762; the town claiming it is the oldest fair in the U.S. It is held on the Hardwick Commons and consists of activities such as Friday night super, battle of the bands, frog jumping (see Figure 9), vegetable contests (see Figure 10), blacksmith booth, pancake breakfast, and antique tractor parade. This is an important event attended by the community with regional participants. For more information, visit [www.hardwickfair.com](http://www.hardwickfair.com).



Figure 9: Winner of the frog jumping contest at the Hardwick Community Fair (Source: m.telegram.com)



Figure 10: Vegetable contest at the Hardwick Community Fair (Source: m.telegram.com)

### 11.4.3.2 King's Tour of the Quabbin

The Massachusetts Bicycle Coalition (MassBike) and Seven Hills Wheelman holds a yearly bike ride around the Quabbin Reservoir. Bikers can choose to ride 62, 100, or 125 miles during this event. In 2015, 266 riders were in attendance (see Figure 11). MassBike promotes bike-



friendly environments, as well as promoting biking for fun, fitness, and transportation. For more information, visit [www.sevenhillswheelmen.org/centuries.htm](http://www.sevenhillswheelmen.org/centuries.htm).



Figure 11: Riders of the King's Tour of the Quabbin (Source: [www.easycrider.com](http://www.easycrider.com))

### 11.4.3.3 Backroads Studio Tours

Backroads Studio Tours is a self-guided tour of local artists within six towns east of the Quabbin Reservoir, including Hardwick (see Figure 12). Participants are invited into the artist's studios to learn more about their craft. Mediums include jewelry, basket weaving, painting, paper, and iron works. The tour takes place one a year in October, utilizing the natural fall beauty of central Massachusetts. For more information, visit [www.backroadsstudiotour.com](http://www.backroadsstudiotour.com).

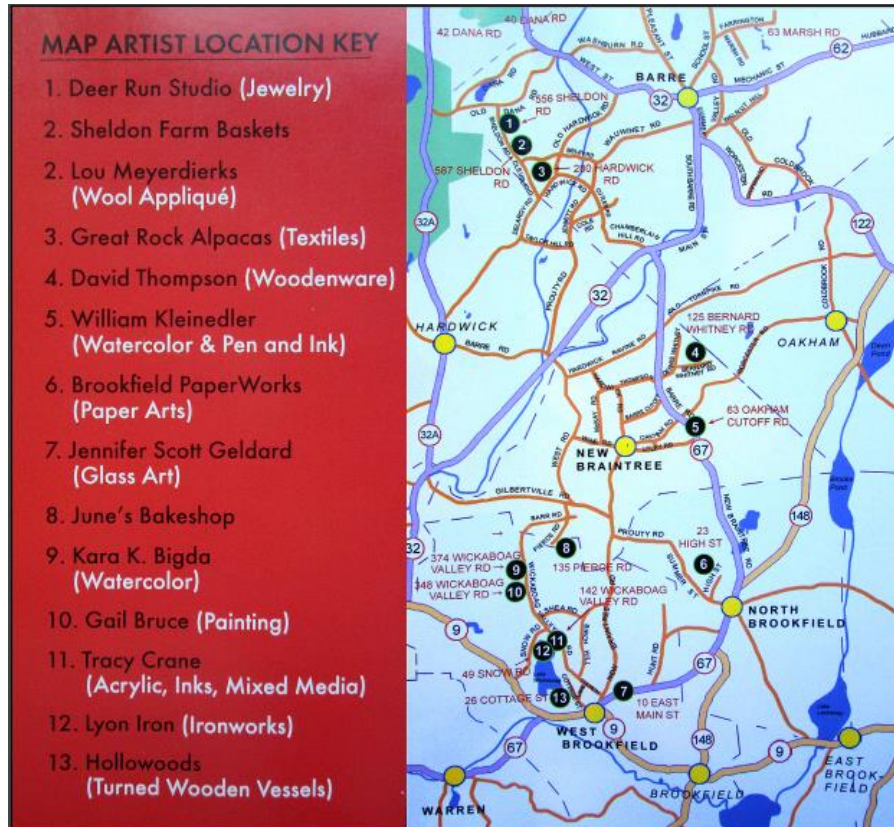


Figure 12: Tour map of the Backroads Studio Tour (Source: [www.backroadsstudiotour.com](http://www.backroadsstudiotour.com))

## 11.4.4 Local Businesses and Centers

### 11.4.4.1 Rose 32 Bread and Bakery

Rose32 is located in Hardwick's village of Gilbertsville. Its owners, Glenn and Cindy Mitchell, have decades of baking experience. Originally from San Francisco, the Mitchells opened up Rose32 in 2010 in the old Gilbertville service station (see Figure 13). The bakery has been named Yankee Magazine's 2014 "Best of New England--Editors' Choice." For more information, visit [www.rose32bread.com](http://www.rose32bread.com).



Figure 13: Rose 32 Bakery in renovated Gilbertville service station (Source: Sarah Lang)

### 11.4.4.2 Ruggles Hill Creamery

Ruggles Hill Creamery is known for its award-winning goat cheeses. The farm has 16 milk-producing goats (see Figure 14). Tricia Smith, owner and cheesemaker, has been making cheese commercially since 2005. Ruggles Hill Creamery cheese is sold all over the state. For more information, visit [www.ruggleshill.com](http://www.ruggleshill.com).



Figure 14: Ruggles Hill Creamery cheese maker Tricia Smith (Source: MassLive)

#### 11.4.4.3 Hardwick Sugar Shack

Hardwick Sugar Shack makes local and natural maple syrup, pulled right from their 60-acre land in Hardwick. Joe and Megan Raskett (see Figure 15) founded the sugar shack in 1999. Their sugarhouse is open on Sundays in March; you can also buy their product within the surrounding towns and at fairs and farmers markets. For more information, visit [www.hardwicksugarshack.com](http://www.hardwicksugarshack.com).



Figure 15: Hardwick Sugar Shack owners Joe and Megan Raskett (Source: [www.hardwicksugarshack.com](http://www.hardwicksugarshack.com))

#### 11.4.4.4 Hardwick Vineyard and Winery

The late 18<sup>th</sup> century house and 150 acres of land on which Hardwick Vineyard and Winery (see Figure 16) now sits was purchased by the Sameks in 1997. The house is now fully restored, a process that took almost five years. During this process, they also began clearing land to plant grapes. The land produces enough grapes for about 3,500 gallons of wine a year. Visitors can enjoy wine tastings or host a wedding on the beautiful property. Their website also included a list of other local businesses. For more information, visit [www.hardwickwinery.com](http://www.hardwickwinery.com).

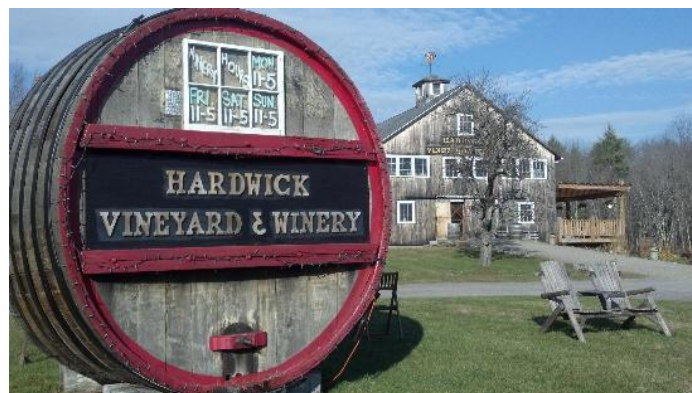


Figure 16: Hardwick Vineyard and Winery (Source: [www.colonialspirits.com](http://www.colonialspirits.com))

#### 11.4.4.5 Chestnut Farms

Chestnut Farms is owned by a lifetime local, Rich Jakshtis and his wife, Kim Denney (see Figure 17). They are known for their meat Community Supported Agriculture (CSA) program. This program includes cuts of meat from cattle, pigs, and poultry. They are not certified organic, but boast pasture raised livestock, which provides a high quality of life and low stress for the animals. For more information, visit [www.chestnutfarm.org](http://www.chestnutfarm.org).



Figure 17: Chestnut Farm owners Rich Jakshtis and Kim Denney (Source: [www.communityfarms.org](http://www.communityfarms.org))

#### 11.4.4.6 Robinson Farm

Robinson Farm has been in operation since 1892 and is currently run by Ray and Pamela Robinson, who are fourth generation farmers (see Figure 18). They provide a farm stand with raw milk, cheese, eggs, beef, and more. They also offer farm tours for visitors interested in their organic practice. They have won awards from the American Cheese Society in 2012 and 2013. For more information, visit [www.robinsonfarm.org](http://www.robinsonfarm.org).



Figure 18: Robinson Farm owners Ray and Pam Robinson (Source: [freshnewenglandeats.com](http://freshnewenglandeats.com))

#### 11.4.4.7 Eagle Hill Cultural Center

This \$15 million space (see Figure 19), built in 2008 on the campus of Eagle Hill School, offers two theaters, art galleries, art classrooms and studios, a woodshop, and a function hall. Students at the Eagle Hill School partake in all aspects of the center, from marketing to ushering to performing. This campus also provides lodging opportunities within their dormitories during the vacant summer months. For more information, visit [www.centerateaglehill.org](http://www.centerateaglehill.org).



Figure 19: Eagle Hill Cultural Center built in 2008 (Source: [www.consigli.com](http://www.consigli.com))

## 12 RURAL COMMUNITIES IN MASSACHUSETTS

The decline of the region's industry and manufacturing over the past 100 years has shifted many of the jobs and economic development opportunities from Worcester County to Boston, Routes 128 and 495, Worcester, and Springfield. Sixty Percent of the state's population lives in 101 cities and towns that surround the metropolitan area of Boston, which makes it difficult for rural communities to attract development and tourism (Mullin,1986). Many of these rural communities are located in Western MA, including Hardwick. With this decline of jobs and lack of development, it is increasingly difficult to have a stable economic base in these areas.

Although the decline of job opportunities and development has impacted the region, it has positively preserved the natural beauty of the land. This preservation creates an opportunity to develop recreational and tourist attractions. One legislative grant that helps to promote this economic development strategy is The United States Department of Agriculture (USDA) Rural Development grant. It promotes economic development in rural communities with exceptional needs through the provision of training and technical assistance for businesses, entrepreneurs, and economic development officials. Communities with 50,000 residents or less are eligible for USDA Rural Development funding (USDA, 2015).

## 13 PRECEDENT MATERIALS

In order to create an accurate and current ecotourism master plan chapter, we consulted many precedent materials that aided in the creation of the master plan chapter's goals, objectives, and strategies.

- 2013 Hardwick Open Space and Recreation Plan
- 2010 Amherst Master Plan

- 2009 Amherst Open Space and Recreation Plan
- The East Quabbin Land Trust Newsletter
- 2001 Newburyport Master Plan
- Half Moon Bay Area Coastside Ecotourism Program
- 2010 Town of Mammoth Lake, CA Recreation Plan
- Alaska Wilderness Recreation and Tourism Association
- 2002 North Quabbin Ecotourism Marketing Report
- “Outdoor Recreation and the Quabbin Reservoir: An Exercise in Political Maneuvering?” (Cohen & Loomis, 2003)

## 14 ECOTOURISM MASTER PLAN CHAPTER

### 14.1 GOAL

*To strengthen the town’s economic vitality through the preservation and enhancement of local, nature-based recreational and cultural opportunities. Initiatives will focus on business networks, asset identification, open space conservation and utilization, historical heritage, and marketing and promotion of the Town of Hardwick as an ecotourism destination. Such strategies will allow the community to build a solid foundation for ecotourism off of existing conditions that can be expanded on in the future.*

It is important to note that ecotourism is made up of **three parts**: conserving the environment, supporting the local economy, and celebrating the local heritage and culture. When creating an ecotourism master plan chapter for your community, all three parts must be equally represented and fully explored. By equally representing each portion, a community has the potential to become sustainable through the tourism industry without degrading their natural landscape or marginalizing their community.

### 14.2 OBJECTIVE E.1: ECONOMIC DEVELOPMENT

*Develop a more substantial local economic base through lodging, public amenities, innovative event space, and infrastructure to increase revenue for the community as well as to provide basic necessities for visitors.*

The tourism and travel sector of the economy is growing fast into an important part of the global economy. In 2010, this sector contributed 9 percent to the total gross domestic product (GDP) of the global economy, as well as 235 million jobs (International Labor Organization, 2011). For this, economic development objectives and strategies are extremely important to the mission of ecotourism within a community. Through creating avenues for local businesses and residents to gain revenue and employment, the overall community will benefit. It is imperative to point out that for this objective to be successful, the majority of the revenue needs to stay within the community. The creation of a strong local economic base will allow the community to take more risks in investments for the future, if such risks are in line with the community’s values.

#### 14.2.1 Strategy E.1.A<sup>1</sup>

*Establish lodging opportunities such as bed and breakfasts, hostel, or Airbnb hosts. One of the most important avenues for a community to earn money within a tourism economy is to provide ample options for overnight stays. Ecotourism activities tend to use natural resources already*

<sup>1</sup> Precedent material: 2001 Newburyport Master Plan ED 2.2

existing in the community; it is also difficult to adopt a policy where people are charged a fee for hiking or bird watching. One strategy to compensate for this is by establishing a solid lodging base that will make Hardwick a more welcoming town for overnight trips.

#### **14.2.2 Strategy E.1.B<sup>2</sup>**

*Develop an Ecotourism Visitors Center, in collaboration with neighboring communities, to centralize information on ecotourism activities, as well as to provide public restrooms and general information about Hardwick and the region.* When visiting a community for the first time, tourists must have a central place in which they can gather information about the activities and services that the town provides for their ecotourism needs. Establishing a visitors center will give Hardwick a foundation to build an ecotourism enterprise. This center will also provide basic necessities such as public restrooms, which make a community more visitor friendly.

#### **14.2.3 Strategy E.1.C<sup>3</sup>**

*Utilize Eagle Hill School's newly built cultural center and readily available space in the summer months.* Eagle Hill School has been a mainstay within Hardwick since its inception in 1967. This school draws families from out of town to the area, providing an ample clientele base to which Hardwick could market ecotourism opportunities. Additionally, Eagle Hill built a \$15 million cultural center which boasts many useful amenities, such as a professional performance space and capacity for large-scale dining events. Hardwick should work with Eagle Hill to bring in tourist groups that could combine the use of their space with nearby recreational opportunities.

#### **14.2.4 Strategy E.1.D**

*Improve transportation routes to better accommodate cars and bicycles.* Throughout the bike-riding season, cyclists are visible all around the Quabbin Reservoir. However, roads do not include bike lanes, which can pose a dangerous situation to the bikers, as well as automobiles. In order for Hardwick to become known as a bike-friendly community, Hardwick should invest in bike infrastructure such as bike lanes, signage, bike racks, and safety measures.

#### **14.2.5 Strategy E.1.E<sup>4</sup>**

*Collaborate with public and private partners who currently have a stake in existing ecotourism infrastructure and have a vested interest in sustaining ecotourism activities.* To create successful ecotourism programs, trails, events, etc., it is imperative to build off of the existing infrastructure within the community. Collaborating with existing groups that participate in ecotourism activities will create a more stable platform to launch programs for ecotourism. For example, drawing on the existing snowmobile culture and clubs that exist in the regional area surrounding Hardwick will increase the probability that enhanced snowmobile trails and resources would succeed. This is true of any activity that will be introduced within the community.

#### **14.2.6 Strategy E.1.F<sup>5</sup>**

*Commit to supporting and utilizing the existing resources, skills, and residents within Hardwick.* Provide direct financial benefits to the local residents and economy by sourcing skills and assets from the town of Hardwick. Economically enhancing the already rich skill set and

---

<sup>2</sup> Precedent material: 2010 Amherst Master Plan NC.2.E; case study of Columbia, NC in *Small Towns, Big Ideas*

<sup>3</sup> Precedent material: 2010 Amherst Master Plan E.3.D; case study of Columbia, NC in *Small Towns, Big Ideas*

<sup>4</sup> Precedent material: 2010 Town of Mammoth Lake, CA Recreation Plan

<sup>5</sup> Precedent material: Alaska Wilderness; case study of Big Stone Gap, VA in *Small Towns, Big Ideas*

amenities present in Hardwick will benefit the community first hand. Utilizing resources from outside the region could prohibit potential revitalization of the community and surrounding towns.

### **14.3 OBJECTIVE E.2: RECREATION AND WILDLIFE**

*Promote the appreciation of nature, education of ecological systems, and responsible four-season recreational opportunities within the Town of Hardwick for residents and visitors while conserving and enhancing areas for wildlife.*

The natural environment is essential to ecotourism. Through conservation of land for wildlife use and recreational opportunities, a community has a strong case for an ecotourism plan. It is ideal to have a positive relationship between how humans utilize open space and the needs of wildlife. Because the natural environment is a major part of ecotourism as a whole, it gives an economic incentive approach to a community for the conservation of open space and the promotion of responsible recreation. It is also critical to build an awareness and respect for the environment which is possible through this objective and its strategies.

#### **14.3.1 Strategy E.2.A**

*Create a user-friendly map of current recreational opportunities in Hardwick.* By creating a user-friendly map, visitors to Hardwick will be able to easily locate recreational areas and opportunities. This map can be in brochure form and distributed from a visitors center or the town hall. It would be beneficial for there to be a web-based version of this map that is interactive. Opportunities will be more easily accessible when clearly denoted in map form.

#### **14.3.2 Strategy E.2.B**

*Strengthen the relationship with MassBike to encourage more riding events in the area to promote Hardwick and the Quabbin Reservoir area as a quality place to visit and ride.* MassBike is an important partnership for the town of Hardwick to continue to foster. MassBike brings regional visitors to the Quabbin Reservoir area for rides around the reservoir. In the past they have used Eagle Hill as an overnight destination in their ride. Through cultivating this relationship, Hardwick could potentially increase of the number of cyclists. With an improved connection to MassBike, Hardwick could become a cyclist destination.

#### **14.3.3 Strategy E.2.C<sup>6</sup>**

*Identify land where conservation and recreation simultaneously take place and identify areas in which this relationship could improve.* Oftentimes, conservation and recreation are not seen as mutually exclusive. The town of Hardwick possesses areas in which both can exist simultaneously at different degrees. Some examples are land owned by the East Quabbin Land Trust, Massachusetts Department of Conservation and Recreation Quabbin Reservoir land, and the Muddy Brook Wildlife Management Area. By promoting use of these lands, residents and visitors can gain a better understanding of the relationship between conservation and recreation, as well as what they can do to help perpetuate that relationship. An area of opportunity is the Dougal Range, which includes 2000 acres of uninterrupted upland forest, a rare find this side of the Berkshires. Such a large expanse of space is extremely important in maintaining local biodiversity and integrity. The East Quabbin Land Trust has been working with landowners since 2007 by providing mutually beneficial solutions of conservation and recreation. The town of

<sup>6</sup> Precedent material: 2010 Amherst Master Plan O.3.F



Hardwick should work with local and state agencies to identify other potential areas of similar significance.

**14.3.4 Strategy E.2.D<sup>7</sup>**

*Practice wildlife management to support traditional recreation such as hunting, fishing, trapping, and gathering.* There is a history of traditional recreation within Hardwick. In order to have a sustainable stock of wildlife and plants, Hardwick needs to practice active wildlife management. This can be done in partnership with local and state agencies, volunteer groups, and local landowners. Workshops on active wildlife management should be held for landowners and local residents in order to have a widespread effect across the whole community.

**14.3.5 Strategy E.2.E<sup>8</sup>**

*Establish network of trails and preserved land that opens up wildlife corridors and provides sufficient land for recreation.* The importance of establishing greenways distributes benefits to both recreation as well as conservation agendas. The establishment of trails, which encompass preserving the surrounding land, creating safe passageways for wildlife and ample recreational opportunities for hikers, birders, and snowshoers.

**14.3.6 Strategy E.2.F<sup>9</sup>**

*Promote opportunities to learn through ‘hands-on’ experiences and active participation.* Offer visitors the opportunity to participate in onsite activities such as harvesting or processing farm products, monitoring wildlife, restoring natural areas to create a connection with the pristine natural landscape and the residents in the community. Engaging visitors will offer a unique experience promoting the relationship with the natural environment.

**14.3.7 Strategy E.2.G<sup>10</sup>**

*Help visitors learn how they can contribute to restoration and conservation of natural and cultural resources.* Provide education opportunities for visitors to access knowledge on restoration and conservation in the area. Classes, bulletins, and kiosks along trails are methods of providing captions of educational information throughout the community. This education will allow visitors the necessary background to positively contribute to conservation of the natural land and resources in Hardwick.

**14.4 OBJECTIVE E.3: CULTURE AND HERITAGE**

*Enhance awareness of local businesses that utilize community assets and regional resources and highlight Hardwick’s heritage sites and events that provide a rich historical backdrop to visitors and cultivates the residents’ growing appreciation for the community culture.*

The culture and heritage of a community is what makes each ecotourism experience unique. By highlighting these qualities through appropriate strategies, a community can stand out and become a destination based on their unique characteristics. This type of objective is important because it fosters respect between the visitors and the community through contextual historical information and emphasizing community values. It also helps promote the local economy through increasing local capacity building and achieving sustainable development (TIES, 2015).

<sup>7</sup> Precedent material: 2010 Amherst Master Plan O.3.J

<sup>8</sup> Precedent material: 2009 Amherst Open Space Plan Section 6B

<sup>9</sup> Precedent material: Half Moon Bay Area Coastside Ecotourism Program

<sup>10</sup> Precedent material: Half Moon Bay Area Coastside Ecotourism Program

#### 14.4.1 Strategy E.3.A

*Create a database of local business owners.* Providing a list of local business owners that is accessible to the public, will increase awareness of the existing resources. This database would be beneficial to visitors who could easily be informed of the local businesses that they can visit and potentially purchase items from. This database would be helpful for the community when organizing events and trying to create a network of resources.

#### 14.4.2 Strategy E.3.B

*Utilize existing clientele from the Hardwick Community Fair to establish smaller, more focused events such as an art fair with regional artists or regional livestock shows.* Building on the success and support of already established events in Hardwick can maximize the probability of success for newer, smaller events. These events can attract more specific, niche groups of visitors. Smaller-scale annual events could potentially draw more visitors, who will presumably make purchases that boost the local economy, look at other attractions to potentially visit, and self-promote Hardwick's ecotourism when they leave.

#### 14.4.3 Strategy E.3.C<sup>11</sup>

*Set up a "Local Makers Tour" (i.e. cheese maker, bread maker, wine maker, and/or woodworking).* Hardwick has a strong base of local businesses that make unique, desirable products and have the potential to offer significant appeal for visitors. Encouraging these businesses to work as a network and create a tour, would provide an easily accessible attraction for visitors. The tour could be a simple self-guided tour using a brochure that has all of the local business featured, or could be slightly more sophisticated with transportation provided for visitors to each location.

#### 14.4.4 Strategy E.3.D<sup>12</sup>

*Create outreach tools to highlight historical battle sites within Hardwick.* The town of Hardwick has a rich historical past that the community is very proud of. Within Hardwick, various sites have been identified that could portray historically accurate accounts of events. Enhancing these historical sites can be done through the creation of hand held pamphlets, tours, enclosed kiosks with information, and events. Networking with other towns and cities nearby could provide a regional historical context.

### 14.5 OBJECTIVE E.4: MARKETING AND IMAGE

*Market and promote ecotourism through increased signage, marketing schemes in line with the community's character, and innovative approaches to increase knowledge and desire to access ecotourism in Hardwick.*

Although marketing and image are not one of the three parts of ecotourism, the objective raises awareness about a community to a potential visitor population. Through actively promoting a community to target populations, visitorship has the potential to increase, bringing revenue to the area. This objective also includes wayfinding within the community, creating easier access and a lower stress environment.

<sup>11</sup> Precedent material: Backroads Studio Tour, <http://www.backroadsstudiotour.com/>

<sup>12</sup> Precedent material: Amherst Master Plan NC.1.G; case study of Etwoah, TN in *Small Town, Big Ideas* report

### 14.5.1 Strategy E.4.A<sup>13</sup>

*Increase wayfinding within Hardwick and the Quabbin region to better direct visitors to key areas of ecotourism and town centers.* In the summer months, the arterial roads that provide access in and out of the community provide a pleasant drive through unspoiled nature. In the winter months, however, many sections of the roads are dark and not lit well. There is also an issue with poor signage that compounds this issue. Improving wayfinding using signage and other advancements to help visitors navigate through the town can also be used as a form of advertising for people passing through.

### 14.5.2 Strategy E.4.B<sup>14</sup>

*Develop an ecotourism image for the town that is unique and captivating to attract visitors.* A slogan is an effective way of connecting a consumer with a product. In the case of ecotourism, it is connecting the visitor (consumer) with the ecotourism activities. Marketing the enhanced or newly established ecotourism activities within the community is an essential step to the success of the project. Creating a catchy and memorable slogan will advertise and draw visitors to the activities.

### 14.5.3 Strategy E.4.C<sup>15</sup>

*Advertise active recreation opportunities to target audiences.* Promoting to the end user simply means finding a target audience and advertising to that group first because they hold the most potential due to their standing interests. For example promote hiking via outdoor sports equipment stores, fishing in a fishing supply store, and bicycling at bike events. Utilizing this method of advertising will create a base of consumers that will draw others who are less likely to explore an activity out of their comfort zone. Elements used to target an audience are listed below.

- Targeted marketing by asking questions like
- What type of people are interested in the activities offered?
- Who do we want to come here?
- Where do they live?
- What are their main interests?
- What is their income?
- Where do they currently go?

### 14.5.4 Strategy E.4.D<sup>16</sup>

*Create a brochure for the various ecotourism activities available in Hardwick to be disseminated at the potential visitor's center and local businesses.* Designing a brochure that showcases the multiple ecotourism activities, a map of Hardwick, and surrounding amenities is a tangible product that visitors can use to navigate the town. Brochures act as a guide as well as a marketing tool. Brochures can be distributed throughout the town, surrounding communities, and region to attract a range of visitors.

### 14.5.5 Strategy E.4.E<sup>17</sup>

*Endorse events that are currently successful in Hardwick, such as the Hardwick Community Fair.* This strategy is a two-part recommendation. The first piece is promoting ecotourism at

<sup>13</sup> Precedent material: 2002 North Quabbin Ecotourism Marketing Report

<sup>14</sup> Precedent material: 2002 North Quabbin Ecotourism Marketing Report

<sup>15</sup> Precedent material: 2002 North Quabbin Ecotourism Marketing Report

<sup>16</sup> Precedent material: FRCOG Chapter 9 Economic Development

<sup>17</sup> Precedent material: case study of Etowah, TN in *Small Town, Big Ideas* report

existing events to attract visitors to the town who will then be exposed to the ecotourism activities. Advertising at these events will reach a wide variety of groups who may not be exposed to other advertising. Additionally, promoting existing events (i.e. the Hardwick Community Fair) will draw a greater, presumably more diverse crowd into Hardwick. This new group of people then becomes a potential pool of clients for Hardwick's ecotourism activities.

## 15 CASE STUDIES

Case studies were derived from a report created by the North Carolina Rural Economic Development Center and the University of North Carolina School of Government. The report, *Small Towns, Big Ideas: Case Studies in Small Town Community Economic Development*, provide information about rural communities in the U.S. that used innovative strategies to create new economic opportunities. The 50 towns studied in this report were divided into four categories of strategies: "recreation or retirement destinations or adjacent to an abundance of natural assets...historic downtowns or prominent cultural or heritage assets...with or adjacent to a college campus ... adjacent to a metropolitan area or an interstate highway" (Lambe, 2008, p. viii). For the purpose of this research, the case studies pulled from this report are in the recreation/natural assets and the cultural and heritage assets. In each case, local civic leaders play a major role and the development activities are locally controlled. We believed that these aspects are important to implementing ecotourism within Massachusetts' rural communities.

### 15.1 BIG STONE GAP, VIRGINIA



**Figure 20: Cumberland Mountain Range (Source: <http://city.expert/big-stone-gap>)**

Big Stone Gap, Virginia is a small town in Wise County with the population of 5,614 (2010 U.S. Census). It is surrounded by natural beauty and resources because it lies in the Cumberland

Mountains (see Figure 20). Historically, the town's economic mainstay has been coal and textile. Since the industries have declined over the past few decades, a large portion of town residents have found themselves without work. In the late 1990s, local leaders decided to partner with Virginia Cooperative Extension as well as other regional organizations to enact an ecotourism strategy to boost Big Stone Gap's tourism and entrepreneurship (see Table 3).

**Table 3: Statistics of Big Stone Gap, VA (Source: Lambe, 2008)**

	Big Stone Gap
Population (2000)	4,800
Municipal budget (2005)	\$4 million <sup>15</sup>
Per capita income (2000)	\$13,000
Median household income (2000)	\$21,500
Poverty rate (2000)	26%
Minority population (2000)	6%
Proximity to urban center	137 miles to Knoxville, Tenn.
Proximity to interstate highway	58 miles
Strategic approach	Tourism Entrepreneurship
Time frame	1998-2007

Similar to Hardwick, Massachusetts, Big Stone Gap is surrounded by protected recreational land. The town boasts attractions such as Jefferson National Forest, Natural Tunnel State Park, the Appalachian Trail, the Trans-America Bike Route, and the Heart of Appalachia Bike Route and Science Drive. Big Stone Gap is also a stop on Virginia's *Crooked Road* heritage music trail. The town decided to harness these quality attractions through supporting local entrepreneurs and attracting new investment.

Big Stone Gap and its residents gained most of their economic wealth through the coal, textile, and tobacco industries. When the mining industry began to decline in the 1980s, companies began pulling their jobs out of Big Stone Gap. At its highest, the town's unemployment rate reached 20 percent (Lambe, 2008). Learning its lesson from its history, Big Stone Gap decided to invest in an economic foundation that was built on its local assets and opportunities, instead of relying on outsiders industries.

The town's main objective was to "develop an infrastructure to support entrepreneurship in the ecotourism industry" (Lambe, 2008, p. 26). This was accomplished through a few different strategies and many different organizations. First, was to provide assistance and reinforcement to new and inexperienced entrepreneurs. Virginia Cooperative Extension conducted workshops on how to start a new business. Mountain Empire Community College donated their time to give feedback on entrepreneur's business plans as well as financial guidance. Southwest Virginia Community Development Finance developed a special lending program specifically for entrepreneurs in Big Stone Gap who were focusing on ecotourism. Lastly, a large marketing and advertising campaign headed by Heart of Appalachia Tourism Authority was able to capture 50,000 information requests about Big Stone Gap (Lambe, 2008). According to the 2010-2014 American Community Survey 5-Year Estimates, Big Stone Gap's unemployment rate is down to 3.3 percent. Small businesses such as outfitters for kayaking and camping and the bed and breakfast industry are thriving and continue to grow.

## 15.2 COLUMBIA, NORTH CAROLINA



**Figure 21: Sunrise in Columbia, NC (Source: obxjoe.wordpress.com)**

Columbia, North Carolina is a small town in the Albemarle-Pamlico region with a population of 891 (2010 U.S. Census). This coastal town provides many recreational opportunities and scenic views (see Figure 21). Founded in 1793, the town thrived on the timber industry, aided by the corn, rice, and cotton plantations. After a plan fell through for an international aircraft manufacturer to move into town, Columbia had to begin focusing on assets that they currently possessed and the tourists that could enjoy the assets (see Table 4). Through collaboration, Columbia with its surrounding counties founded the Partnership for the Sounds in 1993. This nonprofit organization's main goal was to focus on regional ecotourism and allow for towns to collectively apply for project funding, instead of competing for it (Lambe, 2008). Through this partnership, Columbia received funding for a visitor's center, boardwalk, and an environmental education center.

**Table 4: Statistics of Columbia, NC (Source: Lambe, 2008)**

	Columbia
Population (2000)	820
Municipal budget (2006)	\$1.2 million <sup>29</sup>
Per capita income (2000)	\$12,220
Median household income (2000)	\$20,590
Poverty rate (2000)	34%
Minority population (2000)	61%
Proximity to urban center	78 miles to Greenville, N.C.
Proximity to interstate highway	98 miles
Strategic approach	Tourism
Time frame	1991-2007

The Partnership of the Sounds was fundamental to Columbia's tourism strategy. The non-profit aimed to gain funding for ecotourism-related facilities and ultimately created a cooperative network between the facilities. Through a community-wide survey conducted in 1990, residents prioritized the construction of a visitors center and a boardwalk (Lambe, 2008). Columbia received a \$1 million grant from North Carolina Department of Transportation to build a visitors center at the town's entrance, with an adjacent mile-long boardwalk. The visitors center (see Figure 22) and board walk attract an average of 400,000 people a year (Lambe, 2008).



**Figure 22: Tyrrell County Visitors Center in Columbia, NC (Source: [www.historicalbemarletour.org](http://www.historicalbemarletour.org))**

In addition to the visitors center, Columbia received a grant to build a \$10 million 4-H environmental education center. The amenities provided by the center are similar to that provided by the Eagle Hill Cultural Center. The Eastern 4-H Environmental Education and Conference Center (see Figure 23) boasts a 250-seat meeting room, four areas for dining, as well as two executive lodges (Lambe, 2008).



**Figure 23: Eastern 4-H Environmental Education and Conference Center in Columbia, NC  
(Source: sustainability.ncsu.edu)**

Through the strategy of regional funding application and the construction of ecotourism-related facilities, there were over 100 jobs created in Columbia (Lambe, 2008). Columbia has continued to generate over \$15 million of funding for ecotourism-related projects through the Partnership of the Sounds. Due to the success Columbia has had with an ecotourism strategy, other towns looking to employ this strategy should consider some takeaways. A large factor in successful economic development is the integration of the community's vision. Through a comprehensive planning process and resident surveys, Columbia was able to understand how their residents viewed the future of their town. With a town of under 1,000, community support is critical. Furthermore, Columbia's regional approach to ecotourism was crucial to its achievement. Collaboration with surrounding towns allowed for a pooling of resources and knowledge as well as offering tourists a range of activities, spreading across the region.



### 15.3 ETOWAH, TENNESSEE



**Figure 24: Baby Falls in Cherokee National Forest in Etowah, TN (Source: <http://tennesseeoverhill.com/waterfalls/>)**

Etowah, Tennessee, with a population of 3,490 (2010 U.S. Census), was created by the Louisville & Nashville (L&N) Railroad Co. in 1906. Through 1974, Etowah was a company town. When L&N Railroad decided to leave, the city turned to other industries such as textiles and apparel manufacturing. This attempt eventually failed them and they turned to their existing assets such as the Cherokee National Forest (see Figure 24) and the railroad infrastructure for economic development inspiration. Etowah decided to focus their efforts on heritage tourism, downtown development, and industrial recruitment and expansion (see Table 5) (Lambe, 2008).

**Table 5: Statistics of Etowah, TN (Source: Lambe, 2008)**

	Etowah
Population (2000)	3,660
Municipal budget (2006)	\$3 million <sup>38</sup>
Per capita income (2000)	\$15,300
Median household income (2000)	\$28,000
Poverty rate (2000)	16%
Minority population (2000)	7%
Proximity to urban center	50 miles to Knoxville, Tenn.
Proximity to interstate highway	15 miles
Strategic approach	Industrial development Tourism Downtown development
Time frame	1998-2006

Although Etowah took a three pronged approach to their economic development strategy, the one most pertinent to this research is heritage tourism. Etowah rebuilt the L&N Railroad depot in the late 1970s which was the first structure built in the city. It was reopened as office space for the Tennessee Overhill Heritage Association, the Etowah Chamber of Commerce and an Etowah history museum. During a 1998 community strategic planning exercise, the possibilities of the abandoned rail line were brought to light (Lambe, 2008). In 2001, the City of Etowah raised \$1.6 million to purchase the railroad line and then rehabilitated the line with the partnership of the Tennessee Valley Authority. The Tennessee Overhill Heritage Association, whose offices reside in the train depot, used a National Trust for Historic Preservation grant to begin rail excursions on the newly renovated railroad. This trip is known as one of the most scenic rail trips in the U.S. and has become the anchor of Etowah's tourism industry (see Figure 25).



**Figure 25: Train excursions from Etowah, TN through the Cherokee National Forest (Source: [www.tvrail.com](http://www.tvrail.com))**

Through its three pronged approach, Etowah has accomplished many economic development goals. The rail excursions bring tens of thousands of tourists to the area which has aided in the increase in lodging opportunities. Also, the local winery has increased business by at least 30 percent during train excursions. By focusing on existing assets and possessing the willingness to change and adapt, Etowah was able to take control of their economy.

## 16 IMPEDIMENTS

Although there is great potential for ecotourism in the town of Hardwick, there are impediments that could prohibit the success of this economic development strategy. It is necessary that these impediments be discussed and resolved before the initiation of the project. Lodging is a critical barrier that must be discussed early on. When creating a destination based economy, economic success is only acquired when visitors maximize their time in a centralized location. If there is no place for visitors to stay directly in Hardwick, then the town loses the potential revenue that comes along with overnight visitors including but not limited to food, various products/apparel, and a place to sleep. Since there is no lodging in Hardwick, the town must discuss a strategy to create lodging options (i.e. hotel, Airbnb hosts, and bed and breakfasts)

Gaining the support of residents could potentially be an impediment for the success of ecotourism. The residents help make the community of Hardwick the exceptional place that it is, and making sure they are comfortable with ecotourism as economic development is essential to the success of this project. The residents must be addressed with the changes that will be made, additions to the town, and the type/quantity of visitors that will potentially travel to Hardwick.

Due to the general nature of ecotourism, there is a wide spectrum of clientele that will visit the area. At one end of the spectrum are passive recreation users who will visit to utilize the identified trails and on the other end of the spectrum are active recreation users who will utilize the vast land for activities such as hunting. Potential conflicts can occur between these different groups, and addressing any problems ahead of time will make for a more enjoyable visit for all parties. For example, land that allows hunting will need to be clearly identified with strict rules and regulations in order to insure the safety and well-being of passive recreation users who could potentially be hiking the land. The safety and well-being regarding all permitted ecotourism activities must be addressed and properly posted.

Other general impediments that the town will have to address include funding the project, improving public amenities, and increasing way finding in the town. There are other barriers that the town will inevitably face when implementing this project however, if the community is driven and flexible to change, ecotourism as an economic development strategy could be enormously prosperous for the town.

## **17 RECOMMENDATIONS**

The UMass CED recommends that in the next five years, Hardwick utilize this ecotourism master plan chapter to develop the objectives that are discussed within this plan. Hiring an intern/temporary position will be in the best interest for Hardwick. Creating a position that focuses on the success of this project will eliminate stress from another position and also allow time and focus to the success of this project. The position should focus on the development of ecotourism within the town, identify available funding and grants, and conduct an economic analysis study that calculates how much a visitor would spend if they stayed in Hardwick two nights and participated in the new ecotourism spaces. This position should also bring clarity to the potential ecotourism projects for the town of Hardwick would like to invest funds and time into. At the end of the 5 years, the potential projects should be identified, funding should be sourced, and implementation of ecotourism should begin.

The UMass CED recommends that in ten years the town of Hardwick should implement ecotourism activities and make them accessible for use. To aid in the implementation of ecotourism activities, amenities for visitors should also be developed. Once ecotourism activities are accessible to the public, marketing must commence.

## **18 NEXT STEPS**

This report is one of many steps in the relationship between UMass CED and the town of Hardwick. The next steps include strategies suggested by the town of Hardwick as how to better integrate more residents into the ecotourism vision.

### **18.1 YOUTH CHARRETTE (FEBRUARY 2016)**

It was brought to the attention of the UMass CED that this project might benefit from the inclusion of Hardwick's youth. The committee asked that we conduct a youth charrette that will

clearly explain ecotourism and include activities that will allow the youth to express how their vision of Hardwick's future and ecotourism intersect.

## **18.2 STATE OF THE TOWN FORUM (MAY 2016)**

Every May, the town of Hardwick holds a State of the Town Forum. This is a community participation event where residents come together to discuss their town's vision, goals, and issues. The forum has central topic that discussion is focused around. Last year, an UMass CED research associate conducted the town forum on a capital plan for Hardwick. It is our goal to conduct the 2016 State of the Town Forum on ecotourism as an economic development strategy for Hardwick.

## **19 CONCLUSION**

In conclusion, ecotourism can be a positive economic development strategy for communities looking to increase town revenue through utilizing their existing resources and natural assets. Ecotourism, in general, does not require much development or infrastructure, making it a viable choice for rural communities in Massachusetts. The town of Hardwick is a good pilot for the ecotourism master plan chapter because of their abundance of natural resources and local businesses. It is important to understand that each community's master plan chapter could have different objectives and strategies to achieve the overall goal of economic development through ecotourism.

Precedent material and case studies were an integral part of creating a model ecotourism master plan chapter. Through integrating objectives and strategies practiced within other communities with the existing resources and natural assets of a target community, there is a foundation of best-practices to uphold decisions made. It is pertinent that the success of ecotourism in communities currently practicing is common knowledge. They stand as an example of the potential for rural Massachusetts communities.

Innovative economic development strategies will always come with impediments. It is crucial for communities to foresee these impediments and proactively resolve them to the best of their ability. Addressing the impediments directly will make for a more successful economic development process and outcome. It is essential to have the residents of the community in support of ecotourism; their culture and heritage is a large part of what makes up the ecotourism strategy. Without their backing, the success of ecotourism will be greatly reduced. Ample community participation and involvement must be the foundation to the objectives and strategies included in an ecotourism master plan chapter.

To successfully plan for ecotourism, economic development, recreation and wildlife, culture and heritage, and marketing and image are crucial aspects to the master plan chapter. This model master plan chapter provides an outline for rural Massachusetts communities that are looking for an innovative economic development strategy that utilizes existing resources and natural assets with little need for development and infrastructure.

## 20 REFERENCES

- Alaska Wilderness Recreation and Tourism Association. (2010). Ecotourism Guidelines. Retrieved from <http://www.awrta.org>
- Chamber of Commerce. (2010). Half Moon Bay Coastside. Retrieved from <http://www.halfmoonbaychamber.org/visitors-guide>
- Cohen, B. and Loomis, D. (2003). Outdoor Recreation and the Quabbin Reservoir “An Exercise in Political Maneuvering.” Retrieved from [http://www.fs.fed.us/ne/newtown\\_square/publications/technical\\_reports/pdfs/2004/317papers/cohen317.pdf](http://www.fs.fed.us/ne/newtown_square/publications/technical_reports/pdfs/2004/317papers/cohen317.pdf)
- East Quabbin Land Trust. (2009). Farming into the Future. Retrieved from <http://www.eqlt.org/NewsletterJun09.pdf>
- International Labour Organization. (2011). *Employment in the Tourism Industry Grows Quickly*. Retrieved from [http://www.ilo.org/global/publications/magazines-and-journals/world-of-work-magazine/articles/WCMS\\_157893/lang--en/index.htm](http://www.ilo.org/global/publications/magazines-and-journals/world-of-work-magazine/articles/WCMS_157893/lang--en/index.htm)
- The International Ecotourism Society. (2015). Retrieved from <http://www.ecotourism.org/>
- Lamb, W. (2008) *Small Towns, Big Ideas: Case Studies in Small Town Community Economic Development*. Raleigh, NC. UNC School of Government - N.C. Rural Economic Development Center.
- Mullin, J. (1986). Infrastructure Planning in Rural Massachusetts. Retrieved from [http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1006&context=larp\\_faculty\\_pubs](http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1006&context=larp_faculty_pubs)
- North Quabbin Community Forestry Initiative. (2001). *Ecotourism Marketing Report*. Retrieved from <http://frcog.org/wp-content/uploads/2014/09/North-Quabbin-Ecotourism-Marketing-Report-2002.pdf>
- Town of Hardwick Planning Department. (2013). *Open Space and Recreation Plan*
- The Town of Hardwick. (2015). *History*. Retrieved from <http://www.townofhardwick.com/History.html>
- Town of Amherst Planning Department. (2011). *Master Plan*. Retrieved from <https://www.amherstma.gov/526/Master-Plan>
- Town of Amherst Planning Department. (2009). *Open Space and Recreation Plan*. Retrieved from <https://www.amherstma.gov/DocumentCenter/Home/View/225>
- The Town of Newburyport Planning Department. (2001). *Master Plan*. Retrieved from <http://www.cityofnewburyport.com/master-plan-steering-committee>
- Town of Mammoth Lake, CA Planning Department. (2009). *Recreation Plan*. Retrieved from <http://www.ci.mammoth-lakes.ca.us/index.aspx?NID=125>
- U.S. Census Bureau. (2010). *Median family income*. Retrieved from <http://search.census.gov/search?utf8=✓&sc=0&query=hardwick+ma&m=&affiliate=census&commit=Search>
- U.S. Census Bureau. (2010-14). *American Community Survey 5-Year Estimates*
- USDA Rural Development. (2015). *Rural Development Programs Information for Massachusetts, Connecticut, and Rhode Island*. Retrieved from [http://masscptc.org/documents/conference-docs/2013/Rural\\_Develop\\_Quick\\_Reference\\_3\\_16\\_13.pdf](http://masscptc.org/documents/conference-docs/2013/Rural_Develop_Quick_Reference_3_16_13.pdf)

## 21 APPENDICES

### 21.1 APPENDIX I: TABLE OF ACTIVITIES ALLOWED AND RESTRICTIONS ON THE QUABBIN RESERVOIR DCR LAND (SOURCE: COHEN AND LOOMIS, 2003)

Activities Allowed	Restrictions
Bicycling	only on paved roads so as to prevent solid erosion and limit access to shoreline
Sledding	Allowed down hills in areas other than the reservoir, Prescott Peninsula, reservoir islands, the dam or the dike so as to protect these structures and because of the potential for injury due to the steep slope of the dam.
Hiking, walking, and snow shoeing	Allowed in designated areas and/or during designated times because the MDC must limit access to sensitive areas to protect the drinking water quality from contamination by improperly disposed of sanitary wastes.
Shore Fishing	Allowed on approximately 50% of the shoreline, by foot during regular fishing season. This is allowed due to early legislation. The MDC feels that by limiting the access areas, it limits potential negative impacts to the water quality.
Boat Fishing	allowed only with a valid Massachusetts fishing license or a one-day, five- dollar Quabbin license, on three-quarters of the west branch of the reservoir, and more than two- thirds of the middle branch of the reservoir. Boats are restricted to the area north of the intake valves which draw the water from the reservoir to be sent to consumers. Furthermore, the horsepower of the motors is limited to 20 hp for a two- stroke engine and 25 hp for a four- stroke engine. By limiting motor size, the MDC limits the potential for pollution from this source.
Kayaking and canoeing	Allowed, but not on the main part of the reservoir. Only on a small pond that branches off from the reservoir. This is due to concern over human safety, increased usage and potential harm to water quality. It is only recently that kayakers and canoers have been given access to the Quabbin.
Night access	Allowed for fishing purposes, with a night access permit.

Assemblies	Gatherings of more than 25 people need to apply for a permit. When requested, permits are usually granted to groups. For example, many people hold their wedding ceremonies at the Quabbin. This is allowed as long as cars are parked so as to avoid blocking the flow of traffic and nothing is put up that will be driven into the ground or a tree. Also, schools, scout troops, and camps, often apply for and receive permits for groups of 25 or more to hike into various gates for educational purposes.
------------	---

**21.2 APPENDIX II: TABLE OF ACTIVITIES NOT ALLOWED ON THE QUABBIN RESERVOIR DCR LAND (SOURCE: COHEN AND LOOMIS, 2003)**

<b>Activities Not Allowed</b>	<b>Reason</b>
Off-road motorized vehicles	Cause excessive erosion and can leak fuels or other hazardous materials onto watershed land, which can end up in the public water supply.
Snowmobiles	this is due to the potential introduction of fuel and other harmful chemicals as well as a potential impact to the natural character of the area
Cross-country Skiing	Not allowed within the reservation due to the threat of illegal access onto the frozen reservoir and to protect public health and safety. MDC feels that cross-country skiing could potentially conflict with providing clean and abundant water to the public.
Hunting and trapping	With the exception of the annual controlled deer hunt
Ice fishing & ice skating on the reservoir	Due to concerns over sanitary and safety issues. Ice fishing is allowed on three small ponds that are within the reservation, but not connected to the reservoir. These ponds are shallow and their water does not flow into the Quabbin reservoir
Fires & cooking	Due to risk of forest fire. “. . . the majority of forest fires in the Quabbin Reservoir Watershed System have been started by camping fires”
Sail boating and windsurfing	Due to “potential public health, safety, and logistical problems” (MDC, 1998). Specifically, MDC personnel are worried about the impact on human health if human waste enters the reservoir. Safety concerns center around the ease at which these objects tip over. This is because the temperature in the main body of the reservoir is “fairly cold” year round (personal communication). Logistical problems stem from the fact that the MDC Quabbin does

	not have enough man power to patrol the entire reservoir and come to the aid of people stranded in the water in a timely manner.
Swimming	Because swimming in the reservoir or any of its tributaries increases the potential for contamination by pathogens, such as Cryptosporidium and Giardia.
Consumption of alcohol	Due to the increased potential for those under the influence to disregard MDC's rules and regulations.
Organized Sports	Due to the potential for increased recreation in the Quabbin watershed.
Domestic animals	Due to the potential for the introduction of Cryptosporidium and/or Giardia. Dogs, cats and cattle are carriers of these organisms. So are beaver, muskrats, and gulls. The MDC takes measures to control the occurrence of these animals near the intake valves. Other wild animals, such as deer and moose have not been found to be carriers of these organisms, although they can certainly pick them up from contact with infected feces of a carrier animal. Furthermore, dogs are a concern because they harass wildlife and other visitors.
Collecting and metal detecting	To protect historic and pre-colonial sites.
Camping, this includes tents, trailers, lean-to's, and motor homes	Due to public health and safety concerns. Camping increases sanitation problems, fire issues and the number of users. Furthermore, it "would divert water management resources to conduct recreational management activities" (MDC, 1998).
Fishing derbies	Due to the potential increase in visitor numbers.
Target shooting	"To preserve the apparent natural character in the system" (MDC, 1998).