



Central Vermont Regional Planning Commission

RESOLUTION

WHEREAS, the Town of Barre, Vermont prepared amendments to their municipal plan in accordance with Chapter 117 of Title 24 of the Vermont Statutes, and the Regional Planning Commission found that the amendments meet all the requirements for approval under both the Commission's review process and Section §4350 of Chapter 117;

AND WHEREAS, Title 24, VSA, Section §4350 requires that CVRPC consult with member municipalities with respect to their planning efforts, requires that a municipality have a plan approved by its regional planning commission in order to have its planning process confirmed, and requires that a municipality maintains the use of local funds for local and regional planning;

THEREFORE, BE IT RESOLVED THAT

The Regional Planning Commission concludes that the Municipal Plan Amendments:

1. are consistent with the goals established in Section §4302 of the Act;
2. are compatible with the Central Vermont Regional Plan;
3. are compatible with the approved plans of other municipalities in the region; and
4. maintain all the elements as required in Section §4382 of the Act;

AND does hereby **APPROVE** the 2016 Amendments to the Barre Town Plan, dated October 27, 2016.

FURTHERMORE, in compliance with Title 24 VSA Section §4350, the CVRPC has consulted with and confirms the planning process of the Town of Barre. It is noted that when an adopted municipal plan expires, its approval also expires. Recommendations made by the Regional Planning Commission's Review Committee should be considered when developing the next edition of the Municipal Plan. If the municipality has zoning or other regulatory bylaws or is considering adopting bylaws, it is important that the bylaws are in compliance with the current Municipal Plan.

ADOPTED by the Central Vermont Regional Planning Commission at its May 9, 2017 meeting.

Byron Atwood, Chair

Byron Atwood, Chair
Central Vermont Regional Planning Commission

3. TRANSPORTATION

3.1 HIGHWAY PLAN

Highways form the backbone of the transportation system in Barre Town. Proper location, design, construction and maintenance of this important public investment are essential if economic vitality, environmental preservation and quality of life are to be assured for the Town's citizens. A properly designed highway system contributes directly towards the environmental goal of reducing highway miles traveled using fossil fuels.

The Selectboard maintains an ongoing five-year highway improvement plan that contains specific projects and priorities. Since this is updated on a yearly basis, the improvement plan was not included in this Plan. Those interested in the Highway Improvement Plan should contact the Town Manager's Office.

In 1991, the Selectboard adopted a Highway Ordinance intending to assure new roads are built in accordance with sound engineering practices to protect existing roads from overweight vehicles and to clarify responsibilities for class 4 roads and trails.

Highways are classified first as urban or rural, and then into one of four functional categories: controlled access highways, arterial, collector and local. Controlled access highways and arterials are main roads whose primary purpose is the efficient movement of vehicles. Collector highways feed the arterial system and also provide land access to a significant degree. Local highways are primarily oriented toward land access.

Most of the roads in Barre Town fall into the local classification but a significant number are also collectors or arterials. For example, Cummings Road and the Plainfield Brook Road are both Class II roads but in addition, traffic counts indicate that the roads carry high volumes of traffic to/from Plainfield.

- These roads should be reviewed in the future as collector highways needing improvements. A few of the Town highways and all of the State highways passing through Barre Town are classified arterials.

The Selectboard formed the Ancient Roads Committee on January 29, 2008. This committee is designed to research roads which have fallen from use 150 years ago, and over which legal rights for a road remain over the property. The Vermont State Legislature which is trying to clear up this dilemma for towns and property owners. This committee has been researching to declare right-of-ways on all ancient roads in the Town. These roads will be reclassified or retained by the Town at this time.

Federal and State Highways

Two US highways and three State highways lie within Barre Town. With the exception of a short US RT 2 segment which connects to no town highway, these arterial highways are the principal means of access in and out of Barre Town. They provide the principal travel routes for inter-town trips whether for work, shopping or entertainment. Although these highways are of great significance to the Town, maintenance and construction of them is the responsibility of the state. There are 11.572 miles of US and State Highways in the town. US and State Highways within Barre Town are illustrated on the region map in the map section of this document (Map 1).

- US RT 302, arterial highway, runs generally east and west passing through East Barre Village. To the west, it provides a connection to Barre City and access to Berlin and Montpelier. To the east, it runs through the Town of Orange and provides access to the Connecticut River Valley and New Hampshire.
- US RT 2, an arterial, provides a link between Montpelier and St. Johnsbury, has a very short segment which passes through the northwest corner of the Town.
- VT RT 14, an arterial, runs north and south through Barre Town and Barre City. RT VT 14 serves as a vital link

54 between the northern half and the southern half of Barre Town. It connects to Williamstown and points south,
55 and in the north it provides access to East Montpelier where it intersects US RT 2.

56
57 • VT RT 63, an arterial, is better known as the South Barre Access Road and provides important linkage to
58 Interstate 89 (a freeway). VT RT 63 is the only controlled access highway within Barre Town. Access is
59 prohibited except at approved public highway intersections.

60
61 • VT RT 110, a collector highway, provides access to the Town of Washington south of East Barre.

62 63 **Town Highways**

64
65 The town highway system is the network of roads that all town residents rely on for personal land access, travel to
66 other places within the Town, convenient travel to adjacent towns and connection to the State highway system. All town
67 highways are categorized into one or another of the following classes for the purpose of receiving highway aid:

68 69 **Class 1 Highways**

70
71 There are no Class 1 town highways in Barre Town.

72 73 **Class 2 Highways**

74
75 Are considered the most important town highways and serve as trunk routes within the Town and between
76 Barre Town and surrounding towns. They are generally the more heavily traveled routes in town. They have an all-
77 weather surface, and provide links between major business and residential centers within town. The Selectboard
78 determines which highways will be designated as Class 2, subject to approval of the State Transportation Board.
79 There are 21.56 miles of Class 2 highways in Barre Town.

80 81 **Class 3 Highways**

82
83 Are all traveled highways other than Class 1 or 2. The Selectboard, after conference with a representative of
84 the State Transportation Board, determine which highways will be designated Class 3. Construction and
85 maintenance of Class 3 Town Highways is the primary responsibility of Barre Town but state highway aid is
86 provided to assist in the expense. There are 73.62 miles of Class 3 Town Highways in Barre Town.

87 88 **Class 4 Highways**

89
90 Are all other town highways and pent roads. The Selectboard determines which highways will be designated
91 Class 4. There are currently 4.89 miles of Class 4 roads in Barre Town.

92 93 **Town Highway Bridges**

94
95 Providing safe and adequate bridges for the highway transportation system is extremely important.

- 96
97 • Adequate periodic maintenance of bridges is essential to avoid catastrophic or costly loss. There are two
98 bridges and 22 major culverts on Barre Town highways. The two bridges are both located in South Barre, one
99 on Snowbridge Road the other on Bridge Street. Long in need of replacement, the Bridge Street Bridge was
100 replaced by the State of Vermont in 2013. Barre Town paid 5% of the total cost.
- 101 • Continued maintenance and inspection of bridge and culverts is necessary to ensure an adequate and safe
102 transportation network.

103
104 Legal Trails: There are 1.06 miles of legal trails in the Town. The Selectboard is reviewing unidentified corridors
105 for possible inclusion into the Highway system.

108 **Town Highway System Deficiencies (Map 6)**

- 109
- 110 • Identification and prioritization of system deficiencies is necessary to guide Town officials in the effective use of
111 limited highway budgets. Top priority should be placed on projects which will preserve the existing facilities and
112 enhance safety. Periodic inspection of roads and bridges should be carried out to determine those needs.
113 Periodic bridge inspections by the State Agency of Transportation provide critical maintenance information on
114 structures. These activities should continue. In addition, the Town should continue the formal pavement
115 management system to assist in making optimal use of limited resources.
 - 116
 - 117 • Secondary priority should be given to those projects which will relieve congestion and provide greater capacity.
118 Identification of those needs requires careful consideration of many factors, including current system capacity,
119 present and future growth, desired lines of travel, and sources and availability of funds, character of the area
120 (i.e. residential neighborhoods). Several alternatives should be investigated in finding solutions to a given
121 problem, and public input into the location and design processes should be actively solicited.
 - 122
 - 123 • Present deficiencies which are presently apparent involve the efficient movement of people from major
124 population centers within town to the major arterial highways in the area. Most significant examples are: (1)
125 travel between the Websterville/Graniteville area and I-89, (2) travel between the Websterville/Graniteville area
126 and VT RT 14 in Barre City, and (3) travel between the Trow Hill area and US RT 302 in Barre City.
 - 127
 - 128 • Another present deficiency involves travel between the northeast portion of Barre Town and US RT 2 in
129 Plainfield. The improvement of US RT 2 and VT RT 14 in the East Montpelier area may provide an attractive
130 alternative to the present unpaved rural roads connecting these areas. The intersection of VT RT 63 and Miller
131 Road continues to be a high accident location. The Town would like to work with the State of Vermont to figure
132 out a remedy which would increase safety at this site. VT RT 14/Bridge Street/Sterling Hill Road intersection is
133 also a high crash location. Plans are well in the works to perform a slight realignment and make overall
134 improvements to the intersection including signalizing. Finally, Mill Street at VT RT 110 is currently a Y
135 intersection which makes for poor sight distance. Plans call for this intersection to be realigned into a T. All of
136 these projects are important to and highly supported by Barre Town with regard to safety and economic
137 development. It is hoped that the State of Vermont will make these improvements a high priority.
 - 138
 - 139 • In addition to these deficient categories, system needs may arise as a result of planned development. These
140 needs should be carefully analyzed to ensure that the developer is assessed a fair share of the costs of
141 needed improvements. All such improvements should be constructed to the Town's established standards.
 - 142

143 **Recommendations for Future Improvements**

- 144
- 145 • Future improvements to the Town Highway System may come about as a result of relocation or widening of
146 existing facilities or as a result of new development. Relocation or widening should be done within existing
147 rights-of-way whenever feasible. It should be accomplished with minimal disturbance to homes, businesses,
148 streams, ponds, wetlands, schools and public recreational facilities and to important historic and archaeological
149 resources. Highway location and construction should also be accomplished in such a way as to minimize
150 encroachment on agricultural and significant forest areas, and with minimal adverse impact on ground water,
151 scenic trees and vistas. Conservation of resources should be a goal in all highway construction and
152 rehabilitation. The reuse of pavement grindings for surfacing shoulders or parking lots is to be encouraged.
153 New roadways which will eventually be taken over by the Town should adhere to the same location, design
154 and construction standards as indicated above.
 - 155

156 **3.2 ACCOMMODATION OF TRUCKS, BICYCLES, AND PEDESTRIANS**

157 **Trucks**

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159
160 It is important that adequate highways be provided to support safe and efficient truck travel because trucking is vital
161 to the economic vitality of the Town. Therefore, it is necessary to identify those routes principally used by trucks to

162 ensure that they are properly constructed and maintained for safe use by everyone.

163

164 **Principal Truck Routes**

165

166 The principal truck routes on Town highways are (list may not be inclusive):

167

168 No excess weight permits necessary (Legal Load Same as State Highway (LASH)):

169

170 Quarry Hill Road; Graniteville Road (to #773); Websterville Road; Pitman Road; Parker Road;

171

172 Others that would require an excess weight permit:

173

174 Farwell Street; Pine Hill Road; Plainfield Brook Road; East and West Cobble Hill Road; Windywood

175 Road; Cummings Road; Hill Street; Airport Road; Upper Prospect Street; Morrison Road; Bridge

176 Street; Church Hill Road; Cogswell Street;

177

178 Excess weight permits are issued by the Town Manager.

179

180 **Bicycles (Map 5)**

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182 This section deals with shared use of roads between vehicles and bicycles, not bike paths. Bicycles provide a clean,
183 economical and energy efficient mode of transportation. They are a primary means of transportation for many and have
184 become an increasingly popular form of recreation and transportation for adults. The hilly terrain found in much of the
185 Town does not encourage long, cross-town trips. Therefore, in addition to the limited bike paths that have been
186 constructed to accommodate bicycles, safe and convenient bicycle routes encompassing Town roads should be
187 provided or developed in the Town.

188

189 Bicycle traffic can be expected on nearly all, if not all, of the highways within the Town. The reasons for bicycle trips
190 range from commuting to recreational. The commuter rider desires the most direct route with few interruptions, whereas
191 the recreational rider is riding for pleasure and a specific route has less importance. Riding ability differs greatly among
192 bicyclists. Some feel comfortable riding on a busy highway, other riders prefer to ride on a quiet street or rural road.

193

194 The planning and design of bicycle facilities whether they are improvements to existing highways, provisions
195 included in new highways, or separate exclusive routes for bicycles need to accommodate a broad range of bicyclists.

196

197 • Designating certain roadways as principal bicycle routes can be effective in discouraging bicycle traffic on
198 otherwise hazardous roadways. The principal routes must be generally hazard free in order to encourage the
199 more serious rider to take a less direct route.

200

201 • Some bicycle paths are physically separated from the highway and can be either within the highway right-of-
202 way or within a separate right-of-way. If bicycle paths are less than 5 feet from highways, physical barriers
203 such as fences or guardrail should be considered in order to divide the two distinct facilities.

204

205 • There is no completed bicycle route network within the Town. Most of the highways used by bicyclists do not
206 have sufficient shoulder width to safely accommodate them. Most of those highways which do have wider
207 shoulders do not have markings or signs delineating a preferred bike route.

208

209

210 **Recommendations for Future Improvements**

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212 • The Town should identify roads that would be conducive to bike travel that also fit into a master plan of creating
213 interconnected bike routes.

214

215 • Future improvements should begin with a needs analysis; facilities should be developed based on the results of

216 this study, as well as accessibility to existing and future facilities in adjoining communities; routes should be
217 located to improve accessibility to natural, scenic areas and bicycle traffic generators such as schools, parks,
218 playgrounds, and major employment centers;

- 219
- 220 • New roadways which are built and existing roadways which are improved should include provisions to safely
221 accommodate bicycles. Old railroad beds and Class 4 Town Highways provide excellent opportunities for bike
222 routes.
- 223
- 224 • Bike path from East Barre to the elementary school created.
- 225
- 226 • Both State and Federal funds are available for construction of bike paths. Cost of long-term maintenance and
227 overall safety of all path users should be considered during the review process of any proposed path, as well
228 as community benefits.
- 229
- 230 • Parking areas for vehicles should be conveniently located along bike routes to accommodate both the
231 recreational rider and the commuter; this is an important consideration given the steep grades which separate
232 much of the Town as well as separating the Town from neighboring communities. Consideration should also be
233 given to a parking area at the bottom of Richardson Road or one in the Cobble Hill area for scenic rural trips. A
234 well planned bicycle path system, with multiple nodes connecting to vehicle park-n-ride will allow residents to
235 minimize their use of fossil fuels.
- 236
- 237 • Any new bike path should be planned with consideration for additional width, signing, and striping in order to
238 facilitate sharing the facility with bicycles, pedestrians, and joggers.
- 239
- 240 • A bicycle path connecting the Trow Hill area to the Websterville area should be planned and constructed.
- 241
- 242 • Adding a bicycle corridor along Route 14 using existing right-of-ways should be considered.
- 243

244 **Pedestrians (Map 5)**

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246 Pedestrian walkways are an important and integral part of the transportation system.

- 247
- 248 • The construction of these facilities should be considered for the safety and convenience of pedestrian and
249 vehicular traffic.
- 250
- 251 • These byways should be provided for in those areas where the volume of traffic warrants the cost and
252 utilization of land for them.
- 253

254 Sidewalks are the most formal means of delineating walkways to separate pedestrian and vehicular traffic. They are
255 generally needed in areas of moderate to high density development. These facilities are found in a wide variety of types
256 as to width and surface materials and should be designed in accordance with acceptable standards to satisfy traffic
257 volumes.

- 258
- 259 • Sidewalk improvements should be planned at the same time that road improvements or other construction
260 projects are planned.
- 261

262 Footpaths are informal pedestrian walkways which may be utilized to move traffic between points or as nature trails
263 and other recreational purposes. These paths generally have specific uses and are not necessarily associated with the
264 need to separate pedestrian and vehicular traffic. Easements should be acquired or dedicated and maintained for the
265 public use of these footpaths.

266
267 Shared use paths serve as part of a transportation circulation system and support multiple recreation opportunities,
268 such as walking, bicycling, etc. Shared-use paths should always be designed to include pedestrians even if the primary
269 anticipated users are bicyclists.

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Recommended Future Improvements

- Future improvements may be either in the form of reconstruction of existing transportation facilities or new development.
- Consideration should be given to pedestrian needs, such as provision of wider, raised sidewalks, in the case of reconstruction or relocation of existing highways. The design of highway projects should include an analysis of pedestrian byway needs.
- All new and reconstructed sidewalks should include appropriate ramps at crosswalks and side streets to allow their use by the mobility impaired.
- Sidewalk Improvement - There are areas of the Town that are deficient in providing facilities for pedestrian traffic. Areas of primary concern are South Barre along VT 14 beginning at the existing sidewalk (at the intersection of Sterling Hill Road) north to Barre City at Parkside Terrace and south from the end of the existing sidewalk to Kings Row near the Williamstown town line and also along Richardson Road from the City line northerly to the intersection of Misty Mountain Drive.

Additional areas that should be incorporated into a study of pedestrian traffic facilities are along the through highways in East Barre, Bridge Street to the bridge, Upper Graniteville and Upper Websterville. East Barre is currently being studied for a sidewalk project on Mill Street from VT RT 110 to intersection of Websterville Road and then along Websterville Road to the post office.

3.3 PUBLIC TRANSPORTATION

Public transportation facilities in Barre Town are limited and the terrain of the Town is not conducive to many types. The three types of most significance to Town residents are discussed in the following paragraphs.

Air Transportation

Air transportation services are available at the Edward F. Knapp State Airport in Berlin and the Burlington International Airport in South Burlington. Access to the latter is attained primarily by Interstate I-89. Access to the E. F. Knapp Airport is gained most directly by use of Airport Road and Morrison Road (TH 7). Timely and adequate maintenance of these two routes is very important for a large number of Barre Town residents for airport access and for access to the hospital and shopping mall in Berlin. A twenty year plan for the airport was recently completed. It includes provisions for major improvements and expansion in the future.

Rail Transportation

Passenger transportation via Amtrak is available to Town residents in nearby Berlin. This rail access provides service south to the eastern U.S. seaboard and north to St. Albans. Passenger service within The town itself is not considered feasible at this time.

Rail freight service is presently available via the New England Central Railroad to the Websterville and Graniteville areas. Use of those facilities for hauling granite other heavy industrial products into Barre City and beyond has the potential to relieve the Town highway system of much wear and tear. Moving large, bulky products by rail is far more energy efficient than using truck transportation.

- Continued and expanded use of such facilities should be encouraged.
- Industrial growth should be encouraged primarily in those areas currently served by or close to rail transportation. As demand for rail service develops, the frequency of rail pick-up will increase, making rail transport as reliable as truck transport.

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- A common unloading/loading area along the rail line in the Wilson Industrial Park should be explored to allow greater access to the line for business located within the park.

328 **School and Commercial Bus Transportation**

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330 School bus transportation for Barre Town Middle and Elementary School students is currently provided at Town
331 expense. This service benefits the Town in several ways. It provides a safe and dependable way to pick up and
332 transport children to school, it is more economical than transportation of children by private automobile, and it reduces
333 the amount of traffic congestion and air pollution which would result from private automobile transportation.

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337
- Although private transportation to the school is becoming more popular, for all the reasons listed previously, public busing should continue to be a high priority.

338 Public bus transportation services are provided locally by GMT (Green Mountain Transit) and other privately owned
339 bus/van companies.

340 **Commuter Services**

341

342
343 The State of Vermont currently operates several commuter or ride share parking lots in the area. There is one such
344 lot located along South Barre Road (VT RT 14) in South Barre near VT RT 63 and another just west of East Barre along
345 US RT 302. VTrans also provides ride share parking lots in the adjacent communities of Berlin, Montpelier, East
346 Montpelier, Orange, and Williamstown. This leads to a reduction in vehicle miles traveled.

347
348 Green Mountain Transit currently operates a ride share pool and the Wheels Program for seniors. These types of
349 programs greatly increase the mobility of Barre Town residents who are limited in their personal resources or access to
350 family vehicles. This also reduces the demand of private vehicle use and its associated fossil fuel use.

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354
- GMT should be encouraged to continue its services and if possible expand them in the future as funding becomes available. One such beneficial expansion to consider would be expanding bus service into South Barre

355 **Other Transportation Proposals**

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357 The Town may also wish to look into the following:

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- Study functional efficiency of highways as well as quality/materials standards;
 - "Flex-time" – staggered work hours at granite manufacturing facilities and Industrial Park businesses to reduce peak hour congestion;
 - Specific intersections and roads which need improvements to improve traffic flow/safety and efficiency;
 - Support improvements to the Beckley Hill/US RT 302 intersection;
 - Continue to support and be involved with the Quarry Hill Road/Quarry Street Intersection upgrade at South Main Street (RT 14) which is proposed for construction in 2016;
 - Add Traffic Safety Committee review requirements to Subdivision Regulations;
 - Include a review of engineered traffic and warrants for signals
 - Developers putting in new roads should continue to pay for stop, speed limit and street signs and traffic signals as warranted. This should be required as a condition to subdivision approval;

- 378 • Developers putting in new curb cuts from driveways should utilize shared driveways design whenever
379 possible to eliminate curb-cuts off the roadways.
380
- 381 • The Town should encourage developers of commercial solar arrays to incorporate a plan to install public
382 access charging stations within Town limits.
383
- 384 • The Town should encourage businesses within the community to install charging stations.
385

386 **3.4 TRANSPORTATION GOALS**

- 387 • Preserve existing roads, bridges, and culverts by regular maintenance and continued inspections.
- 388 • Maintain the formal road plans to ensure good quality roads and to help make optimal use of limited
389 resources.
- 390 • Explore whenever practical ways to help reduce deficiencies as noted herein.
- 391 • Road projects should have minimal impact to the public, natural resources, and recreation.
- 392 • All new Town roads developed to a standard as called for by Town Code.
- 393 • Plan road projects with bicycles and pedestrians in mind.
- 394 • Encourage and support public transportation initiatives.

395 Encourage residents to reduce their use of transportation related to fossil fuels

1 8. ENERGY
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4 **8.1 OVERVIEW**
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6 Energy is an important component of any town's vitality. An energy plan is important to promote numerous benefits
7 which include municipal cost savings, increased revenues, a strong economy, greater energy independence and
8 security, local influence over energy facility siting, more efficient communities, healthier communities, a clean
9 environment, and regional coordination and collaboration. State incentives may be available to communities that have
10 energy plans.
11

12 To a large degree, energy costs are not controlled by a municipality; they are dictated by outside sources. The
13 number one demand for energy use in Vermont is in transportation. Heating is second followed by electrical use. So,
14 while Barre Town and its residents may not be able to control the cost of energy, they can always look toward
15 conservation and fuel switching as a way to cut cost and meet many of the benefits mentioned above.
16

- 17 • Other methods of energy conservation can also be encouraged such as the use of renewable energy sources
18 and energy efficient buildings. Promoting these things can also lead to job creation for the local work force.
19

20 **8.2 ENERGY OPPORTUNITIES**
21

22 Most of the opportunities for energy savings are within the confines of the private sector in transportation, homes
23 and commercial and industrial properties. However, there are a few opportunities for the municipality to save energy as
24 well. They include the following:
25

- 26 • Encourage cluster housing and neighborhood commercial services along established transportation routes;
- 27 • Encourage the development of pedestrian and bike paths and park and ride facilities throughout town;
- 28 • Promote public transportation and ride-sharing;
- 29 • Promote the use of energy efficient street lights in the community;
- 30 • Purchase the most energy efficient or alternative powered municipal vehicles that will, at the same time,
31 perform the necessary functions of the particular department.
32

33 **8.3 ENERGY CONSERVATION**
34

35 The greatest impact on reducing dependence on fossil fuels, both domestic and foreign, is to decrease the overall
36 demand for energy through conservation. Conservation also produces the most economic gain because it represents
37 money not spent for energy. Basic conservation efforts involve little or no monetary investment, but most likely will
38 involve changes in both culture behavior and life style. Additional efforts require an investment in reducing the energy
39 requirements of buildings.
40

41 While the Town of Barre cannot require energy conservation by citizens of the Town, the Town can certainly
42 actively promote energy conservation measures. This can be achieved through zoning bylaws, encouragement and
43 listing resources in the Town Newsletter, and on its Town website.
44

45 **Transportation**
46

47 **Private Sector**
48

49 While public transportation; buses and trains provide minimal opportunity in Barre Town for energy conservation,
50 there are several options available to residents to reduce the use of private motor vehicles. The first is to utilize formal
51 "park and ride" lots for carpooling. There are two established VTRANS commuter lots in Barre Town. One is located on
52 US RT 302 in East Barre, near the intersection of VT RT 110. The second is located on VT RT 14 adjacent to VT RT 63
53 (across from McDonald's). Though while not located in Barre Town, commuting lots are also located in Berlin,

54 Montpelier, East Montpelier, Orange, and Williamstown. Use of these managed (well-lit and maintained year-round) lots
55 is free, and they are provided to promote carpooling

56
57 Another option for setting up a carpool can be found at www.connectingcommuters.org, which helps those seeking
58 carpooling opportunities find car or vanpooling partners. For carpool matching, vanpools, and bus routes please call
59 800-685-7433 or visit their website.

60
61 Within the Town, development of multiple charging station locations will encourage the conversion from fossil fuel
62 vehicles to plug-in hybrid and full electric alternatives.

63 64 Commercial Sector

65
66 Businesses are encouraged to utilize rail transport when available. The Town's Wilson Industrial Park (WIP) and
67 areas of Quarry Hill, Websterville, and Graniteville have rail service connecting to Montpelier via the New England
68 Central Railroad.

69 70 Lighting

71 72 Street Lights

73
74 Barre Town completed a public street light survey in 2012 of all lights that the Town pays for. It was a great
75 opportunity to survey the lights in use and to make recommendations for additions or deletions to the street light
76 inventory. The goal was to replace existing street lights which are generally either mercury vapor, or high pressure
77 sodium, with LED lights. The changeover will be conducted in co-operation with Green Mountain Power. Expected
78 savings are around \$10,000 per year for the Town. In all, there were 86 existing lights removed and 24 added for a net
79 loss of 62.

80
81 There was no charge to the Town for the conversions. Because the Town pays Green Mountain Power a fixed fee
82 per street light (covers pole, light fixture, and maintenance), the town will not directly see the savings in either electric
83 use reduction or the reduced cost of electricity. However, Green Mountain Power will, by virtue of having to purchase
84 less electricity to operate the street lights.

85
86 This survey did not inventory privately owned outside lighting.

- 87
- 88 • Homeowners and businesses are encouraged to replace or upgrade current outside lights with LED's or
89 current technology.
- 90
- 91 • There may be funds available to pay for some or all of the light conversions from Green Mountain Power or
92 Washington Electric Co-op. or through Efficiency Vermont (www.encyvermont.com).
- 93

94 95 Interior Lights

96
97 Homes and businesses have several light replacement options available.

- 98 • Incandescent light bulbs can be changed out with CFL's or LEDS. Old fat tube (T-12) fluorescent tubes and
99 fixtures can be replaced with more efficient T-9 and T-7 (skinny) tubes and fixtures.
- 100
- 101 • Likewise, halogen and metal halide lights should be replaced with more efficient lighting. Efficiency Vermont
102 can assist with this. T-12 tubes are essentially no longer available so new construction will by default use the
103 newer more efficient skinny tubes.
- 104
- 105 • New construction of homes and businesses is encouraged to utilize energy efficient lighting.
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108 **Building Energy Audits**

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110 Home and business owners:

- 111
- 112 • Are encouraged to have a professional energy assessment performed by a certified home energy specialist or
- 113 ENERGY STAR[®] contractor to determine both energy losses from the building and to have a plan developed
- 114 to correct energy and heat loss deficiencies.
- 115
- 116 • Contact Efficiency Vermont for a list of certified contractors.
- 117

118 **Other**

- 119
- 120 • The use of power strips to fully turn TV's, computers, and other electronic devices off is encouraged. Turning
- 121 off unnecessary lights and electronic devices, turning down the thermostat, reducing the hot water temperature,
- 122 using water saving faucets, and shower heads are some of the other options.
- 123
- 124 • Using an outside clothes line or inside clothes bars can greatly minimize the need for an electric clothes dryer.
- 125 Older electric appliances can be replaced with newer energy star rated efficient units.
- 126

127 **8.4 TOWN BUILDINGS**

128
129 Barre Town owns several municipal buildings which represent an opportunity for both energy savings and a

130 reduction in operating costs.

131
132 The East Barre Fire Station has had lighting upgrades done (both interior and exterior), and the heating plant was

133 converted from #2 heating oil to propane in the fall of 2013.

134
135 The South Barre Fire Station needs interior light upgrades but most of the exterior lights were upgraded to LED in

136 2013. The heating plant was converted from #2 heating oil to propane in during the summer of 2013. An energy audit is

137 needed to determine insulation needs.

138
139 The Town Office Building has been subject to several energy upgrades in the past. Currently work is in progress for

140 weatherization and insulation of the front part (the oldest part) of the building. An insulation project is under consideration

141 for the new part of the building. Changes to the heating plant are under consideration for the future. Some of the exterior

142 lights have been converted to LED's.

143
144 The EMS building has updated lights and the heating and hot water system is propane. The last area of concern

145 would be insulation, and an energy audit would be beneficial.

146
147 **8.5 RENEWABLE ENERGY**

148
149 In general the Town of Barre supports the use of renewable energy systems, to the extent that it does not over

150 burden the town with a disproportionate share of the State's renewable energy goals and provided that they fit into the

151 goals of the Town Plan, taking into account noise, scenic vistas, location, negative impacts on residents, and represents

152 an orderly development of renewable energy systems.

153
154 Renewable energy sources are represented by wind, solar, wood, geothermal and hydro. While renewables

155 represent a chance to move away from fossil fuel sources, they are not without their own negatives such as; aesthetics,

156 noise, cost, reliability, and availability.

157
158 It is a long-standing practice within the town to have utility lines placed underground as opposed to above ground to

159 minimize their overall visual impact and reliability. Therefore, any extension of 3-phase power lines must be

160 underground.

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Wind Turbines

Wind turbines are relatively expensive, can be high maintenance, have siting issues (works best at higher elevations, and on ridgelines), require significant setbacks, may cause noise issues, moving shadows, etc. with adjacent property owners, may negatively affect property values, and of course only works when there is sufficient wind speed. Aesthetics are a major concern.

- As a result of the factors listed above as well as the Towns relatively low elevation (ridgelines less than 1800'), full size industrial wind turbines (greater than 300' tall) are not a good fit due to their overall size relative to the topography and are prohibited. Small to mid-size turbines, such as the one currently located on property owned by Rock of Ages, also have some of the same potential impacts and will only be supported if compliant with preservation efforts noted in chapter 5.
- Set back requirements for all net metered wind turbines shall at a minimum comply with the most recent Public Service Boards net metered rules so that blade and tower failures do not impact adjacent properties.

Solar Energy

Solar energy is represented by both solar hot water heating systems (domestic hot water), and solar electricity (photovoltaics - PV). The most appropriate location for solar arrays is roof tops, existing impervious surfaces, or industrial/earth resource land (identified by the Town) not well suited for conventional development. Any new ground mounted solar array should utilize existing topography, development, or vegetation on site to break up the visual mass of the arrays.

Renewables cannot be sited in predominately visible locations on hillsides or ridgelines and shall be sited to preserve open space.

Renewables shall be constructed using earth tone colored materials for panel frames, structural supports, and fences. All Surfaces shall use non-reflective materials. Use of bright metallic materials is prohibited.

With the goal of maintaining the Town's rural character, protecting rural open space and agricultural heritage, removal of productive agricultural lands and greenfields for solar development is prohibited.

Lot coverage for solar panels is defined as the area encompassed by the panels when viewed from above.

Solar Hot Water

Solar hot water systems require minimal space and can be located on roofs or ground mounted Solar arrays need full sun and to be pointed south for the best performance. Essentially all of the solar heat generated is stored in a hot water pre-heater tank. Payback on the systems is fairly short term given that there are both state and federal rebates/incentives available. These systems would also be appropriate for heating in ground pools and could be located all zones. Solar hot water systems are subject to setback requirements (same as any accessory building). Roof mounted arrays are subject to building height requirements and need to be sensitive to neighborhood aesthetics.

Photovoltaics (PV)

PV requires a much larger array of panels and will have a more visual impact on surrounding properties. Residential PV systems are more expensive than hot water and even with incentives, payback can be up to 20 years. As with solar hot water systems, can be roof mounted or ground mounted.

- Ground mounted residential systems (<15kW) shall be subject to the same property line set back requirements as other structures.

The Town of Barre supports a "good neighbor policy". The design and siting of a solar array shall be done in such a manner that the array creates no greater burden on neighboring property owners or public infrastructure than it does on the property on which it is sited. As an example, a landowner may not site an array on his or her property in a location calculated to diminish the visual impact of the array from his or her residence or business, but place the array

219 immediately within their neighbor's or the public's viewshed. Locating a solar array in a manner designed to reduce
220 impacts on neighbors, or public viewsheds constitutes reasonable mitigation.

221
222 Lands adjacent to a solar development can be developed in conformance with existing Town and State regulations
223 regardless of the impacts.

224
225 Conflicts about the use of solar panels may arise between property owners. Potential issues would include the sun
226 reflection into adjacent homes, or blocking views. Or a neighbor, who plants a tree or trees, constructs a building or other
227 structure that blocks the sun from reaching the panels.

228 229 **Visual Mitigation**

230
231 Residential on-site net-metered systems (<15kW) should be sited to minimize aesthetic impacts, minimize
232 reflection of light into an adjacent home, and avoiding blocking a neighbor's view.

233
234 Larger systems (>15 kW) must meet the setback requirements of Act 56 and the Public Service Boards net
235 metering rules. Additionally, these systems would be located on an existing impervious surface or brownfield in an area
236 that minimizes direct view from adjacent businesses, homes, and roads. In the absence of existing natural vegetation,
237 solar arrays must be screened by native plantings beneficial to wildlife and pollinators that will grow to a sufficient height
238 and depth to provide effective screening within a period of 5 years. These arrays are not permitted in "green fields"
239 (actively used agricultural sites or sites with prime ag soils). They shall provide for an orderly development of solar within
240 the Town and be compatible with adjacent property uses and be sited to preserve rural cultural aesthetics

241
242 Private development of solar arrays are prohibited in the Wilson industrial park or within the Town's TIF District
243 (should the Town designate one). Siting of arrays in commercial zones (East Barre Commercial, Highway Commercial,
244 Office Building Retail, and Office Building Business) are also prohibited, unless being used for on premise electric
245 needs. All of the above zones were established to encourage the growth of new businesses and create jobs, both of
246 which bolster the local economy and grow the grand list. The business zones (with exception to Town owned lands)
247 generally follow the major highways (Rte. 14 and Rte. 302) in town and are relatively shallow in depth. Land suitable for
248 industrial and business development is a scarce commodity within the Town.

249
250 Commercial solar arrays larger than 500 kW would encompass a land mass greater than any other structure
251 within Barre Town and even with somewhat rolling topography cannot be screened or mitigated to blend into the Town's
252 landscape or rural cultural aesthetics and are therefore prohibited.

253
254 The Town should develop a delineated "solar overlay district" based on the current availability of 3 phase power
255 and current land use. This district should contain a provision for allowing "proximity solar development", as well as
256 allowing fringe siting along wetlands or in wetland buffer zones.

257
258 All solar projects shall be decommissioned at the end of their useful life and the property shall be restored to its
259 pre-project condition. Developers of all projects 150kW or greater shall provide the municipality with appropriate
260 assurances to guarantee funding exists to decommission the project. Decommissioning includes, but is not limited to,
261 proper disposal and/or recycling without burdening the Town.

262
263 For the purpose of this plan, either the Selectboard or the designated appropriate municipal panel shall be deemed
264 to represent the voice of the communities "average person" with respect to the "Quechee Test" when evaluating the
265 aesthetics of a proposed solar array.

266 267 **Wood**

268
269 Wood is available as both firewood and pellets. Generally, firewood is produced in or within a few miles of Barre
270 Town which minimizes transportation costs and supports a local economy. Firewood removal from forest land is also an
271 important tool for forest, wild life, and agricultural land management. While using fire wood for heat in stoves and inside
272 boilers is a logical step to replace or supplement fossil fuels, outside wood boilers have their own particular set of issues.
273 Generally, the flue pipe (smoke stack) is short and in certain meteorological conditions can cause significant ground
274 level smoke plumes to the detriment of the neighbors. Outside wood boilers used in the summer for hot water production
275 can also create low lying smoke plumes.

- 276
277
- There may be zones where these devices may not be compatible (high and very high residential).

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- Zoning regulations should be reviewed to define the appropriate use of outside wood boilers.

Pellets at this point are not produced locally so not unlike fossil fuels there is transportation cost associated with them. But still they are a renewable energy source and do replace fossil fuel usage. Pellets burn more efficiently than firewood and hence is less of a concern for contributing to chimney fires reducing demands on the fire department

At this time, there is little opportunity for hydroelectric production due to small size of the streams and rivers in the Town, and the extensive and expensive permitting (state and federal) required.

- Should Barre Town ever establish a larger water supply system (from wells), an in-line electric generating system in the water transmission pipe may be worth considering

Geo-thermal heating is a clean, emission free technology which has minimal impact on adjacent property owners and Town services. Federal tax incentives may be available to installing a geo-thermal heating system. A state permit may also be required to operate a geo-thermal system.

Recommendations:

- Continue to inform the public through zoning of State Residential Energy Standards and the requirement that new construction meet those standards.
- The Development Review Board should encourage developers (residential and commercial) to utilize energy efficient insulation, weatherization, heating and lighting in all projects.
- The Town should encourage the use of the Energy Efficient Mortgage Program which helps home owners finance energy efficiency improvements at lower than normal interest rates. The Town also encourages use of CAPSTONE Community Action (802-479-1053) Weatherization and Energy Efficiency Services for eligible residents;
- The Town should encourage developers to design subdivisions for appropriate solar orientation and the use of solar hot water systems and photovoltaics when appropriate.
- Building designs should include roof construction capable of supporting solar panels.
- Selectboard should create an Energy Committee comprised of Town citizens and officials to explore ways to make the Town government operations more efficient in the use of energy.
- Encourage homeowners to have a whole house energy audit performed to review: lights, insulation, weatherization, heating, appliances.
- The public should be encouraged to use more efficient transportation methods.
- The public should be encouraged to utilize renewables whenever appropriate.
- The Town should encourage developers of commercial solar arrays to incorporate a plan to install public access charging stations within Town limits.
- The Town should encourage businesses within the community to install charging stations.

5. PRESERVATION

5.1 INTRODUCTION

Barre Town is rich in natural resources and areas of natural beauty as well as in numbers of historic sites and structures within its land mass of 30.70 sq. miles. This plan touches on examples of some of those and recommendations for preserving these unique assets where possible.

Barre Town's early development occurred without much concern for aesthetics. Early settlers' needs were heavily agricultural and deforestation occurred in order to accommodate pastures and fields for livestock and land for growing of food. Granite quarrying developed in the Town during the 19th and 20th centuries further baring the land.

As time progressed – so did appreciation for natural resources and the history of the area and in recognizing our multi-national culture prompted in large part by immigrants who came to work in the granite industry. Within the last 25 years the Town has shown a marked increase in aesthetics and protection of natural areas. Recent development has been conceived and planned with “the view” and “green spaces” as dominant factors. Some developments have incorporated restrictive covenants concerning the height and placement of structures thereby protecting views of neighbors and passers-by. Aesthetics have also made their way into local zoning and state development laws.

5.2 SCENIC AND HISTORIC FEATURES

Quarries

Most notable of all Barre's scenic resources are the quarries from which are built such fine granite structures as the Vermont State House in Montpelier, the renown Robert Burns statue located on the grounds of the Vermont History Center in downtown Barre, thousands of cemetery memorials and commemorative structures throughout the country, and hundreds of other granite-faced, granite-trimmed buildings throughout the world. The Wells-Lamson Quarry, now dormant and owned by the Rock of Ages Corp. is notable because at over 600 ft. deep, it is among the deepest granite quarries in the world. A few “quarries” are not the expected holes in the ground that later quarrying methods came to develop but rather, were “walls” of granite from which stone was taken.

Views and vistas

The Town of Barre is bound on two sides (East and West) by South to North oriented ridgelines with elevations of 1200' to 1800'. The center of town, referred to as Millstone Hill, is elevated with valleys on either side as much as 600' or more below. This geography has blessed Barre Town with a natural “rim” nearly surrounding the valley below. Views from elevated areas of Barre Town are also among the most recognized scenic assets of this community. Notable scenic views include Camels Hump in Huntington, Spruce Peak in Plainfield, the Worcester Mountain range to the North, and the Orange Highlands to the East including the Knox Mountains. The lights of the City of Barre add to the evening and nighttime vistas. Any development within Barre Town that impedes or degrades these views is considered to be a negative impact.

These views sheds are considered an important part of our scenic resources and a valuable part of our quality of life as well as a sense of pride setting Barre Town apart from other towns. People respond positively to places that are visually appealing thus many people live in or move to Barre Town for these wonderful views and what that means to their quality of life. Businesses have also relocated to Barre Town for these same reasons. While scenery is important to the overall quality of our community, scenic vistas and view sheds are often destroyed during rapid change, both by nature and society. Protection of these assets is an important component to smart development and preserving scenic beauty. In this context, protecting views may be considered an extension of the concept of promoting the general health and welfare of Barre Town.

55 **Roads and waterways**

56
57 Within the Town are a number of beautiful maple tree-lined dirt roads such as upper Cassie Road, Sunset and
58 Neddo Roads, Phelps Road, Little John Road and Snowbridge Road. Peck's Pond, Bolster Reservoir, Gunner and
59 Scott's Brooks, Jail Branch River, and Windy Wood Pond are examples of other scenic areas.

60
61 **5.3 HISTORIC AREAS**

62
63 **Villages**

64
65 Early development of Barre Town occurred in village areas surrounding employment centers. These villages
66 eventually developed their own names and post offices within the Town - Graniteville, Websterville, South Barre and
67 East Barre. Within them are examples of early quarry workers homes, usually similarly constructed, such as on the
68 east side along Cogswell Street in Upper Graniteville. Another popular house style is the Sears Roebuck and
69 Montgomery Ward early version of pre-fabricated houses (available with plumbing and electrical if one chose to
70 purchase the whole package) such as the house at 54 Brook Street in Websterville. The South Barre village has
71 notable large wood framed houses thought to be custom built - one at the corner of Saeger Lane and South Barre
72 Road (VT RT 14) dating to 1803 and two side by side on the west side of VT RT 14 at 397 and 411 South Barre
73 Road, one of which local lore relates was a safe haven offered as part of the Underground Railroad which moved
74 African American people to safety in the north.

75
76 Also a part of village history is the traditional churches such as the East Barre Congregational Church and First
77 Presbyterian Church in Graniteville. Traditional construction also remains for several grocery stores such as 34
78 Church Hill Road in upper Websterville, now the Millstone Hill Touring Center. Scattered throughout the town are
79 barns that remain though the "farming" may have stopped some years ago – examples are the Swift barn on Swift
80 Road, the Usle "Strawberry Grove" barn at 109 West Cobble Hill Road, and the Paquet Farm at 179 Morrison Road
81 established in 1909 in the South Barre area.

82
83 **Town Forest**

84
85 The newly acquired (2012) Town Forest, 355 acres in size, gives visitors a very real sense of following the paths
86 of industrial history as they ramble on through old railroad beds, over steel cables, and up onto grout piles of long ago
87 that now offer scenic lookouts such as the stunning Empire Lookout at the northeast corner of the Forest. On hot
88 days, visitors can stop by a cool spot created by ice deep inside some of the large grout piles. Throughout the Town
89 Forest are some 70 early and very early quarries that supported small, often family-run, stone businesses.

90
91 **Stone Walls**

92
93 Prized among the "locals" also are the numerous stone walls throughout the Town traversing fields and woods –
94 built to clear fields and mark boundaries of land owners.

95
96 **Cemeteries**

97
98 These are a treasure of the examples of the work of exceptional artisans, present and past. Older stones are of
99 particular interest because they were carved without benefit of modern methods but rather using the very basic tools
100 of the industry at that time. A rich history can be gleaned from the cemeteries of West Hill (Perry Road), Wilson
101 (Websterville Road), Saint Sylvester (Websterville Road), and Maplewood (Farwell Street). Singularly situated off
102 Miller Road is the family plot of Col. Nathaniel Sherman, early settler, whose relative Jonathan Sherman reportedly
103 chose the name "Barre" in the legendary "naming of Barre fight".

104
105 **5.4 HISTORIC SITES**

106
107 **Calvin Smith Farm**

109 277 Morrison Road (now Bond Auto Parts) – where the legendary "naming of Barre fight" occurred in which
110 Jonathan Sherman of Barre, Massachusetts won the fight over Capt. Thompson of Holden, Massachusetts. In
111 actuality, town records indicate the most generous contributor to "a house of worship", Ezekiel Dodge Wheeler, was
112 given the privilege of naming the town. The farmhouse dates to 1791.

113
114 **The Morrison Farm**
115

116 A large two-story brick farmhouse at the intersection of Morrison and Jensen Roads which was the site of the
117 first settlement in what was then called Wildersburgh.

118
119
120
121 **The Goldsbury Site**
122

123 The site of the first framed house, a cape, built in 1800 and lost by fire in the 1960's is at the east side of
124 Richardson Road near Goldsbury Woods Road. The site was appropriately memorialized in 1969 with a granite
125 marker donated by the Barre Historical Society and the Rebecca Hastings Chapter of the Daughters of the American
126 Revolution.

127
128 **"Sky Route" Railroad Spur**
129

130 Built in 1890, a rail spur leading to Millstone Hill (Websterville/Graniteville) from Barre City was used to transport
131 the heavy granite down the hill to numerous granite "sheds" and for shipment abroad. The rail line had a tremendous
132 economic impact on the industry because it made transporting granite much easier. The Sky Route was noteworthy
133 for being the steepest grade rail line east of the Mississippi at the time, climbing 250 feet every mile.

134
135 **Nine Former Neighborhood School Sites**
136

137 Many of the early schools were one and two room schools offering education for grades 1 through 8. Locations
138 were Upper and Lower Graniteville, Upper and Lower Websterville, East Barre, South Barre, Trow Hill, Springhouse
139 and Brookside. Many of the old school bells from these sites are on display at the Barre Town Elementary and Middle
140 School on the Websterville Road. School buildings continuing to be re-purposed and used are Brookside (Bates &
141 Murray Inc.), Springhouse (Barre Town EMS Building), and Lower Websterville (Barre Town Municipal Building).
142 Demolished were Trow Hill and Graniteville, both of those sites are now Town playgrounds, and the South Barre and
143 East Barre school locations, now both sites host Town fire stations.

144
145 **5.5 HISTORIC STRUCTURES**
146

147 **Antique Brick Capes**
148

149 Many such capes are scattered around the town and were often built by early quarry founders. Most if not all are
150 currently in use as private residences.

151
152 **Trow Farm**
153

154 Notable among the antique brick capes is the Trow Farm at 262 Hill St., after which is named the Trow Hill area.
155 At one time, the farm reportedly had 7 barns and offered transportation and overnight accommodations to travelers
156 on the Haverill, NH and Boston to Montreal Stagecoach route disembarking downtown.

157
158 **The "Granite House"**
159

160 The first granite house in town is located at 216 West Cobble Hill Road at the intersection with East Cobble Hill
161 Road. Known as the Pliny Wheaton house, granite was used from the Wheaton Quarry a short distance away on
162 Nuisl Road

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The Nichols House

Located at the intersection of Waterman St. and Little John Road in East Barre, the Nichols House may represent Barre Town's only structure listed on the National Register of Historic Sites. It is a very early example of this popular building type in Vermont and is one of few remaining dwellings in the area built by a family in the first wave of settlement.

Robin's Nest Covered Bridge

A privately owned covered bridge over the Jail Branch of the Winooski River at 625 East Barre Road (US RT 302) and that leads to a log home situated on 16 +/- acres, also privately owned. Built in 1962 by the Robbins family and, even though not historic, the bridge is notable for its queen post design, built as a replica to one that stood just downstream and was swept away in the Vermont Flood of 1927. It is of authentic design and construction. In 1990 owners installed steel beams to reinforce the deck. This represents the Town's only covered bridge.

Washington County Sanatorium

A three story large brick structure at 260 Beckley Hill Road built to house patients with tuberculosis, an unfortunate circumstance from working in granite sheds before modern dust-collecting machinery was available.

5.6 HISTORIC DISTRICTS IN BARRE TOWN

Upper Graniteville, Lower Graniteville, East Barre, South Barre Village

The list of Vermont Historic Sites and Structures, identified for Barre Town, is available in six volumes (not available in digital form) from the Vermont Division for Historic Preservation located at: 1 National Life Drive, Davis Bldg, Basement Level, Montpelier VT 05620-0501. Phone 802-828-3213. Fax 802-3213.

Additional information available at: http://accd.vermont.gov/strong_communities/preservation.

Information from the National list of Historic Structures is available at <http://www.cr.nps.gov/nR/research/index.htm>

5.7 RECOMMENDATIONS

- It is in the best interest of Barre Town to preserve and promote its significant historic resources, architecture, and sites therefore the Town will pursue and encourage maintenance of those currently in existence and plan for future such preservation needs.
- The Town should establish a Town Historical Society and/or join existing Historical Societies or similar groups for the following purposes:
 - Creating a master list of historic structures and sites and making the list readily and locally available to the public.
 - Locating Town historic structures/sites on Town maps to be used for planning and zoning.
 - Providing educational programs to schools and the general public.
 - Encouraging rehabilitation and recognition of historic structures/sites including, for example, a program to put dates of construction on older homes, antique capes, now-extinct neighborhood school sites, and notable historic as well as operating granite quarries.
- Require a local permit and public hearing for the proposed demolition of a listed historic structure/site. As part of that permit, the State Division for Historic Preservation should be consulted prior to the demolition.
- Explore state and federal funding for restoration such as Grants Administration for non-profit or Town-owned historic structures and the Tax Reimbursement Act for Commercial Structures, etc.

- 217
- 218 • Encourage the preservation of our heritage through support of existing efforts that do that such as the
- 219 Vermont Granite Museum of Barre, the Barre Heritage Festival, etc.
- 220
- 221 • Encourage the preservation of stone walls when considering subdivisions.
- 222
- 223 • Undertake the planting and re-planting of maple trees along roadsides in cooperation with arbor programs
- 224 and other possible funding.
- 225
- 226 • Establish and enforce enhanced penalties for damage to cemeteries caused by vandalism and
- 227 carelessness.
- 228
- 229 • Take steps to assure public access to "nature" - swimming holes, fishing, trail walking/biking, picnic areas,
- 230 river parks, etc.
- 231
- 232 • Encourage stream bank preservation and buffer zones.
- 233
- 234 • Preserve public use of Ancient Roads – roads appearing on maps but not currently suitable for vehicle use.
- 235
- 236 • In all matters of historic preservation, Town officials are encouraged to partner with others of the same
- 237 purpose so as to maximize results toward achieving the goal of preservation.
- 238

239 **5.8 SCENIC PRESERVATION**

240

241 As noted above in 5.2 views and vistas, Barre Town's visual beauty is an asset which must be protected.

242 Therefore, the Town of Barre's policy regarding aesthetics is one of encouraging enhancement and conservation of

243 natural areas, the environment, and views. Of particular interest are the following areas of town:

244

245o Western ridge: Commonly referred to as West Hill, this ridge runs from Vt Rt. 63 north to the

246 boundary line with the Town of Berlin.

247

248o Eastern ridge: Encompassing Taplin Hill, Trow Hill, and East Hill, from US Rt 302 in East Barre

249 north to the boundary line with the Town of Plainfield in the vicinity of the Pinnacle (elevation 1821').

250

251 Any area that is visible from an opposing ridge or face more than one mile away.

252

253 Any development that displaces more than 2 acres of natural land or vegetation is discouraged and at a

254 minimum shall be subject to site plan review with special emphasis on size, bulk, location, heights, setbacks,

255 construction material as they relate to how a project may be seen.

256

257 Any development above the ridgeline shall be limited to established height regulations.

258

259 **The following are goals and recommendations regarding scenic preservation in the Town of Barre:**

- 260
- 261 • Consider aesthetic upgrades and visual enhancements on Town owned land and right-of-ways.
- 262
- 263 • Ridge lines have yet to be mapped within the Town but doing so may prove helpful as ridge lines play a
- 264 greater role in both power production and aesthetics. Those areas which are identified should be protected
- 265 by zoning and subdivision regulations to preserve natural ridge lines.
- 266
- 267 • Full size industrial wind turbines are not a good fit for the Town and should not be allowed due to relatively
- 268 low ridge lines, aesthetics, the absence of large tracts of unpopulated land, and numerous other negative
- 269 effects (see 8.5 renewable energy). Small to mid-size units have similar concerns and siting criteria must
- 270 take into account all the potential negative effects before being allowed. An example of a medium size

- 271 turbine would be the one located at Rock of Ages.
272
273 • Overhead power lines can also have a negative effect on aesthetics. The Development Review Board
274 should continue the practice of requiring underground power whenever possible for new development. This
275 would also include transmission lines for both wind and solar projects such as stated above.
276
277 • Zoning regulations should continue to control the height of structures to preserve the scenic view of others.
278
279 • Tree-lined areas of roadways should be preserved particularly if the trees are old and such areas
280 encouraged by appropriate subdivision regulations and encouragement to property owners. However, new
281 trees along roadways should be set back away from roadways far enough to prevent interference with
282 highway maintenance.
283
284 • The Town should promote the development and preservation of public scenic areas such as trails, ponds,
285 swimming areas, picnic areas and railroad beds for continued public use. The Town may wish to consider
286 acquiring these properties if a change of use is contemplated in the future.
287
288 • Site plan approval under 24 VSA § 4416 should continue to be used to ensure that landscaping and
289 appropriate screening of all applicable projects occurs. Site plan criteria should be continually evaluated to
290 ensure they are effective.
291
292 • Developers of subdivisions and any commercial/industrial development should be required to provide
293 landscaping as a part of their projects. Greenbelts are defined as those areas located between any road and
294 lot or building frontage that designates an area for the planting of grass, shrubs, flowers, trees or
295 landscaping of any other kind. They should be provided in all plans for subdivision, conditional use and site
296 plan, for existing properties or new projects. Greenbelts contribute aesthetic beauty and favorably affect the
297 scenery and character of the neighborhood. Scenic paths and public areas may be required by the
298 Development Review Board (DRB) as appropriate. Those plans shall require approval by the DRB during
299 project review.
300
301 • Zoning provisions should be adopted which require appropriate energy efficient project lighting, including,
302 but not limited to LED technology or other subsequent energy efficient technologies
303
304 • The Town should explore all sources of funding for the development and acquisition of public scenic areas
305 and also assist landowners with opportunities for funding sources and mediation measures.
306

307 **5.9 RESOURCES TO BE PRESERVED FOR RECREATIONAL VALUE**

308
309 The Town supports the preservation of rare and irreplaceable natural areas, scenic and historic features and
310 resources in recognition of the value of recreation. The following opportunities should be continued, maintained,
311 preserved, developed and/or upgraded, including any or all within the Barre Town Forest:
312

- 313 • Playgrounds, basketball courts, skate parks, soccer field, ball fields, tennis courts, a volleyball court, and picnic
314 shelters.
315
316 • The Gunner Brook Fishing Derby is an annual tradition for children sponsored by the Barre Fish and Game
317 Club. The fishing derby was the first designated derby in the nation for children under sixteen.
318
319 • Traditional links between natural resources and recreation: skiing, cross-country skiing, fishing, sledding,
320 skating, hiking, camping, hunting, snowshoeing, snowmobiling, geo-caching, and four wheeling.
321
322 • The Town encourages recreational activities that reflect and celebrate the ethnic origins of Town residents.
323
324 • Bicycle/pedestrian paths and abandon railroad rights-of-way.

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- Class IV roads and public trails.
- Fishing streams; Stevens Branch, Gunner Brook, Jail Branch and Scotts Brook.

5.10 NATURAL RESOURCES

Natural resources play a major role in the selection process used in deciding to live and work in a location. Some natural resources such as, topography, soils and water resources alter the capability of land to support population. Others, such as forestlands, farms and natural areas present aesthetic features which help define the quality of life for citizens. All natural resources warrant careful consideration in the Town Plan and review of future development in a continued effort to maintain and improve the quality of air, water, wildlife and land resources.

5.11 CLIMATE, TOPOGRAPHY, SOIL, AND EARTH RESOURCES

The Town of Barre enjoys the complete range of seasonal changes and a true New England climate.

Average summer temperatures of ~75F degrees and winter averages around 22F degrees are prevalent, with winter extending from November through April. Winter and spring thaws may create conditions known as "mud season", on unpaved roads which make up approximately 30% of Barre Town's highway system. As a result, transport of heavy loads over some roads is restricted, or may require special permits; this permit period runs from about November 1 to May 1 annually. Deep frost lines also result in a construction season of limited length, especially affecting infrastructure and foundation construction.

Summer, with a growing season of about 110 days, enjoys mild temperatures of 75 degrees to 85 degrees; seldom more than five (5) 90-degree days; lush green landscapes; occasional showers or thunder storms and profuse wild-flower displays. Average annual rainfall is 33+/- inches. Average annual snowfall is 75-90 inches.

The fall colors in Barre Town, enhanced by a topography offering a wealth of panoramic views and tree-lined byways, are some of the most spectacular in the Northeast.

Extreme climate events, such as hurricanes and tornadoes, are rare. However, recent severe and prolonged rainstorms have caused localized serious erosion and road washouts. While we cannot predict with certainty that these events will be the norm in the future.

- It is important to consider the best mitigation measures when repairing and planning Town infrastructure.

Saturated spring soils, valley river branches and alluvial fans can bring moderate flooding. True 100 year floodways are significant only along the valley basin branches which feed the Winooski River and in a few tributary stream beds which tend to be of moderate impact.

Topography and Slope

Barre Town, being a series of hill-tops surrounding valley feeder "branches" for the Winooski River, offers impressive views; lush landscapes; and, steep, winding roadways. Views of Camel's Hump and Spruce Mountain are prized by residents, though more pastoral settings and scenic locations prevail in the community. The railroad on Quarry Hill is the steepest grade in Vermont and revolutionized granite mining for the township. Astride Barre Town's highest elevation are the granite quarries and man-made peaks of granite waste (grout), which highlight this unique scenery. Slopes in excess of 20% are not uncommon, and simultaneously serve to enhance the aesthetic appeal of Barre Town while posing environmental planning challenges for development. The challenges include erosion control, sewage management, site design, road or driveway integrity, surface water run-off and seasonal access. The advantages are: residential privacy, outstanding views, and seasonal beauty. Elevations vary from South Barre at 680', East Barre at 1,130' and Lower Graniteville at 1,269' and Upper Websterville at 1,313' to Upper Graniteville at 1500', which represents

379 the highest of the village centers elevation. The highest elevation of 1,825' in Barre Town is the Pinnacle off Cutler
380 Corner Road.

381

382 **Soil Types and Earth Resources**

383

384 **Soil Types**

385

386

387 The US Department of Agriculture Soil Conservation Service has recorded and mapped soil types
388 throughout Barre Town. Soil types predict the physical capability of the land to handle development and the
389 resource production potential of the land. Unfavorable soil types for development typically contain the following
390 properties excessive slope, shallow depth to bedrock, wet, unstable, and erodible soils. Before development,
391 these soil maps should be reviewed to learn of possible on-site septic limitations, drainage problems, bedrock
392 interference, etc.

393

394

395 For example, in the immediate granite quarry areas, the soils have been removed to facilitate the mining of
396 granite. Beyond that excavation, the soils are Glover-Vershire complex rocky soils. The slopes in this area
397 range from 15 to 35 percent and the soils are composed of soils that are generally unsuitable for septic tank
398 absorption fields and cultivated crops. There may, however, be pockets of suitable soils for on-site septic
399 disposal. Mound systems in areas that are not steep can be utilized.

400

401

402 As the slopes become more gradual, prime agricultural soils can be found throughout Barre Town. These
403 soils are well suited for crops, hay and pasture. Buckland silt loams are found at slopes of 3 to 15 percent and
404 are generally deep to bedrock. It is susceptible to erosion at the steeper slopes and drainage ditches can be
405 used to help control it. The soils have seasonable high water tables at various depths and on-site monitoring
406 should be done to determine suitability for on-site septic disposal. In the South Barre area, between Berlin and
407 Route 63, significant pockets of prime agricultural soils extend down towards Barre City. These soils are
408 valuable to crop production and should remain in farming/low density type uses.

409

410

411 Knowing the soil types on parcels of land, particularly where primary agricultural soils are is a valuable
412 planning tool that benefits the public. Maps should be obtained from the Town of Barre Planning and Zoning
413 Office to assist residents and developers alike.

414

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422 **Earth Resources**

423

424

425 Barre Town's earth resources include granite, gravel, sand and topsoil. Barre Town presently owns and
426 operates a sand and gravel pit on VT RT 14, in Williamstown. The quarries provide jobs and yield important
427 materials for construction and manufacturing. The Town of Barre recognizes the granite grout piles as a natural
428 resource and encourages their appropriate use.

429

430

431

432

433 While mineral extraction areas do provide important and needed materials for road and building
434 construction as well as manufacturing:

435

- 436 • It is vital that care be taken in the setting and operation of future mining and extraction operations in order to
437 avoid land use conflicts, environmental damage and habitat destruction.
- 438 • Additionally, in residential and conservation areas, standards should be established for the operation,
439 maintenance and ultimate restoration of mineral extraction land.

440

441

442

443

444

445 **5.12 FOREST LANDS**

446

447

448 By the mid-1800 some 75% of Vermont had been cleared of forested land and since then, much of Vermont has
449 been returned to wooded land

450

451

452 Vermont is now 80% wooded while Barre Town is approximately 48% wooded, (estimated from 1979 composite

433 orthophoto map of the Town). Present uses of forested land include recreation, water quality, scenic backyards, as well
434 as wildlife habitat and wood products (lumber, firewood, maple syrup, etc.). The forest land in Barre Town is presently
435 divided into the following major categories: Protective, Productive, Transition, and Urban.

436
437 **Protective**

438
439 (22% of the forested area) is defined as those areas with forest cover identified as natural and fragile area, heron
440 rookery near the East Montpelier town line, forest preserve and aquifer protection areas (cf. well head protection area
441 maps in Utilities and Facilities Plan).

442
443 **Productive**

444
445 (8% of the forested area) forest land is all large tracts which in themselves, or when combined, form a major
446 economic unit for long-term timber production.

447
448 **Transition**

449
450 (52% of the forested area) forest lands are those resulting from fragmentation of larger tracts. They are intensively
451 used for recreation, wood production, and wildlife habitat. Their value as watershed protection is also recognized. Larger
452 than 25-acre parcels, this forest land category is appropriate for development, particularly rural, residential development,
453 due to its proximity and accessibility to population areas.

454
455
456
457 **Urban**

458
459 (18% of the forested area) forest land refers to small parcels in or adjacent to the urbanized areas. The land is
460 generally owned by private non-industrial landowners, and is generally used most intensively for recreational purposes.
461 These parcels are less than 25-acres in size and generally not economically viable for long-term timber production.

462
463
464 Development pressure seems to be greatest on previously open or agricultural sites. However, where soils are
465 suitable or where access to public water and sewer are available, the transition and urban forest areas are also under
466 great development pressure.

467
468 "Prime" forest land as such has not been identified. However there is a FLESA (Forest Land Evaluation and Site
469 Assessment) process available which could assist the Town in identifying, quantifying, and evaluating its prime
470 recreation, scenic, wildlife, and timber-producing forest land.

471
472 Scenic vistas, recreational opportunities, timber production, wildlife habitat, and water protection are important
473 assets that forest lands provide.

- 474
475 • The Town encourages careful and long-term management for the multiple uses of our forest resources.

476
477 In Barre Town, forest land may be described today as "maple-beech-spruce climax forest" in second stage
478 generation of 30 to 50 years' growth. While there appears to be no distinct "mature growth forests", some mature, grown
479 trees exist in the second stage woods. Barre Town is generally guided by State GAFFP, - "generally accepted forest
480 practices" - for protection and perpetuation of existing forest land.

481
482 Beginning in 2012, The Trust for Public Land (TPL) assisted the Town of Barre in obtaining 5 forested properties
483 totaling 355-acres, to be combined with 25.7-acres owned by the Town, to become a new municipal forest in Graniteville
484 and Websterville, Vermont.

485

486 A conservation easement over 355-acres was conveyed in 2013 to the Town of Barre by the Vermont Land Trust,
487 the Trust for Public Land, and the Vermont Housing and Conservation Board to protect the Property from development
488 and ensure it is open for public use "in perpetuity". The 25.7-acres previously owned by the Town are part of the Town
489 Forest, and included in this Community Forest Plan, but are not restricted by the easement.
490

491 The Town of Barre will manage the Property as a municipal forest for wildlife habitat, timber harvesting and
492 management, public recreation, education, and water quality protection. A conserved Town Forest also ensures public
493 access, safeguards drinking water resources, supports the local timber, recreation, and tourism economies; provides
494 occasional timber revenue to the Town and restores and protects connectivity by assembling parcels that have
495 fragmented ownership. The property's extensive network of trails is a regional destination for mountain biking and other
496 pedestrian recreation, providing unique economic and recreation benefits to the people of Barre Town and surrounding
497 communities.
498

499 Conservation and proper management of the Barre Town Forest will also help to ensure the water quality and the
500 safety of two drinking water supplies, specifically:
501

502 • 179-acres (69%) of the Source Water Protection Area for the Websterville Fire District #3 that supplies
503 drinking water to 420 people.
504

505 • 27-acres (39%) of the Source Water Protection Area for Barre Town Water System that supplies drinking
506 water for 1,210 people.
507

508

509 **Wildlife Habitat**

510

511 Barre Town, like most of Vermont, is home to diverse species of wild animals and with roughly half of the Town
512 forested, habitat is plentiful. Any day while walking or driving around Town, you may have the good fortune of running
513 across white-tailed deer, turkeys, bear, and maybe even a moose or two.
514

515 While Barre Town does not have any organized effort to protect wildlife habitat, the State of Vermont does to a large
516 degree by classifying over 1,700 acre of land inside Barre Town as deer wintering land and over 4,000 acres as bear
517 habitat. The deer wintering land has significant development restrictions placed on it and is managed by the Vermont
518 Fish and Wildlife Department. According to the Fish and Wildlife Department, valuable yarding areas are lost each year
519 to road construction, housing, and other forms of development. Additional threats are over-cutting of timber and pest
520 outbreaks, such as spruce budworm. Each lost wintering area results in great pressure on the remaining areas of winter
521 range.
522

523 • While not always easy, it is beneficial for communities to find a balance between wildlife habitat and
524 development.
525

526 • Barre Town supports wildlife habitat preservation but does not see the need for further restriction beyond what
527 the state already has created.

528 **5.13 AGRICULTURAL LANDS**

529

530 **Agriculture and Farmlands**

531

532 Barre Town's history has been closely linked to agriculture since it was originally settled. The initial clearing of the
533 land and the construction of roads were accomplished by farmers in the eighteenth century. The rolling hills provided
534 springs for agricultural water supplies, and the streams provided limited power for the processing of agricultural goods.
535

536 Barre Town has approximately three active dairy farms and a variety of other farms with crops such as hay, apples,
537 vegetables, beef cattle, Christmas trees, maple syrup and maple products, herbs and perennial flowers. There are
538 several equine operations and boarding stables as well. There are vacant fields, meadows, and pastures which are no

539 longer part of active farms, but which remain as open spaces. In Barre Town, there are 85 landowners, owning
540 approximately 6,085-acres, who are enrolled in the State's Current Use Program. The Current Use Program seeks to
541 preserve forest and agricultural lands through the use of tax reduction incentives.

542
543 The remaining farms produce a locally created product, and they provide employment as well. Local farms usually
544 preserve scenic open spaces, recreation during off-season, and wholesome uses of natural resources. Farms
545 sometimes create buffers between differing land uses such as industrial and residential. They also create minimal
546 demands on public services.

- 547
- 548 • It is the policy of the Town of Barre to encourage the preservation and continuation of economically viable
549 agricultural uses including all of the farms which are currently active.
 - 550
 - 551 • Additionally, the Town encourages the creation of new agricultural uses which are economically viable.
 - 552
 - 553 • Farm preservation should be accomplished through positive inducements for farmers, rather than restrictions
554 on growth. It is the intent of the Town that the owners of farms enjoy the economic benefits of their investment
555 and ownership.

556
557 **5.14 GROUNDWATER RESOURCES AND GEOLOGY**

558
559 Many residents and businesses in Barre Town obtain their water from groundwater sources. Groundwater comes
560 from both fractured bedrock and from unconsolidated sediment in stream valleys. Any saturated sand and gravel
561 deposits might provide a source of ground water for larger groupings of houses. With expanding commercial
562 development, larger projects may be sited. The nature of the subsurface materials, including depth to bedrock, is of
563 importance when alignment choices are made and effects assessed. Water well and boring data provide a potentially
564 valuable source of data in areas lacking exposures. Depth to bedrock measurements, are reliable aids in determining
565 the thickness of surface materials and can be used to reconstruct the hidden bedrock topography. Water well and other
566 data are being compiled in spreadsheets and will be available from the Vermont Geological Survey office.

567
568 "*Geology for Environmental Planning in the Barre-Montpelier Region, Vermont*" by David Stewart, 1971, contains an
569 extensive set of maps delineating surface materials, ground water potential, solid waste conditions and sand and gravel
570 reserves for Barre Town. In the ground-water potential map, most of Barre Town occupies areas of very low ground-
571 water potential in which most water is available from bedrock sources at depths to 300 feet. Areas of good to moderate
572 potential, where water is available in gravel and sand, follow the valleys of the Stevens Branch and Jail Branch. These
573 areas, containing permeable sand and gravel, are not generally suitable for solid waste and sewage disposal because of
574 the increased potential for leachate to seep through and contaminate ground water. Areas identified by Stewart for solid
575 waste disposal include upland areas covered by thin (less than 25 ft.) impermeable silts and clays.

576
577 The surface materials in the region are dominantly of glacial origin and were deposited while the area was covered
578 by an ice sheet and during and shortly after the retreat of that ice. Most of Barre Town is mapped as having a thin layer
579 of till over bedrock and/or exposed bedrock. Thicker surface materials occupy the valleys of the Stevens Branch and the
580 Jail Branch, and the area just west of VT RT 14. The materials, varying from low permeability silts and clay to high
581 permeability sand and gravel, provide constraints on development, land use, and resource availability.

582
583 Barre Town is on the Barre West and East Barre 7.5 minute quadrangles in north-central Vermont. The bedrock
584 geology of the area consists of low to moderate grade metasedimentary rocks. The metasedimentary rocks are
585 phyllite's, schist's, limestone's and, of course, granite. Granite is an igneous rock formed approximately 340-360 million
586 years ago. It is Barre Town's most significant natural resource and its commercial extraction has provided the Town with
587 employment opportunities since the early 1800's.

588
589 Gravel resources are predominantly restricted to the area along VT RT 14, although not all as is evident along
590 Farwell Street and US RT 302. Sand and gravel deposits, as shown on Stewart's map are limited in extent and nearly
591 half the original reserves are depleted. Stewart estimates, however, that an adequate reserve for the near future
592 remains.

593
594 The Vermont Geological Survey has mapped the three-dimensional distribution of surface materials in Central
595 Vermont's largest cities (Montpelier and Barre) and the surrounding rural areas that are experiencing growth. This map
596 will serve as a basis for land use planning that includes identifying and delineating surface aquifers, sand and gravel
597 deposits, areas prone to slope failure, areas suitable for septic systems, and areas underlain by significant thicknesses
598 of low-velocity clay-rich sediments where seismic risks are amplified. New data for the west portion of Barre Town is
599 available. Interested citizens can find this information from the VCGI (Vermont Center of Geographical Information)
600 website through the State of Vermont site located at www.vcgi.org.

601
602 **Ground Water Protection Plan**

603
604 A useful resource for ground water protection planning is the report "*GROUND WATER RESOURCES AND*
605 *PROTECTION FOR THE TOWN OF BARRE, VERMONT*", ("Smith Report") July 1988, prepared by Michael B. Smith,
606 Hydrogeologist for the Vermont Agency of Natural Resources which is still timely and relevant.

- 607
608
 - Recognizing the importance of protecting present and potential future ground water resources to provide for
609 water consumption by Town citizens, it is recommended that the Town adopt a ground water protection policy.
610 This policy should be implemented by a Ground Water Protection Strategy which includes the following:

611
612 **Public Education:**

- 613
614
 - Town should take active role in making its citizens aware of the need and benefits of protecting groundwater
615 resources.

616
617
618
619 **Ground Water Resources Inventory**

- 620
621
 - Should be taken to determine all available ground water resources. This data should then be looked at
622 alongside other (e.g. ground & surface) water resources currently in use and being developed. This total
623 resource picture should then be measured against the Town growth projections and land use plan in order to
624 determine the need. The Town Ground Water Protection strategy then should be developed in response to
625 that need.

626
627 **Land Use Inventory**

- 628
629
 - An inventory of current land uses is essential to determine whether ground water resources are subject to
630 existing dangers and whether available and accessible for community use. (cf. Smith Report, Appendix 4,
631 Model ordinance, p.4, list of business activities which represent a potential danger to ground water drinking
632 water supplies.)

633
634 **Amend Town Code**

- 635
636
 - Amendments to the Town code should include Hazardous Materials Ordinance (cf. Smith Report, Appendix 4,
637 Model ordinances, pp. 6-13.)

638
639 **Draft Amendments to Town Zoning Bylaw and Subdivision Regulations**

- 640
641
 - As needed, calling for an Aquifer Protection Area Overlay District to insure all zoning and subdivision
642 applications are checked for potential impact on ground water resources. (See Appendix 4 of Smith Report.)

643
644 **Consider other Zoning Amendments**

- 645
646
 - Designed to protect identified well-head protection areas which serve as an existing or potential municipal

647 water supply. Boundaries of any districts created should be based on geological data (contact point of sand
648 and gravel deposit with surrounding till or bedrock materials). Within that area, land uses should be **restricted**
649 within the cone of depression of an existing well, while the rest of the recharge area (to the boundaries) should
650 be **protected** from incompatible land uses or mismanagement. Consultation with an expert is essential to lay
651 out this two-district zoning.

652

653 **Ground Water quality should be checked first**

654

- 655 • If an aquifer is already contaminated by industrial, commercial or densely developed residential uses, zoning
656 will serve no purpose. Likewise, if ground water resource is not of sufficient quantity to meet present or future
657 needs, over protection may not be warranted.

658

659 **Zoning**

660

- 661 • Is best suited for regulating prospective land uses, since present uses are "grandfathered" in. Please see
662 Smith Report, Appendix 4, Model Ordinances, pp. 14 - 19 for model Water Resource Protection District
663 language for Zoning Bylaw. This model should be studied for its suitability for Barre Town; then, if suitable,
664 adapted as needed and proposed for adoption.

665

666 **Subdivision Amendments and Other Proposals**

667

668 The Smith Report contains model subdivision amendments and other regulations besides those cited herein. These
669 are available for perusal and possible proposal by interested citizens.

670

- 671 • Town's involvement in ground water protection and accessing should, of course, be coordinated with fire
672 districts in which said areas may lie, or with other public water systems.

673

674 **Surface Waters**

675

676 Barre Town is entirely located within the Winooski River watershed. All the water of the Winooski River watershed
677 flows north into Lake Champlain. Barre Town has a wide variety of waterways and manmade ponds. Two rivers flow
678 through Barre Town, the Stevens Branch, flowing along VT RT 14 from the Williamstown Town line north to the Barre
679 City line, and the Jail Branch which flows north along US RT 302 from the Orange Town line to the Barre City line.

680

681 The Stevens Branch is listed by the Vermont Agency of Natural Resources, Department of Environmental
682 Conservation, Water Quality Division as one of seven important tributaries of the Winooski River. The Winooski River
683 originates in the Town of Cabot and flows northwesterly approximately 90 miles to Lake Champlain with a total drainage
684 area of 1,080 square miles which is 11.9 percent of Vermont. The Stevens Branch is 14.7 miles long of which
685 approximately 2.6 miles are in Barre Town with a total watershed of 129 square miles.

686

687 The Jail Branch is a tributary to the Stevens Branch and originates in the Town of Washington. Collecting water
688 from a 49 square miles area, the Jail Branch travels 14 miles, 4 of it in Barre Town, to its confluence with the Stevens
689 Branch just south of Barre City's downtown.

690

691 Both the Stevens and Jail Branch Rivers offer Town residents a variety of recreational opportunities. The
692 opportunities include but may not necessarily be limited to swimming and fishing. According to the State of Vermont
693 Water Quality Division, there are no recognized swimming holes on either the Stevens or Jail Branch Rivers in Barre
694 Town. However, while the Jail Branch does not offer many opportunities due to terrain and speed of the river, the
695 Stevens Branch does and is used for swimming in the South Barre area. Fishing is popular on both rivers with wild brook
696 trout the prominent species of fish although you may find brown and rainbow trout as well.

697

698 Testing of the water in both rivers is done periodically by the Department of Environmental Conservation as well as
699 local high school science classes. Water quality is reported to generally be good. The Stevens branch has had negative
700 impacts on it over the years but remedial efforts have proven successful in protecting the water quality. Some of the

701 hazardous sites that have impacted the Stevens Branch in Barre Town or upstream over the years include the former
702 Unifirst dry cleaning plant in Williamstown, The Williamstown land fill where sludge was dumped that had contaminants
703 from the Unifirst site, South Barre MiniMart/Barre Home Supply, and Quarry Hill Quick Stop. All of these sites have had
704 remedial programs to mitigate contaminates.
705

706 The Jail Branch River has not been subject to the same types of hazardous contaminates that the Stevens Branch
707 has. The Jail Branch is impacted by the East Barre Dam which was constructed between 1933 and 1935 in response to
708 the flood of 1927 when water from both the Jail and Stevens Branch Rivers decimated much of Barre City. Construction
709 was done almost entirely with hand labor by the Civilian Conservation Corps. Flooding upstream of the dam is common
710 which is by design. Most of the flooding occurs in the Town of Orange.
711

712 There are other smaller tributaries to both the Stevens and Jail Branch Rivers that since the installation of the East
713 Barre Dam have proven to be more troublesome than the rivers themselves when it comes to flooding. These brooks
714 include both Gunner Brook and Honey Brook.
715

716 Aside from the undeveloped Pecks Pond, Barre Town does not have any formal bodies of water such as lakes or
717 ponds, the woods in the Millstone Hill Area (Graniteville & Websterville) are riddled with small and medium sized
718 abandoned granite quarries. Now filled with ground water, these quarries provide their own uniqueness and
719 opportunities. Many of these old abandoned quarry holes are contained within the Barre Town Forest and will be
720 preserved for future generation to enjoy and learn about Barre Town's heritage.
721

722 The health of a river is vital to a community's well-being whether it be for recreation or aesthetics. Barre Town
723 should take measure whenever possible to protect rivers and streams. Some of these methods to protect surface water
724 may include:
725

- 726
- 727 **Surface water protection goals:**
728
729
- 730 • Although the State of Vermont now regulates on-site septic systems, Barre Town should remain active in the
731 siting of these systems. Identification of failed systems and helping homeowners find remedial solutions when
732 feasible should also be done.
733
 - 734 • Proper stormwater management and erosion control should be considered for all development. Non-point
735 pollution surface run-off from impervious surfaces and erosion can threaten water quality and the health of
736 streams. Runoff can harm water quality through the addition of petro-chemicals, heavy metals and other
737 toxins from parking areas and other facilities and can cause excessive sedimentation that endangers fish
738 habitat.
739
 - 740 • A minimum of a 50 foot buffer from significant streams banks should be maintained to help protect them.
741 Buffer management plans should also be required for development close to or within a 50 foot buffer zone.
742 Maintaining a vegetated buffer along all streams is important to the overall health and well-being of the river
743 because it provides shade, stabilizes stream banks, and provides habitat for a variety of wildlife.
744

745 **Special Surface Water Concerns**

746 **Flood Hazard Areas and Floodways**

747

748

749 A special flood hazard area is defined in terms of likelihood of damage impact's in a one-hundred (100)
750 year period. A floodway is the pathway and watercourse that must be reserved to carry flood water away during
751 the 100 year incident. These areas in Barre Town have been mapped by the Federal Emergency Management
752 Agency (FEMA) and used as part of the National Flood Insurance Program showing flood hazard areas on
753 Flood Insurance Rate Maps (FIRM's), which indicate flood hazard locations. Properties located near the
754 primary rivers (Stevens Branch and Jail Branch) are subject to floodway regulations. Flood hazard regulations

755 are incorporated in the Town's Zoning Bylaw enforced by the Zoning Administrator. These FEMA maps are
756 available in the Barre Town Planning and Zoning Office.

757
758 Soil composition, slope and contours, also create pockets of minor (though problematic) flood impact due
759 to spring thaws and intense rainfall. Sections of Lower Graniteville; Websterville Road, East Barre, and Quarry
760 Hill, for example, can be vulnerable to "spot" flooding, basement impact, storm sewer over-capacity and road
761 erosion.

762
763 The greatest impact to Barre Town with regard to flooding typically comes from flash flooding. Barre
764 Town's hills and valleys allow for water to be collected at higher elevations in numerous tributaries, brooks and
765 streams, to both the Jail Branch and the Stevens Branch Rivers. Elevation change between the heads of these
766 brooks or streams and the rivers can create tremendous fluvial erosion. Fluvial erosion is the removal of soil
767 and rock from the bank of a water channel and is a concern throughout Vermont including Barre Town.

768 **Wetlands**

769
770
771 Wetlands may be defined as areas which are inclined to retain sufficient ground and surface water to
772 support significant types of vegetation and aquatic life, which depend on consistently saturate soil conditions.
773 Wetlands provide wildlife habitat and are important as indicators of possible groundwater contaminates.

774
775 Wetlands, regulated by both the State and Federal government, are identified on the Vermont
776 Significant Wetland Inventory Map. There are many available sources to review the wetland maps including
777 the Planning and Zoning Office and on the State of Vermont Water Quality website
778 (www.vtwaterquality.org). Barre Town has no category #1 wetlands. Category # 3 wetlands are considered
779 to be less significant than category # 2 wetlands, however, both represent significant environmental assets.
780 Barre Town has several significant wetland areas, some of which have been protected by private
781 landowners. In recent years, wetlands, regardless of their category, mapping, or size, have been considered
782 significant. This is important because all uses where impact to a wetland is possible should use care before
783 disturbing the wet area.

- 784
- 785 • Developers and homeowners should consult with a wetland consultant.
 - 786
 - 787 • Barre Town's Zoning Bylaw regulates wetland development but may need to be amended to include
788 additional language regarding the importance of even non mapped wetlands.
 - 789

790 **Storm Water Management**

791
792 Much of Barre Town is comprised of hilly areas that are like the rim of a bowl, the center of which is Barre
793 City. Storm water runoff traveling down the hills impacts on the City. It also impacts areas of Barre Town by its
794 adverse impact on homes, leach fields and driveways as well as roadways. Uncontrolled runoff can create a
795 variety of problems. These problems are often made worse when new development reduces the amount of
796 vegetation which controls the absorption of the ground water. Examples of the problems are: silt deposits;
797 erosion and/or undermining of private property, roadways, railroad beds and bridges; accumulations of water
798 that will flood or freeze which produce hazards on driveways or roads; and flooding and contamination damage
799 to basements, yards or streams.

800
801 Presently the Town Public Works Department controls storm water runoff by a system of ditches, culverts,
802 and catch basins. Most of the runoff not absorbed into the ground eventually flows into natural waterways. The
803 primary purpose of the existing storm water control system in the Town is for highway maintenance.

804
805 Reports of maintenance needs for the storm water control system are handled by the Town Highway
806 Department as part of the routine maintenance of town roads.

807
808 The Town should insure that all plans for future construction within the Town are reviewed for storm water

809 runoff impact on adjacent property owners and municipalities to insure the health and safety of the public.
810 Wherever appropriate, the Town will require the developer to provide a right of way, an easement or retain
811 necessary private property for the maintenance of the storm water control system.
812

813 There are fluvial erosion concerns throughout Barre Town. Of specific concern are areas on both side of
814 East Barre Road (US RT 302) from the Barre City line to East Barre. This area has experienced significant
815 fluvial erosion creating ravines in several locations. Repairing these ravines may be difficult and expensive;
816 however, controlling runoff may be a manageable way to help slow erosion. Development, where stormwater
817 runoff is collected and travels through these ravines should be reviewed for stormwater management,
818 controlling the rate of runoff.
819

820 There are also problems with the infiltration of storm water into the domestic sewer lines which need to be
821 resolved as well.
822

823 The State of Vermont has a storm water and construction permit process; the process refers to one to five
824 acre developments. The developers must obtain a state permit referred to as a 3-9020. This permit deals with
825 low risk sites and erosion issues on the sites; prevention and sedimentation control. All developments one to
826 five acres must submit a preliminary notice of intent per new state law.
827

828 **Recommendations regarding Water Runoff and Drainage**

- 829
- 830 ▪ The Development Review Board should review plans regarding storm water management for new subdivision
831 proposals to ensure that new development will not adversely affect the community.
832
- 833 ▪ Allowable volumes of storm water run-off need to be calculated using State standards for 10, 25, and 50 year
834 storms. Calculations in subdivision applications, detention areas, throttling devices for all storm water run-offs
835 need to be provided to the Development Review Board at the time of new development.
836
- 837 ▪ Town should consider a no disturbance buffer/setback area around steep slopes of 20% or greater.
838
- 839 ▪ Buffer areas for streams and wetlands.
840
- 841 ▪ Consider a fluvial erosion plan.
842

843 **Air Quality**

844 The quality of the air we breathe can be as important to the vitality of a community as much as anything else.
845
846 Communities tend to thrive better when the air is clean and health issues are not a concern and visibility is generally
847 good. Most of Vermont air quality concerns are generated from out of state.
848
849

850 Similar to most parts of Vermont, Barre Town is considered to be in attainment/unclassified status with regard to air
851 quality as determined by the State of Vermont, Air Quality Division through their Air Quality Implementation plan. This
852 means that Barre Town is assumed to have attained the standard but that there really isn't a classification. Barre Town's
853 air quality, again like most if not all of Vermont is considered to be excellent.
854

855 While Barre Town's air quality is excellent, it can be affected by many different things including industrial uses,
856 traffic, heating systems, and some agricultural uses. In Barre Town, most industrial uses are under ACT 250's
857 jurisdiction and as such must meet State of Vermont air quality standards in order to get a permit.
858

- 859 • That may not be the case for all uses and as such, if not already under some form of air quality review, uses
860 being considered during the permit process should be carefully reviewed for air quality concerns and if
861 necessary be required to show how standard air quality standards are being met.
862

863 **5.15 NATURAL RESOURCES GOALS AND OBJECTIVES**

- 864
- 865 • Enlist the communities' support in protecting and enhancing the natural resources and amenities in Barre
- 866 Town and affected surrounding municipalities.
- 867
- 868 • To build the information base relating to description its natural resources and to be included on the Town's
- 869 website.
- 870
- 871 • To assure long-term, sound stewardship of natural resources through reliable planning and management
- 872 practices.
- 873
- 874 • To ensure that development is in harmony with the natural features of each site and limited where
- 875 development is imprudent and/or questionable due to excessive negative impacts.
- 876
- 877 • The Town will encourage and enlist the assistance of residents, landowners, schools, businesses and other
- 878 entities to study inventory, manage, preserve, protect and enhance natural assets.
- 879
- 880 • The Town should enlist existing organizations and board such as; the Recreation, and Housing Committees;
- 881 Development Review Board the Planning Commission, and the Traffic Safety Committee to propose and
- 882 implement policies to protect natural resources and enhance natural features throughout Barre Town.
- 883
- 884 • Mapping and natural resources information should be readily available to applicants as part of any review
- 885 process. Expectations, as well as opportunities, for appropriate management practices and development
- 886 choices should be offered to applicants. This information should also be accessible to the public.
- 887
- 888 • The Town should encourage the appropriate siting and reclamation of any future mining and/or extraction
- 889 operations to avoid land use conflicts, and minimize environmental damage and habitat destruction.
- 890

891 **Suggested Actions & Initiatives**

- 892
- 893 • The Town should take a proactive approach to prioritizing protection of natural resources in the interests of
- 894 expanded development amenities, respect of property rights, and incentives of developers and landowners.
- 895 These may be reflected in ordinances, pursuit of planning and implementation project funds, community
- 896 demonstration programs, and /or open space/recreation/tax/site design incentives, for example.
- 897
- 898 • The Town should encourage protection of mature landscape and geological features (i.e., native rock and
- 899 ledge) seasonal and indigenous waterways, privacy screens, recreation space, etc. to serve the goals of the
- 900 Town Plan while increasing marketability of developments and confidence in applicant planning capacity.
- 901 Applicants should be advised to incorporate mitigation measures to protect natural resources, rather than to
- 902 delay proposals strengthening planning considerations.
- 903
- 904 • The Town should encourage Barre Town businesses, through the Zoning Bylaws and Subdivision
- 905 Regulations to landscape with native vegetation and materials.
- 906
- 907
- 908
- 909
- 910
- 911

