Jamaica Town Plan
Adopted by the Jamaica Selectboard November 13, 2017

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I. INTRODUCTION

OVERVIEW

This plan, like all plans, is a work in progress. It represents hours of careful discussion, thoughtful deliberation, and interaction between citizens, Selectboard members, and Planning Commissions past and present. Municipal planning commissions are required to review, update as necessary, and adopt their Town Plans every eight years. The Jamaica Planning Commission obtained a municipal planning grant to undergo thorough study and community involvement to assist in the rewriting of this version.

Building upon the knowledge gained from a Community Survey completed in 2006 that made extensive study of three issues: water and waste water, affordable housing and conservation, in the fall of 2014, the Jamaica Planning Commission (JPC) working with the Windham Region

Commission invited the public to participate in a Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis. This reaffirmed that the townspeople valued Jamaica retaining its rural character, but also wanted to ensure that the town had adequate infrastructure and services to make for a livable community, including a strong school, cultural activities, and a viable small business community.

In the spring of 2017, the JPC applied for and received a Municipal Planning Grant from the state to facilitate the complete review and updating of the Town Plan. The JPC then hosted community discussions on the above stated three main areas of concentration, which were followed with subsequent meetings to discuss the language in the Town Plan. Interviews were completed with local organizations such as the Fire Department, Library Board, school officials from Leland & Gray, and Jamaica Village and other local business owners.

We are grateful to the community for their participation, vision, and guidance and have used the information collected throughout the development of this Town Plan.

PURPOSE OF THE TOWN PLAN

The Jamaica Town Plan provides a comprehensive statement about where we are as a community, our goals and our needs for the future. Official adoption of the Plan represents a community decision about the future character of the Town, priorities for land use and conservation of natural resources. It is the purpose of the Plan to help the Town achieve its shared vision and values through the development of goals, policies and priorities that establish a standard of review for Act 250 proceedings and other state regulatory processes. The Plan directs state agencies to take only those actions in Jamaica that are compatible with the goals, policies and priorities of the Town Plan. With approval by the Regional Commission, the Town may also request that the Regional Plan be reviewed for compatibility with the Town Plan.

The Plan also serves to increase the amount of local control exercised over future development in Jamaica by:

1. Allowing the citizens of Jamaica to have the opportunity to put into writing how a variety of issues may be resolved or acted upon before they arise through the Town Planning process. The Plan therefore is an obligation and a commitment by appointed and elected officials at all levels of government to resolve issues according to the direction that has been established in the Town Plan by the people of Jamaica.
2. Providing a basis for the development and interpretation of Town bylaws, regulations and ordinances. The Town Plan can be thought of as the Town's constitution in that future decisions and local laws should be consistent with the direction set forth in the Town Plan. That is, the Plan establishes standards and the direction for future local bylaws, regulations and ordinances or future amendments to existing local laws.
3. Establishing policies that will be considered in regional and state planning efforts, and for the issuance of permits under Vermont’s Land Use and Development Act (Act 250) and Certificates of Public Good (Section 248) from the Public Service Board.
4. Directing the Planning Commission to develop work programs that address the issues, tasks and studies suggested in the Town Plan.

5. Serving as a source of information for the Planning Commission, Board of Selectmen, Zoning Board of Adjustment, citizens and businesses.

PLANNING PROCESS GOALS

1. To establish a coordinated, comprehensive planning process and policy framework to guide local decisions.
2. To encourage citizen participation at all levels of the planning process, and to assure that decisions shall be made at the most local level possible commensurate with their impact.
3. To consider the use of resources and the consequences of growth and development for the region and the state, as well as the community in which it takes place.
4. To assist adjoining municipalities to develop and implement compatible Town Plans.

The planning process is a continuous process that requires ongoing contributions from Town citizens and community leaders. The planning process goals will guide the Planning Commission in obtaining local input and participation when evaluating important planning issues.

2010 CENSUS

The census data is an important aspect to the Town Plan as it shows trends regarding the history of Jamaica. Data elements provided by the census, such as population, employment, income, housing and demographics, are compiled and analyzed to be used in the planning process. Town Plan elements such as Housing and Economic Development are dependent on this census data.

Census Data and the American Community Survey

There are different sources for data used to inform the Plan. The numbers do not always match precisely, in part because they are generated using differing methodologies and timeframes. The decennial census, conducted once every ten years, collects "point-in-time" data. The American Community Survey (ACS) is conducted year-round to gather "period" data that are five-year rolling average estimates which have a relatively large margin of error; they do not reflect actual counts like population, age, or sex. These estimates can be useful when analyzing tends in small populations, but should be used cautiously when making direct comparisons. While the data inform the discussion of the Town Plan, ACS figures have margins of error and should not be interpreted as literal or precise.

II. COMMUNITY PROFILE

HISTORY

Sculpted by the last ice age, the topography of Vermont was forever altered. Glaciers gouged out valleys and carved mountains that were much steeper and higher than they are today. Erosion led to fertile valleys in the lowlands and to the rocky terrain that characterizes much of the area now known as Jamaica. In Jamaica one can find gneiss rock formations such as Ball Mountain and Attridge Mountain. High terraces above the West River reveal banks of ancient glacial streams. These are a testament to the extraordinary forces that shaped the environment we enjoy today.

This area of Vermont was largely uninhabited in early history and used by native peoples primarily for hunting and fishing. Early travel routes passed through the Jamaica area,

beginning at the Connecticut River and following the West River. Called "Wantastiquit" (in the Algonkian language "top place of the river") is a reference to the fact that the West River makes a major contribution to the Connecticut. These routes followed the rivers across the mountains eventually to Otter Creek and north to Lake Champlain.

In the colonial period, what is now Vermont was disputed territory, with land claims rising from both New York and New Hampshire. The original grants for this area were issued by the Royal Governor of New York in 1767 and 1772 and were for two towns. In 1777 the Independent Republic of Vermont was established and in 1780, ignoring the previous grants, gave charter for "a tract of vacant land within this state which has not heretofore been granted ". The Charter goes on to say "that the same be and is hereby Incorporated into a Township by the name of Jamaica". The grant encompassed forty-two square miles. The land lies at an altitude ranging from 688 above sea level along the West River to 2,542 feet on The Pinnacle. There were sixty-seven grantees listed on the Charter, and many of those names can be found among Jamaica's residents today. Jamaica is one of only two civic entities in Vermont whose modern name is derived from a Native place name, in this case the Natick word for "beaver".

The earliest settlement of the town was along the West River near the Wardsboro Bridge, now called East Jamaica. It was here that the first school was established in 1791. The step-by-step building of roads and bridges pointing towards Manchester to the northwest moved settlement westward so that by 1800 it appeared that the town center was moving. Within the forty-two square-mile township of Jamaica there developed as many as ten separate hamlets surrounded by outlying farms, all linked to Jamaica Village by a network of roads. Eventually there were as many as 14 one-room schools which served the families in the outlying areas.

In the first quarter of the 19th century Jamaica Village assumed increasing importance as a center, largely for topographical reasons. Located near the confluence of the West River and Ball Mountain Brook, the area offered a strategic location for bridges, dams and mills. Along Ball Mountain Brook alone there were numerous dams, each providing power for at least one mill. The first store "Noon House" was built in 1803. The popularity of "Noon House" led to the building in 1814 of Jamaica House, which provided a convenient overnight spot for travelers at the mid-point between Manchester and Brattleboro.

The economy of Jamaica, like that of so many Vermont communities, prospered with the introduction of Merino sheep in the early 19th century. The Spanish sheep flourished on the rocky hillsides, and as their numbers increased, open land and bare hillsides replaced the forests which had characterized the earlier landscape.

Prosperity did not last. The depression that followed the Civil War and the decline in the wool market took their toll on the local economy. Population decreased. The rivers that had propelled the economy also ravaged its infrastructure. In 1869 a great flood carried away "a mile of bridges" and damaged every dam on Ball Mountain Brook. During this period Jamaica and other towns in the West River Valley bonded together in a venture that was seen as the salvation of the area's economic woes, the West River Railroad. Originally chartered in 1867, the proposed railroad was to run from Brattleboro to Whitehall, NY. In 1877, financing provided by the valley towns moved the languishing project forward with the first segment from Brattleboro to

Londonderry. Although it was never extended further, the railroad provided valuable public transportation for the lower West River Valley until the 1930's, by which time automobile ownership had become almost universal.

The high fields once grazed by sheep have returned to forestland. The mills and dams that once fueled the local economy are gone. Gone, too, are most of the hamlets. East Jamaica, Rawsonville, and Jamaica Village remain as the population and business centers of the Town. The basis of our economy has shifted dramatically, but our land and streams and our historic village remain. In 2006, the Town of Jamaica applied for and received Village Center designation status for Jamaica Village from the Vermont Department of Housing and Community Affairs. The Village Center designation status recognizes and encourages local efforts to revitalize Vermont traditional village centers. Jamaica Village is host to several town festivals, civic and recreational facilities, as well as several local businesses. In addition, the Town of Jamaica was designated as a Historic Village in 1974.

Adapted from Hometown Jamaica by Mark Worthen, a longtime resident of Jamaica.

RURAL CHARACTER

Jamaica currently reflects more than two centuries of growth and development guided by a wide variety of social, physical, and economic factors. The rural character of Jamaica is a quality of life based upon traditional rural landscapes, activities, lifestyles, and aesthetic values. For the purposes of this plan, Jamaica's rural character is defined by the following:

- Landscape: The rural landscape of wooded hillsides, open fields, uncluttered hilltops and ridges, unimpeded views of the night sky, and ample opportunities for outdoor recreation. It is a landscape where the natural appearance of the landscape dominates and natural processes are largely unaffected by human activity and infrastructure. The visual appeal of these varied elements of Jamaica is one of the reasons people are strongly attracted to the Town.

- Settlement: Jamaica's built environment is characterized by a densely settled, traditional New England village center that contains a collection of historic buildings and public institutions serving as the center for the community. The majority of residences in Jamaica are in a rural setting where inhabitants feel a strong connection to the natural environment. Although the transportation system has increased accessibility, it does not diminish the connection to the land.

POPULATION

Town Population for the Period 1791 to 2010

Jamaica's resident population has continued to increase since 1960 (Table 2-1). Between 1990 and 2000, Jamaica experienced its largest increase since the 1800's.

Table 2-1: Jamaica Population, 1791-2010

Year	Population	# Change	% Change*	% Average Annual Rate
1791	263	N/A	N/A	N/A
1800	582	319	121.3	13.5

1840	1,586	1,004	172.5	4.3
1860	1,606	20	1.3	.1
1880	1,252	(354)	(22.0)	(1.1)
1940	567	(685)	(54.7)	(0.9)
1950	597	30	5.3	0.53
1960	496	(101)	(16.9)	(1.69)
1970	590	94	18.9	1.89
1980	681	91	15.4	1.54
1990	754	73	10.7	1.07
2000	946	192	25.5	2.55
2010	1,035	89	9.4	0.94

Source: US Census and W. E. Booker

Population Growth in Jamaica and Surrounding Towns

Table 2-2: Population Growth, 2000-2010

Town	2000	2010	# Change	% Change
Jamaica	946	1,035	89	9.4
Townshend	1,149	1,232	83	7.2
Windham	328	419	91	27.7
Winhall	702	769	67	9.5
Wardsboro	854	900	46	5.4
Stratton	136	216	80	58.8
Londonderry	1,709	1,769	60	3.5
Windham County	46,449	44,513	-1,936	-4.2

Source: 2010 US Census

In the recent past, the rate of growth in Jamaica has been higher than the region as a whole and fairly average compared to many of the neighboring towns (Table 2-2). Jamaica, and its neighbors, experienced some of the largest population increases in the county.

Population Projections

Population projections prepared by the VT Department of Aging and Independent Living for Jamaica estimate that the town will continue to grow, but at a slower rate than the community experienced in the late twentieth century (Table 2-3).

Table 2-3: Population Projections for Jamaica

Year	Projected Population	# Change	% Change
2000	946 (US Census)		N/A
2005	1,006	60	6.3
2010	1,049	43	4.6
2015	1,084	35	3.4
2020	1,119	35	3.2

Source: VT Department of Aging and Independent Living

Age Distribution in Jamaica

In 2010, about 21.7% of Jamaica's population was under the age of 18 (Table 2-4). The working age population, those aged 18 to 64, accounted for 62.4% of the population while an additional 15.8% were aged 65 years and older.

Table 2-4: Age Distribution in Jamaica

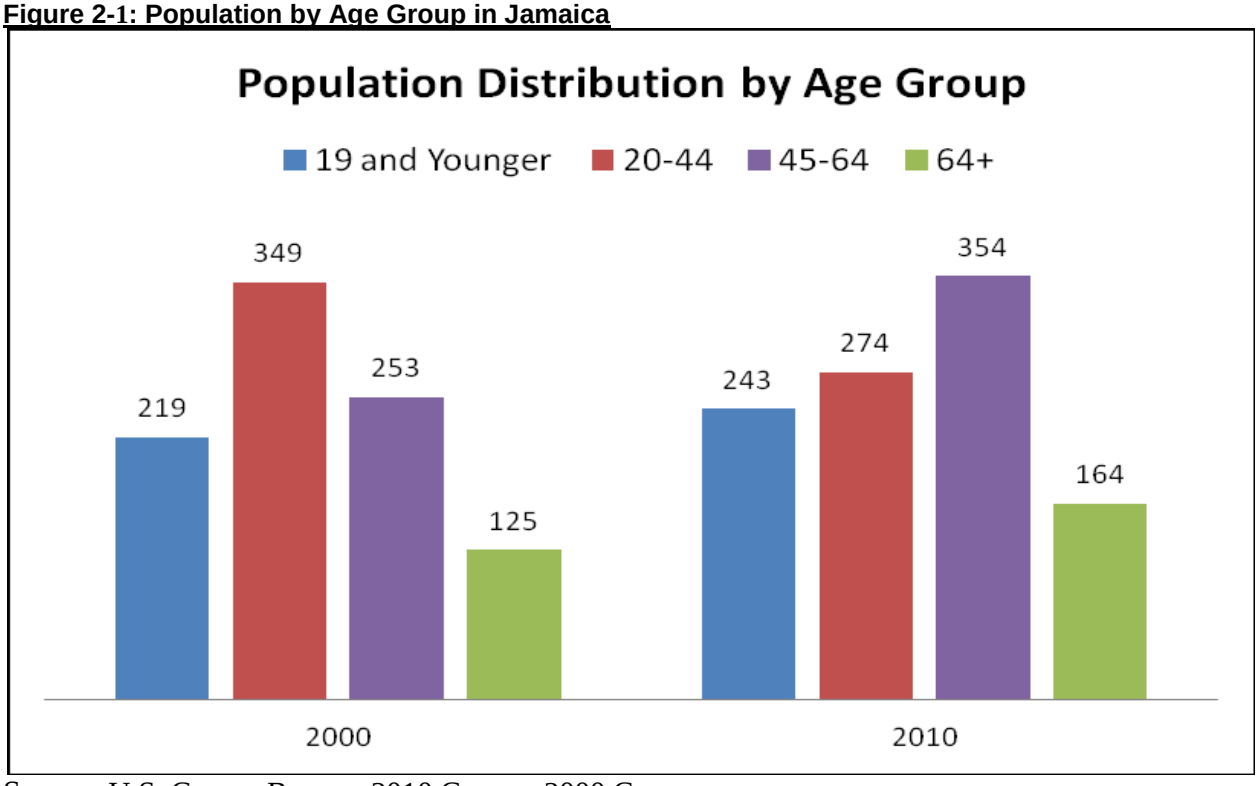
Age	2000	% of total*	2010	% of total*
Under 18	211	22.3	225	21.7
18 – 64	610	64.4	646	62.4
65 and older	125	13.2	164	15.8
Total	946	100	1,035	100
Median age	38	N/A	45	N/A

Source: US Census

* Note that percentages may not total to 100% due to rounding.

Figure 2-1 shows the age distribution in Jamaica in both 2000 and 2010.
The fastest growing age group since 2000 is 45 to 64, The aging of the resident population and in-migration are contributing to the changes in this age group. By contrast, there was a decrease in those aged 20 to 44.

Figure 2-1: Population by Age Group in Jamaica



Source: U.S. Census Bureau, 2010 Census, 2000 Census

III. LAND USE

Current Land Use in Jamaica

The Town of Jamaica is situated in the eastern foothills of the Green Mountains. It is an area of steep forested hills and narrow river valleys. The Town consists of approximately 31,000 acres, approximately 90 percent of which is forestland. An estimated 70 percent of the

forestland is hardwood (such as sugar and red maple, beech, yellow birch, and red oak) and 30 percent is softwood (mainly white pine and hemlock, and at higher elevations red spruce and balsam fir). Most stands represent a mixture of the two. Elevations on Turkey Mountain, College Hill, Mundal Hill, Sage Hill rise to just over 2000 feet while the Pinnacle reaches 2,500 feet. The little remaining open field land in Town is located along the West River in East Jamaica and Jamaica Village, along the Winhall River in Rawsonville and at three locations where land is still actively managed for agriculture. These areas and an area near the old hamlet of West Jamaica contain the only sizable areas of relatively flat land in Town.

Much of the development that has occurred in Jamaica is located along or near Vermont Routes 30 and 100. Other developed areas are found along Pikes Falls, West Jamaica Road, Turkey Mountain Road and in the Cole Pond and West Hill areas. Of the developed land in Jamaica, the principal land use is residential. Most of the commercial development is concentrated in Jamaica Village and Rawsonville. Other commercial development is scattered along Route 30. Cellular tower development will likely be an increasingly common land use as the Town, State and Country strive to broaden the cellular network. There is a recently constructed cell tower in East Jamaica.

Jamaica Village is the Town's cultural, civic, religious and educational center. Most of the Town-owned facilities are located here as are the church, post office, Masonic Hall, and commercial businesses including restaurants, shops, inns and bed and breakfasts. The land in Jamaica Village is already heavily subdivided. Most of these existing lots are already developed with one or more residential units, and some contain commercial-residential or multi-unit residential buildings. Of the 156 parcels within the Village, 4.5% are one-tenth acre or less, 45.5% are one-half acre or less, 62.2% are 1 acre or less, and 35.2% are between one and ten acres.

Rawsonville continues to experience commercial improvements including restaurants, specialty shops and car service stations that are associated with major regional attractions in the area. Rawsonville presently contains 69 parcels. Of these, 36.2% are one acre or less, 49.3% are one to five acres and the remainder range from five to thirty acres.

East Jamaica hamlet is an area of Town which can support a variety of land uses, including commercial and residential development.

Several platted subdivisions exist in Town which are not yet built-out. The larger subdivisions within this category include Wheeler Woods, Wild Turkey, Gleason Farms, Mountain Acres, Stonehedge, Cole Pond and Strattongate. These subdivisions collectively contain approximately 160 lots, a large number of which contain no houses. Most of these subdivisions are in the western part of Town.

Much of the total area of Jamaica is not served by maintained roads or public utilities; this has contributed significantly towards keeping these areas undeveloped. These remote areas are primarily used for timber production and recreation. Jamaica State Park and the federal flood control reservation areas are the most significant undeveloped outdoor recreation areas in the

Town. The State Park consists of two parcels totaling 656 acres along the West River and Shatterack Mountain.

The Hamilton Falls Natural Area (owned and managed by the Vermont Department of Forests, Parks and Recreation) comprises approximately 52 acres. The Vermont Department of Forests, Parks and Recreation also owns the conservation area on Turkey Mountain Road which comprises approximately 312 acres.

The Ball Mountain flood control reservoir on the West River and land adjacent to the reservoir and the River are owned by the US Army Corps of Engineers and are available for recreation. With permission of the landowner, privately owned land in Jamaica is also used for recreation. Many of the streams and trails which cross private lands have traditionally been used for informal recreational activities such as hunting, hiking, swimming, skiing, snowmobiling and horseback riding.

Architectural Heritage

Jamaica has a large and rich collection of architecturally significant buildings representing styles from various periods. These structures serve as a link to our past and help strengthen our local economy by increasing property values, promoting investment, and contributing to the scenic character of Jamaica. It is important that the Town should preserve its historic buildings as important principle in guiding growth. Considerable care should be taken to preserve this heritage.

Night Sky

In most populated areas, being able to enjoy the night sky is becoming a rarity. Residents and visitors to Jamaica are fortunate in that they can enjoy the night sky. The overuse of lighting can be harmful to Jamaica's rural character. It can also be detrimental to road safety (through distraction and glare), energy conservation, and wildlife interests. Appropriate lighting can prevent private and public nuisances and protect property value.

Land Use Plan

The Land Use Plan descriptions and policies represent a vision for the use and development of the lands in Jamaica, and the means to realize this vision. The Land Use Plan Map (included in Appendix B) depicts the areas that are described below. Jamaica's Land Use Plan is greatly influenced by the existing land use, natural and cultural resources, and transportation patterns.

Within all Land Use Districts, specified maximum development densities shall be calculated using the Gross Land Area method. That is, the total number of units that can be developed on a parcel shall be calculated using the total area of the parcel, including land with site limitations as indicated in this Plan.

Conservation Areas

Conservation Areas are those areas that have unique or outstanding natural resource value, or are characterized by significant site limitations to development, such as critical wildlife habitat, wetlands, high elevation and steep slope lands, remote stream corridors and ponds, and scenic

areas such as prominent ridge lines which are currently essentially undeveloped or without public road access.

These areas should be withheld from intensive development and restricted to development densities low enough to maintain resource values and clustered to maintain maximum open and undeveloped land and to promote contiguous, unbroken habitat. Overall development density in these areas should not exceed one unit per 27 acres, equivalent to an overall density of 3.7 units per 100 acres, except in situations where it is clearly demonstrated that development to that density would seriously jeopardize a resource of special value.

Developers should consider using the "cluster design" principle. Cluster development is a type of subdivision design that locates the same number of houses on smaller lots to allow the remainder of the site to be used for agriculture, forestry, private open space, natural resource protection or similar open, undeveloped uses. Location of the developed and open areas should be based on the characteristics of the specific site.

Because of their cultural and natural significance, some areas within the Conservation Areas are more sensitive to development than others. Two types of overlay areas have been identified superimposed on the Conservation Areas and are shown on the Proposed Land Use Map. Below is a description of the overlay areas:

Conserved Lands

Conserved lands are defined as lands in Jamaica that are either publicly or privately conserved. Publicly-owned lands are land primarily used for recreation, forestry, or open space with the majority of land being in an undeveloped state. In Jamaica, these lands include lands administered by the US Forest Service, US Army Corps of Engineers as well as State Parks and Town owned forestland. Also included in the conserved land overlay is privately-owned land with a conservation easement. Most conservation easements are held by the Vermont Land Trust. Lands with conservation easements are not necessarily open to the public. However, they are grouped with the publicly-owned lands because they indicate a high level of commitment to preserving the ecological values of the land. Residential, commercial, and industrial uses other than agricultural and forestry are not encouraged in this overlay area.

Areas of Special Interest

Areas of Special Interest are areas with special natural and cultural resources that contribute to Jamaica's rural character and are specifically designated on maps including the Proposed Land Use, Special Sites and Areas, Water Resources, and Wildlife and Plant Resources maps in this plan. They include, but are not limited to, scenic hillsides and ridgelines, scenic waterfalls or gorges, and important wildlife plant habitats. In order to sustain Jamaica's rural and scenic character, these landscapes must be preserved. Residential, commercial, and industrial uses are not encouraged in this overlay area and development is prohibited on prominent ridgelines and peaks. Any development that occurs in these areas should avoid fragmentation of large tracts of land and be designed to have no impact on the special resource value of the area.

Rural Resource Areas

Rural Resource Areas are those areas with high resource value such as accessible buildable land, agricultural land, productive forestland, wildlife habitat and similar resource land. These areas should be developed for residential, commercial, recreational or open space uses only at densities low enough to protect their resource values and to minimize demands on Town and other public services.

As in Conservation Areas, developers in Rural Resource Areas are encouraged to utilize low impact development practices in order to maintain the rural character of the area. One example of low impact development is cluster units in locations more favorable for development and to balance this with larger conservation lots elsewhere.

In Rural Resource Areas, the average density within each parcel proposed for development should not exceed one unit per 5 acres, equivalent to an overall density of 20 units per 100 acres. Uses other than residential should be situated on lots of sufficient size to prevent adverse impacts such as noise, light, vibration and odor from affecting adjacent properties.

Within both the Conservation and Rural Resource Areas, development of each parcel, up to the average density specified for the district, should be situated so as to minimize extension of town infrastructure and the provision of services and maximize the protection of the resource values of the parcel proposed for development.

Residential Areas

Residential Areas are lands that are already committed to primarily residential development. They are located within close proximity to Routes 30 and 100 and near existing villages and services. These lands do not contain significant amounts of high value natural resource lands and have been able to accommodate moderate density development, generally in the form of residential subdivisions. These areas should be developed for residential, commercial, recreational or open space uses as long as they relate to the primarily residential character of the area. Average development density of parcels within these areas should not exceed one unit per two acres of land.

To prevent the undesirable effects of "strip" development, new construction within these districts should be clustered and carefully planned and designed so as to minimize the number of new access points to the highways. In order to minimize adverse impact on the scenic qualities of the highway corridors and to integrate with the residential and commercial uses, new development should provide for landscaping and screening.

Commercial-Residential Areas

Commercial-Residential Areas are lands bordering or situated in relatively close proximity to State Routes 30 and 100 and having site characteristics generally suitable to relatively high-density development. They are located close to existing transportation, electric and telecommunication infrastructure needed for new commercial development.

To maximize density of development in these areas, buildings are encouraged to have shared septic systems and/or wells. Average development density of parcels within these districts should not exceed one unit per two acres of land.

To prevent the undesirable effects of "strip" development, new construction within these districts should be clustered and carefully planned and designed so as to minimize the number of new access points to the highways. In order to minimize adverse impact on the scenic qualities of the highway corridors and to integrate with the residential and commercial uses, new development must provide for landscaping and screening and should be designed to connect to existing sidewalks and share driveways, parking, and water and/or septic systems.

Village Areas

Jamaica Village

Jamaica Village is and should continue to be the Town's cultural, civic, social, commercial and residential center. Because the Village is the most densely settled area in Town, new public facilities and services should first be provided here to maintain Jamaica Village as the Town's center. The character of the Village and its sense of Town center is to a great extent created by the cooperative co-existence of commercial and residential land use within a unique setting which is greatly influenced by the predominating architectural styles. The Jamaica Village District also includes an area just east of the existing Village along Route 100 that is an area that would serve as a natural outgrowth of the traditional center.

Residential uses including, but not limited to, single family dwelling and multi-family dwellings as well as small, low-impact commercial operations with appropriate buffering in keeping with the village character shall be encouraged. Development should be compact and should provide certain amenities, such as public spaces and lighting, to keep Jamaica Village an attractive and comfortable place in which to live.

New development within Jamaica Village must provide for landscaping and screening and maximize possibilities for pedestrian and bicycle travel. The intent of this is to encourage a mixture of residential and commercial development in a pedestrian friendly setting. This will contribute to the economic vitality of Jamaica while preserving a sense of proportion in the Village center. New development should also be designed to include shared green space, driveways, parking, and shared water and septic systems.

Whenever possible, public investments and state and federal funding/grants shall be utilized to make improvements to, create new or expand existing infrastructure within Jamaica Village. These investments shall be made to support the existing character of the Village, as well as planned growth.

Average development density in Jamaica Village should not exceed one unit per acre, although it may not be possible to achieve this density in some areas of the Village because of the number of pre-existing small lots and the need to provide for safe isolation distances between leach fields and water supplies. Generally, villages are developed at a much higher density (one unit per 1/8 acre or 1/4 acre). However, due to the water and wastewater limitations previously mentioned, the ability to achieve this higher density is restricted. In addition, Jamaica Village is a designated Historic District with many attributes that are historically and culturally important. The removal or renovation of these attributes would be inconsistent with the nature of this plan.

Rawsonville

Rawsonville has become a significant commercial district in the Town. Businesses within Rawsonville primarily serve the needs of visitors who are drawn by regional attractions. Continued commercial development is expected to occur here as these regional attractions expand. Average development density within Rawsonville should not exceed one unit per acre. The guidelines for and limitations to development in Jamaica Village should also be applied to development in Rawsonville.

Land Use Policies:

1. Jamaica Village shall continue as the center of the Town. Future expansion of publicly owned community facilities buildings shall be in the Village.
2. Further development within and adjacent to the Village districts must be carefully planned to minimize adverse impacts on the character of the village, existing water supply and wastewater disposal, and traffic within the villages.
3. The character of Jamaica Village is an important asset to the community. The character of the Village shall be maintained by limiting uses within the Village to those that are compatible with the existing commercial and residential uses.
4. Encourage the restoration and preservation of buildings that contribute to the architectural and historical character of the Town. When such buildings become obsolete, new uses shall be found for them that will preserve the architectural and historic character of the buildings.
5. Lands adjacent to or including areas of historical, educational, cultural, scientific or architectural value shall be used in a manner that will not reduce or destroy the value of the site or area.
6. Lands adjacent to existing public land and existing or planned public facilities shall be used in a manner that will not diminish the value of such investments or interfere with their intended uses.
7. Require appropriate site planning and landscape design by siting structures to fit into the natural characteristics of the land and maintaining vegetative buffers along roads and parcel boundaries.
8. Require the use of low impact development strategies (e.g., cluster development, conservation easements) that minimize the fragmentation and loss of agricultural land, forest land, unique or ecologically sensitive areas and special sites and areas.
9. Encourage the town to purchase or accept donations of rights to properties that have high public value.
10. Scenic hills and ridgelines shall be left in their natural condition, free from all development, including roads, building structures, utilities, and wireless broadcast and telecommunications facilities.
11. Require developers to incorporate the following in the site planning of commercial facilities: shared access, landscaping, and provisions for pedestrians.
12. Reduce light pollution by using fixtures that direct light below the horizontal plane, utilizing energy efficient lamps, and using light levels appropriate for the use of the property.
13. Light shall not trespass onto adjacent properties or create dangerous conditions due to glare on adjacent roadways.
14. Lighting design shall include the installation of timers, photo sensors, and other energy saving devices to reduce the overall energy required and to eliminate unnecessary lighting.

15. Require that housing developments not have undue adverse impact on natural resources, open space, and important agricultural and forest lands.

Priorities for Action:

1. Evaluate options for the Town's acquisition of public open space land for recreation, conservation, or a Town Forest. (Planning Commission, Selectboard)
2. Identify and appropriately designate historically significant structures. (Planning Commission, Historical Foundation)
3. Assess opportunities to establish green spaces in the village areas.(Planning Commission)
4. Review and monitor municipal street lighting fixtures to evaluate their effectiveness in directing light towards the street and sidewalk and away from neighboring properties and the night sky. (Planning Commission, Selectboard)
5. Investigate acquisition of water rights in anticipation of possible development of a municipal water supply and/or wastewater disposal system. (Planning Commission, Selectboard)

IV. NATURAL RESOURCES

Jamaica is a rural community with exceptional natural resources. Significant water resources, wetlands, agricultural and forest lands, and unfragmented blocks of land support the community's wildlife species, recreation activities, and quality of life.

The primary focus of this section is to identify the natural resources of Jamaica, recognize the role that they play in giving the Town its character, and decide which strategies would best maintain that character while contributing to the long term sustainability of the community. All of the community's resources are interconnected, and any change to one can have a significant impact on the others. The goal of this section is to help develop a balance between development and resource protection within Jamaica that will guide further sustainable development of the community. It is also hoped that this section will alert residents of Jamaica to the importance of the integrity of natural systems for the entire region.

Agriculture

Over the last 225 years, the role of agriculture in the Town of Jamaica has changed dramatically. In 1900 nearly 80 percent of the land area of Jamaica was cleared and used for agriculture. Today, agriculture is not extensive in Jamaica but the remaining agricultural areas are still an important resource that provide local farm product, open space, and contribute to the rural character of the Town.

The largest remaining commercial agricultural operation in Jamaica is located northwest of Rawsonville. Lands in the northeast corner of Jamaica, West Jamaica, and Pikes Falls are still used for hay production. A number of homeowners throughout the town keep horses and/or a few beef cattle, and these utilize small areas of pastureland that remain from what were once larger farms. Small scale agriculture includes gardens and fowl. Some open, level land along the West River in East Jamaica, within the flood easements of Townshend Dam, is used for hay production. Additional open land upstream of this area is restricted from further development, and could be used for agricultural production if the owner desired.

The US Department of Agriculture has identified soil types that are best suited to crop production based on soil quality, growing season and moisture supply. These areas, called prime agricultural soils, are likely to produce the highest crop yields using the least amount of economic resources and causing the least environmental impact. Jamaica's prime agricultural soils are located along the West and Winhall Rivers and Wardsboro Brook.

Agriculture Policies:

1. Engage landowners in protecting natural resources and encourage the management of open lands for farming, forestry and recreation.
2. Encourage agricultural production, including small-scale production and innovative and non-traditional farming operations.

Biological Diversity

Rare, Threatened, and Endangered Species

The Vermont Non-game and Natural Heritage Program has drawn up a preliminary inventory of the plant and animal species that have been listed by either the state or the federal government as being rare, threatened or endangered. These species and communities are considered so rare because they have particular habitat requirements, are at the edge of their ranges, or are vulnerable to disturbance or collection. Each rare community that Jamaica harbors contributes in an important way to the overall diversity of the state and larger region. Although some of the listed species are protected to some extent under either Vermont or Federal law, the presence and distribution of these species in the Town are generally not well known. Therefore, protecting these resources represents a very difficult conservation challenge. Nonetheless, Jamaica recognizes the significant contribution that rare, threatened, and endangered species make to our natural heritage and the health of greater Vermont's environment.

There have been 25 documented occurrences of rare plant and animal communities in and around Jamaica, the majority of which are rare plant communities (see Table "Rare Plant and Animal Occurrences in Jamaica" in the Appendix). Using a ranking, the Vermont Non-game and Natural Heritage Program assesses the rarity of species on a global and statewide ranking. There are seven communities which have been ranked as threatened at the state level. The rare plant and animal communities that have been documented within the last 20 years are primarily found along the West River upstream of Ball Mountain Dam, Cole Pond, and on either state or US Army Corps of Engineers lands. A portion of Mill Brook and segments of the West River that flow into Townshend also host rare plant and animal communities that were documented within the last 20 years.

Invasive Species

Invasive plant species have become common in many forests, wetland, and riparian areas. They can out-compete native plants for space, nutrients, and light. An "invasive species" is defined as a species that is 1) non-native to the ecosystem under consideration and 2) whose introduction causes or is likely to cause economic or environmental harm (Executive Order 13112). Human actions are the primary means of invasive species introductions.

The sale, purchase, and or planting of plants considered to be invasive have been banned at both the state and federal level. In 2002, the Vermont Department of Agriculture, Food, and Markets adopted a plant quarantine rule to regulate the importation, transportation, sale, possession, cultivation and/or distribution of certain invasive plants. This Quarantine Rule includes both species that are not yet known to occur in Vermont but are on the Federal Noxious Plant List and species which do occur in Vermont and pose a serious threat to the state. The state has also created a Watch List which includes plants that have the potential to become invasive in Vermont. A list of invasive plant species is included in the Table "Invasive Plant Species and Invasive Species Watch List for Vermont", found in the Appendix. (This list does not include all of the plant species listed on the Federal Noxious Plant List.)

There are increasing populations of invasive plant species in Jamaica. Japanese Knotweed presents water quality concerns due to the fact that it out-competes other vegetation and dies back in the winter, leaving shorelines susceptible to erosion because there is no other vegetation stabilizing the stream bank. Purple loosestrife is commonly seen in many riparian and wetland habitats in the region.

Species such as Japanese Knotweed, European Buckthorn, Japanese Barberry, Oriental Bittersweet, and Asiatic Honeysuckle have all become well established in many locations in the West River Valley, and their range has been expanding up the Valley in the past decade. These species are primarily spread by birds ingesting seeds at one location and depositing them elsewhere. Community action is necessary to combat invasive species.

Elevations generally below 1,500 feet are most susceptible to invasive species, though any land with some sort of major disturbance (from wind, water, logging, or land clearing and development) could potentially host them. It may be possible to slow down or even halt the spread of these species by identifying and removing plants as soon as they appear. Early detection is the key. This detection can be aided by educating residents about the identification of and problems caused by invasive species.

Natural Communities

The Vermont Department of Fish and Wildlife has identified the following significant natural communities in Jamaica: Hemlock Forest; Mesic Red Oak-Northern Hardwood Forest; Temperate Acidic Outcrop; Hemlock Swamp; River Cobble Shore; and Rivershore Grassland. According to Vermont Department of Fish and Wildlife, natural communities are "an assemblage of plants and animals that are found recurring across a specific landscape under similar environmental conditions where natural processes, rather than human disturbances, prevail". These areas, identified by dominant plants, vegetation structure, and major features of the physical environment represent intact examples of Vermont's native flora, fauna, and vegetation. There may be additional natural communities in Jamaica that have not yet been identified.

Significant Wildlife Species

The Town's natural environment supports white tail deer. Some areas within Jamaica have been identified as deer wintering areas. These areas were mapped by the Vermont Department of Fish and Wildlife using aerial photography, infrared aerial photos, and ground confirmation. The

mapping of these wintering areas or “deer yards” needs updating as much of the mapping was done in the 1960's and 1970's. Areas identified during the original mapping may have undergone forest cover or land use changes and may not be current deer wintering areas. It is also likely that current deer wintering areas have not been included in the State's data.

Wintering areas can be utilized by generations of deer over many decades if appropriate habitat conditions are maintained. Conserving deer wintering areas is essential to the species survival and is critical to maintaining the resource for recreational activity.

The black bear is native to Vermont and primarily found in remote, forested habitat. In Jamaica, the National Forest Service has conserved 720 acres of land on Sage Hill for its critical bear habitat. Jamaica is also home to a regionally significant black bear travel corridor that has been identified by the Vermont Agency of Natural Resources. This bear travel corridor links Sage Hill to important habitat in neighboring Stratton. Black bear travel corridors are forested habitats that are regionally important and are used by a large number of bears to access critical seasonal foods or to link bear ranges with sub-populations. Travel corridors are comprised of bear travel routes and may include one or more road crossing areas. The Town places a high priority on protecting the resources value of land identified by the Agency of Natural Resources in order to protect this important wildlife travel corridor.

Unfragmented land provides some of the most valuable wildlife habitat, especially when it provides a range of contiguous habitat of many different types (mature forests, wetlands, open fields, etc.) in close proximity. A primary characteristic of unfragmented habitat is the absence of roads. Roads can be a source of mortality and a barrier to wildlife movement. The impact of a road varies depending on its use. Narrow dirt roads that maintain a tree canopy retain a greater degree of forest cover and habitat for many species of wildlife, including birds.

Biological Diversity Policies:

1. Protect all viable occurrences of known rare, threatened, and endangered species. Sites or areas of rare, threatened, or endangered species of plants and animals shall not be developed and shall not be used in a manner that will destroy those species.
2. Ensure the conservation, protection and proper stewardship of significant natural communities. Carefully assess potential impacts of proposed development on significant wildlife habitats in order to preserve such habitats.
3. Prohibit fragmentation of large blocks of significant wildlife habitat and maintain connectivity between habitat blocks as corridors for wildlife migration.
4. Configure and design roads so as to prevent the fragmentation of significant blocks of wildlife habitat.
5. Prevent the spread of and support efforts to remove invasive species.
6. Prohibit the distribution of any plant on the Federal Noxious Plant list.

Earth and Mineral Resources

Earth and mineral resources in Jamaica consist principally of sand, gravel and uranium deposits. Compared with other parts of the state, sand and gravel resources are limited. There are outwash deposits of stratified sand and gravel, formed when glacial melt waters sorted material and deposited like sizes together along glacial streams or in glacial ponds or lakes.

Locally significant deposits of sand and gravel can be found along the terraces of the West and Winhall Rivers. To a lesser extent, deposits also occur along Ball Mountain and North Branch Ball Mountain Brooks. Though sand and gravel deposits are present along the West River, there are several areas that contain rare and threatened species. Therefore, mining for sand and gravel along the West River with high concentrations of rare or threatened species is strongly discouraged.

Sand and gravel resources are particularly important materials for road construction (see Soil Resources map); however, Jamaica has few excavation sites. Extraction and processing are limited by existing development on or near deposits, the suitability of Town roads and bridges to withstand heavily loaded trucks, and State restrictions on the removal of gravel from streambeds.

The impacts from sand and gravel operations are often cited as concerns. Increased truck traffic, noise, erosion, and airborne particles can create problems for abutters. The use of outwash deposits in commercial sand and gravel operations could alter the performance of these areas as groundwater recharge areas. As material is moved and the geology is altered, water will not be filtered and stored in the same manner.

There is a significant uranium deposit in the vicinity of The Pinnacle. Previous attempts to extract uranium from this area resulted in State legislation requiring legislative approval for future uranium mining in the state. It should also be noted that land uses in this area might result in public health hazards resulting from the possibility of exposure to high concentrations of radon.

Earth and Mineral Resources Policies:

1. Require that earth and mineral extraction is carried out in a manner and in locations that result in minimal adverse impact to the environment and character of the surrounding area.
2. Limit the extraction of earth and mineral resources to areas that are not heavily developed.
3. Extraction of earth and mineral resources shall not interfere with or have negative impacts on groundwater, wildlife habitat, air quality (dust and noise), community resources including recreation and special sites and areas, or neighboring property owners. Extraction sites must handle truck traffic without creating unsafe travel conditions on Town roads and bridges.
4. Use local sources of sand and gravel for Town construction projects when it is cost effective and consistent with the Town Plan.
5. Require those responsible for extracting earth and mineral resources to prepare a site rehabilitation plan that provides for the restoration of the natural and aesthetic character of the land and that ensures a safe, attractive and useful condition of the land.

Forestland

According to *Conserving Vermont's Natural Heritage* (VT Department of Fish and Wildlife, 2004), nearly 75% of Vermont's forests were cleared for sheep farming and the production of timber resources in the mid-1800's. As the economy changed and people moved west, the landscape began to return to forest. Like the greater setting of the state, Jamaica's landscape

has also changed over time. Today, approximately 28,000 acres (90%) of the Town's 31,000 acres is forested.

The forest cover is quite diverse, consisting of about 70 percent hardwoods and 30 percent softwoods. A major component of our landscape, forests provide timber for wood products, maple sugar, clean water, recreational opportunities and wildlife habitat. Their economic value extends from their resource value. Jamaica's forests values and uses depend on many factors, including the soil type, the quality of forest management, commitment to long term management, forest type, size and accessibility of privately owned parcels, and existing land uses.

Contiguous Forests

While it is important to track the resources (or potential resources) in each forest parcel, it is also critical to look beyond parcel lines and understand the entire forest landscape without divisions. Contiguous forest habitat serves many uses and functions including recreation, timber harvesting, wildlife habitat and migration paths, water quality protection, open space, and scenic enhancement. These are all important uses for the residents of Jamaica, both from a quality of life and economic standpoint. Contiguous forest refers to an area of forested land either without roads or with low densities of Class 3 and 4 roads, and little or no human development (buildings, parking areas, lawns, gravel pits).

Contiguous forest blocks larger than 500 acres have a greater capacity of supporting a wider range of resource protection values such as economic forest management, wildlife habitat, outdoor recreation, and water supply protection than smaller forest tracts. It is for this reason that 500 acres is used as a threshold indicator of forest health and forest fragmentation. Many animal species, including the black bear, require large areas of extensive forest or mixed habitat in order to maintain a stable population. Smaller forest tracts can be difficult to manage economically for sustainable timber harvesting and less desirable for hunting and other forms of outdoor recreation. Jamaica has several large contiguous forest blocks which are shown on the Existing Land Use Map.

The subdividing of large woodland parcels into smaller lots is a threat to Jamaica's forestland. This is a process known as parcelization. In addition to fragmenting plant and animal habitat, parcelization affects people and communities by making it difficult to having a working forest that produces an economic benefit. Recreational use of the forest can also be jeopardized when more than one landowner is involved in land use decisions.

Forest Management

Forest management is important to the environmental and economic well-being of Jamaica's forests. Responsible harvesting of forest resources will support the local economy and provide access to local forest products. Considerable care should be taken during both commercial timber cuts and cuts to create open space for development to ensure the conservation of soils by mitigating erosion. Because large forested tracts are another aspect of the rural character of the community, visible clear cuts, either for commercial harvests or for development, should be carefully avoided or buffered. "Viewsheds," the views available to residents and tourists while driving, hiking, etc., and the impact of large clearcut areas on a viewshed are important

considerations to maintaining Jamaica's rural character. The maintenance of forested and agricultural views is important and can be accomplished by selective cuts or smaller clear cuts with active replanting.

There are several large parcels currently managed as forest industry lands. For the various functions that these large unfragmented forests have, the Town supports the maintenance of these large blocks of land.

The Use Value Appraisal (UVA) Program (commonly referred to as Current Use) was passed by the State legislature in 1977 to provide greater tax equity for forest and agriculture landowners as well as to encourage long-term productive use of Vermont's agricultural and forest land. This program allows farm and forest lands to be taxed on their resource production rather than their value for development purposes. The program includes a Land Use Change Tax as a disincentive to develop land.

Use Value Appraisal is currently the strongest incentive for maintaining large blocks of private forest land. Forest parcels enrolled in the program must have a minimum of 25 contiguous acres to enroll in the program (not counting the two acres surrounding any dwelling). The forest land is required to be managed according to the provisions of a 10 year forest management plan that is approved by the County Forester. Agricultural land has a different set of eligibility requirements that are similar to the forest requirements.

According to tax year 2016 Vermont Department of Taxes data, Jamaica had 53 parcels totaling 10,116 acres enrolled in the Use Value Appraisal Program. While Use Value Appraisal reduces the burden for landowners, land can be taken out of the program with payment of a penalty. Therefore, it does not provide absolute assurance of continued open space.

Conserved Lands

Conservation areas are those lands protected for the foreseeable future through either outright preservation by governmental or conservation organizations, preservation by land owners, or through conservation easements. Jamaica has approximately 3,357 acres of land that has been set aside as conservation land. Table 3-1 shows the acreage amounts for those lands which are owned outright. There is an additional 640 acres on 5 parcels of private land that have conservation easements held by the Vermont Land Trust.

Table 3-1: Significant Conservation Lands in Jamaica

Name	Acres	Owner	Comment
Sage Hill & Blake	1173	US Forest Service	
US Army Corps of Engineers	732	US Army Corps of Engineers	Several individual parcels of land mostly contiguous
Jamaica State Park, West River/Campground tract	323	State of Vermont	Includes campground and undeveloped portions of the park
Jamaica State Park, Shatterack Mountain Tract	333	State of Vermont	

Conserved Land on Turkey Mountain Road	312	State of Vermont	Part of Jamaica State Park
Hamilton Falls Natural Area	52	State of Vermont	
Winhall Town Forest	509	Town of Winhall	
Pikes Falls	16	Town of Jamaica	
Sage Hill	28	Town of Jamaica	

Source: 2016 Jamaica Grand List, and Windham Regional Commission GIS Data

Despite the support for land acquisition that was indicated in the 2006 Community Survey, the challenge of financing land acquisition will remain. While 59% of respondents stated that the Town should set aside funds on an annual basis to be used exclusively to purchase land, the majority of respondents were not willing to increase property taxes in order to preserve farm, forest, and open space land.

Forestland Policies:

1. Encourage stewardship for existing relatively large areas of contiguous forest habitat and prohibit parcelization of land. Assure continuity between parcels of contiguous forest within Jamaica's boundaries and those that lie within the surrounding towns.
2. Ensure that the extraction of forest products is carried out in a manner and in locations that result in minimal adverse impact to the environment and character of the surrounding area.
3. Encourage the continued practice of forestry in those areas of Town that are well suited for growing and harvesting timber. Encourage the use of the Windham County Forester's Office to advise timberland owners on tree selection and access routes that will maximize long-term timber value and to minimize erosion and the introduction of invasive exotic species.
4. Maintain wildlife habitat, scenic vistas, clean water, and recreational opportunities provided by forestlands.
5. Encourage public, industrial, and private landowners to maintain and enhance forest resources on their lands and to follow sustainable forest management practices that provide habitat for diverse natural species and follow Vermont's current *Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont*.
6. Provide opportunities for citizen and landowner comments during the process of reviewing proposals for public acquisitions of land under Jamaica's written land acquisition policy.
7. Encourage private landowners to consider protective easements.

Natural Areas

Natural areas in Jamaica are those areas that make a unique contribution to the scenic, recreational and biological resources of the Town. These areas provide such public benefits as scenic views of mountain ridges, popular areas for fishing, hunting, trapping, hiking and important wildlife habitat.

There are many prominent forested peaks or ridgelines in Jamaica of which the principal ones are shown on the Special Sites and Areas map. The main forested peaks of interest include Ball Mountain, Turkey Mountain Ridge, College Hill, Mundal Hill, Sage Hill, Shatterack Mountain, and The Pinnacle. These peaks and ridgelines provide many important values and uses. They

provide a scenic background from various vantage points that greatly contribute to the Town's character. They also provide important wildlife habitat, and serve as the headwaters to many streams. Because the steep slopes of these peaks and ridgelines are primarily undeveloped and heavily forested, the fragile soils of these areas are able to deliver clean water to Jamaica's rivers, brooks and ponds. These areas, however, are very susceptible to erosion.

It is highly desirable that prominent peaks and ridgelines shown on the Special Sites and Areas map be maintained in a natural state and be avoided as sites for buildings, utilities, or other structures. It is also highly desirable that Jamaica's important wildlife corridors be protected or conserved from encroaching development and incompatible activities, such as road expansion or development of new Class 1, 2, or 3 roads. Development should be restrained in and around corridors and these resources should be given high priority in considering lands for acquisition or other long-term conservation efforts. As noted previously, Jamaica is home to a regionally significant black bear travel corridor linking Sage Hill to their habitat in the Town of Stratton. The Town places a high priority on protecting the resource value of land within the area identified by the Agency of Natural Resources in order to protect this important wildlife travel corridor.

Jamaica contains a wide trail network throughout many parts of the Town. All of these trails currently provide important recreational opportunities to the Town's residents and visitors. As land is subdivided or developed it will become increasingly difficult to assemble a trail system of connected footpaths in Jamaica. Also, as public lands or public rights-of-way along the West River are transferred to individual ownership, opportunities for public use will decline.

There are segments of the West River, Mill Brook, Cobb Brook and Turkey Mountain Brook in Jamaica which have no roads within 1,000 feet of the stream for a length of at least one-mile. These stream segments provide remoteness important for wildlife and make an important contribution to the recreational uses of these areas.

There are several unique geologic formations that provide important opportunities for recreation and natural history observation. These include the Hamilton Falls Natural Area, Pikes Falls Natural Area, and the South Windham Gorge.

Natural Areas Policies:

1. Maintain the scenic qualities provided by mountaintops and ridgelines.
2. Protect the natural character of roadless stream segments.
3. Protect important wetlands, including the areas surrounding them, from land uses that would diminish the benefits and functions they provide.
4. Protect areas shown on the Special Sites and Areas Map and the areas surrounding them from incompatible adjacent land uses which would diminish the benefits and functions they provide.
5. Minimize areas of earth disturbance, grading, or vegetation clearing on slopes between 15% and 25%, bedrock outcroppings, shallow soils, or probable areas of shallow and wet soils.
6. Prohibit construction of roads and structures in areas predominated by slopes exceeding 25%.

Priorities for Action:

1. Continue to maintain a Special Sites and Areas map and update it as additional areas are identified. (Planning Commission)

Water Resources

Rivers and Brooks

There are approximately 104 miles of waterways in Jamaica. The West River is the only major river in Jamaica. Its course through the Town extends for nine miles. Small rivers include the Winhall River, Ball Mountain Brook (below the North Branch), and Wardsboro Brook. There are l6 miles of major brooks. These include Mill Brook, Cobb Brook, North Branch of Ball Mountain Brook, Ball Mountain Brook (above the North Branch) and Turkey Mountain Brook. Additionally, there are numerous small brooks, only a few of which are shown on our Town Plan maps.

The quality of surface water in Jamaica is generally very good. Except for short periods after rainstorms, most brooks and small rivers appear to meet Vermont Department of Environmental Conservation's (DEC) turbidity standards. The North Branch of Ball Mountain Brook has been identified by the DEC as impaired by manganese from reservoir sediment. Wardsboro Brook requires further assessment of possible impairment by sediment and temperature.

All surface waters in Vermont are classified according to a system established by the legislature. The system provides for two classes of water, A and B, with appropriate standards for their maintenance. Class A waters are all those above 2,500 feet in elevation plus certain waters which are a source of community drinking water or are of very high quality and ecological value. All other waters are Class B, suitable for drinking with filtration and disinfection; irrigation and other agricultural uses; swimming and recreation. There is also a special category known as Outstanding Resource Waters (ORW) that recognizes waters having exceptional natural, recreational, cultural or scenic values.

In Jamaica, Kidder Brook and Cobb Brook are classified as Class A waters, and all others are Class B. The town also has the distinction of possessing an ORW, namely the Pikes Falls segment of the North Branch of Ball Mountain Brook.

The land within Jamaica drains into the West River Watershed. A watershed is a land area which collects precipitation and contributes runoff to a receiving body of water or point along the watercourse. The drainage areas of Jamaica's rivers and brooks extend beyond the Town's borders so inter-municipal coordination of land uses is essential to ensure effective management and protection of the water resource.

Ball Mountain Dam

The Ball Mountain Dam is one of about 18 federal dams on tributaries of the Connecticut River in Connecticut, Massachusetts, New Hampshire, and Vermont. Together they form a system of flood control dams operated by the US Army Corps of Engineers (Army Corps) and designed to minimize flood damage on the Connecticut River and its tributaries. The Army

Corps maintains fish passage facilities at Ball Mountain and Townshend Dams to allow for upstream and downstream migration of Atlantic salmon.

The Ball Mountain Dam has a height of 265 feet above the river bed. It is capable of holding back almost 55,000 acre-feet of water before overflowing its spillway. This volume of water is equivalent to six inches of water over the entire 172 square miles of drainage area upstream from the dam. The drainage area controlled by the dam represents about 40 percent of the total drainage area of the West River.

The level of flow in the West River as it passes through Jamaica varies tremendously due to the fact that the river passes between two federally controlled flood control dams, the Ball Mountain Dam in Jamaica and the Townshend Dam in neighboring Townshend. The average flow over the years has been about 400 cubic feet per second (cfs). Currently, there are controlled releases from Ball Mountain Dam in which the river flow is about 1,500 cfs.

Sediment accumulation in the pool behind Ball Mountain Dam poses a continuing serious risk to water quality and aquatic and riparian habitat in the West River both upstream and downstream of the dam. Ball Mountain Dam was not designed to impound a permanent pool, but a pool has been maintained behind the dam since shortly after it was constructed in 1960. Several hundred thousand cubic yards of sediment have accumulated in and near the historic river channel underneath the surface of the pool. In the mid 1990's two successive accidental sediment releases from the dam caused severe damage to aquatic and riparian habitat along the West River. Major fish kills resulted from both of these releases, and ecological and economic losses were significant.

The Ball Mountain Dam is currently being used for generation of hydroelectric power. Refer to the Energy section for more details.

Ponds

Although Jamaica has streams in abundance, there are only three significant natural ponds. Of these, Cole Pond, comprising 41 acres, is the largest. With approximately 57 houses on 4 $^{1}/_{2}$ miles of road and 10 lots on the market in the Cole Pond area, special measures may eventually be required, such as a community sewage disposal system, to maintain adequate water quality. The two other Jamaica ponds, Adams Pond and Forrester Pond, seven and nine acres in size respectively, are relatively undeveloped. Both have been documented as containing significant rare plant communities.

Forrester Pond is included on Vermont's 2016 List of Priority Surface Waters Part D. Impaired Surface Waters with Completed and Approved TMDLs as impaired; it is noted as being critically acidified by atmospheric deposition, which impacts aquatic life support. DEC and the US Environmental Protection Agency completed and approved a total maximum daily load (TMDL) for the pond September 30, 2003. A TMDL is a calculation of the maximum amount of a pollutant that a surface water can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. DEC performs ongoing monitoring to track this impairment.

The Cole Pond Association voluntarily monitors water quality in the pond. The entire shoreline of Cole Pond is privately owned and there is no public access. Based on years of sampling data, Cole Pond is in mesotrophic state meaning that it contains moderate nutrient concentrations. Generally, mesotrophic water bodies have moderate algae growth and relatively clear water. Often these water bodies support plant growth around much of their shoreline and may have some shallow areas with abundant plant growth.

Wetlands

Wetlands are areas that are frequently inundated by surface or ground water to support vegetation or aquatic life that depend on saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands take such diverse forms as marshes, swamps, sloughs, potholes, fens, river and lake overflows, mud flats, bogs, and ponds. It is well recognized that wetlands provide important habitat for certain species of wildlife, filter pollutants from runoff that flows through wetlands on its course downstream and stabilize stream flow during periods of heavy precipitation and drought.

The Vermont Wetlands Inventory (VWI) Maps show in the neighborhood of l00 different wetlands in Jamaica comprising 23l acres. To date, a comprehensive field study of wetlands in Jamaica has not been performed. DEC's *Vermont Wetland Rules* categorizes wetlands as Class I, II, or III. Class I wetland areas are those that are exceptional or irreplaceable in contribution so they merit the highest level of protection. Class II wetland areas are those wetland areas which are found to be significant enough to merit some protection (50-foot buffer zones). Class III wetland areas are those wetlands that have not been determined to be sufficiently significant to merit any protection. However, these wetlands may be protected by other federal, state, or local regulations. Class I and II wetlands (referred to as significant wetlands) are protected by the *Vermont Wetland Rules* and require permit approval by the Vermont Department of Environment Conservation, Watershed Management Division, Wetlands Program prior to development.

The Vermont Wetland Rules (2017) provide the following "Functional Criteria for Evaluating a Wetland's Significance:"

1. Water Storage for Flood Water and Storm Runoff
2. Surface and Ground Water Protection
3. Fish Habitat
4. Wildlife Habitat
    a. Birds
    b. Mammals
    c. Amphibians
    d. Reptiles
    e. Landscape Considerations indicative of wildlife habitat diversity
5. Exemplary Wetland Natural Community
6. Rare, Threatened, and Endangered Species Habitat
7. Education and Research in Natural Sciences
8. Recreational Value and Economic Benefits
9. Open Space and Aesthetics
10. Erosion Control through Binding and Stabilizing the Soil

Floodplains and Floodways

Floodplains are relatively flat areas adjacent to a stream or river that experience occasional or periodic flooding. Federal Emergency Management Agency (FEMA) has mapped the Special Flood Hazard Areas (SFHAs), which are the floodplain areas with a one percent chance of flooding in any given year. In Jamaica, these areas include lands along Wardsboro Brook, Ball Mountain Brook, the Winhall River, and segments of North Branch Ball Mountain Brook, Turkey Mountain Brook, and the West River. Current FEMA maps are available for review in the Town Office.

Within the SFHAs are floodways, which carry the strongest of flood currents. FEMA has mapped these which are defined as "the channel of a watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without increasing the water surface elevation by more than one (1) foot at any point." There are mapped floodways on the West River, Ball Mountain Brook, and Wardsboro Brook.

The Town participates in the National Flood Insurance Program (NFIP) and has adopted and enforces a Flood Hazard Bylaw. By doing so, property owners in Jamaica are able to obtain flood insurance and mortgages at affordable rates and flood disaster assistance. The Flood Hazard Bylaw regulates development within the FEMA defined flood hazard areas by imposing design standards that are intended to minimize property damage during flood events.

Fluvial Erosion Hazard Areas

In addition to the flood hazards described above, there are areas that can be affected by erosion hazards, the scouring of the channel and banks of streams and rivers, often caused by high flows. These areas have been identified by ANR and are mapped as River Corridors on the ANR Natural Resources Atlas and the State's Floodready Atlas.

(For more information about floodplains, floodways, fluvial erosion hazard areas, and River Corridors, please refer to the Flood Resilience Plan element of this Plan.)

Ground Water

As in most of rural Vermont, Jamaica relies on ground water as the principal source of water for domestic use. Different types of wells penetrating to different depths produce a wide range of yields. There are pockets of sand and gravel that can yield abundant supplies of ground water if they are of sufficient depth and especially if they are in close proximity to a stream or pond. Areas that contain such pockets of sand and gravel are found along Ball Mountain Brook, North Branch Brook, Winhall River and the West River. These areas are the most likely to provide a yield of ground water sufficient to provide a central community water supply for the villages.

Threats to groundwater and wells include agricultural runoff, road salting, contaminated runoff from paved areas, underground storage tanks, and failing septic systems. Another threat is when water is pumped at rates exceeding the aquifer's capacity, resulting in yields that do not adequately meet the needs of users.

All private and public water supplies are groundwater wells. There is one public water system in Jamaica that serves the Bear Creek Condominiums. A public water system is any source that provides water to 15 permanent connections or serves an average of 25 individuals daily for at least 60 days a year. Public water supplies are regulated by VT DEC, as required by the US EPA. The West River Trailer Park was reclassified from a public water system to Transient Non-Community water system in 1997. A Transient Non-Community water system serves non-residential users who do not change over time.

Each public water system has an accompanying source protection area. The current Vermont Water Supply Rule defines a source protection area as the surface and subsurface area through which contaminants are likely to move toward and reach a collection point that supplies a public water system. Within the 200-foot radius of this primary collection area, contamination impacts are likely to be immediate and certain. Beyond that radius, source protection areas are tested and mapped to determine further sources of probable and possible contamination. Both the Bear Creek Condominiums and the Jamaica Village School have delineated source protection areas.

It is well documented that there are deposits of uranium in Jamaica. Over billions of years, uranium decays into radium, and eventually radon. Radon is a naturally occurring radioactive gas that has no color, odor, or taste. Well water that contains radon may increase the level of radon gas in a home. The Vermont Department of Health provides free long-term radon test kits to Vermont residents that measure the amount of radon in the air.

Water Resources Policies:

1. Protect waters by restricting development to low densities and low impact uses in the following areas:
    a) Drainage and headwaters characterized by steep slopes and shallow soils.
    b) Watersheds of public water supplies, when and if developed.
    c) Drainage areas of streams classified as Class A by the State of Vermont. Within such areas, special attention shall be given to prevent soil erosion, silting of streams and wetlands, pollution of ground or surface waters, or other forms of water quality degradation.
2. Prohibit the obstruction of streams in order to maintain flows at levels that support current in-stream uses including but not limited to swimming, boating, and fishing.
3. Reduce the potential for flood damage.
4. Significant wetlands as defined in the current Vermont Wetland Rules shall be managed so as to protect their natural ecological and physical functions.
5. Wetlands within or adjacent to proposed development sites shall be identified by a Wetland/Environmental Consultant that performs wetlands delineations in Vermont and development plans shall include design and siting requirements necessary to maintain the ecological and physical functions which the wetlands provide.
6. Support surface water classification and management strategies that will maintain or enhance existing water quality.
7. Structural stream channel alterations shall be permitted only for public safety, restoration of stream ecosystems, or when it can be demonstrated that no other nonstructural methods of accomplishing the same objectives are possible.

8. All stream corridors and pond shorelands shall be maintained in their natural condition with an adequate undisturbed vegetative buffer strip along shorelines.
9. Development proposals along shorelines of public waters which are commonly used by the public shall make provision for continued public access along existing public rights-of-ways to such waters.

Priorities for Action :

1. Identify for future planning the wetlands that perform a significant function in providing wildlife habitat, as defined in the Vermont Wetland Rules, and the existing or possible new artificial wetlands (vegetated drainage ways and stormwater detention basins), which are important for non-point pollution control. (Planning Commission, preferably a Conservation Commission)
2. Continue to administer the provisions of the Flood Hazard Bylaw. Update as needed to maintain eligibility in the National Flood Insurance Program and to address fluvial erosion hazard areas. (Selectboard, Planning Commission)
3. Use road maintenance methods and materials that will maintain or improve water quality, such as those described in the Vermont *Better Roads Manual.* (Selectboard, Road Commissioner, Highway Department)

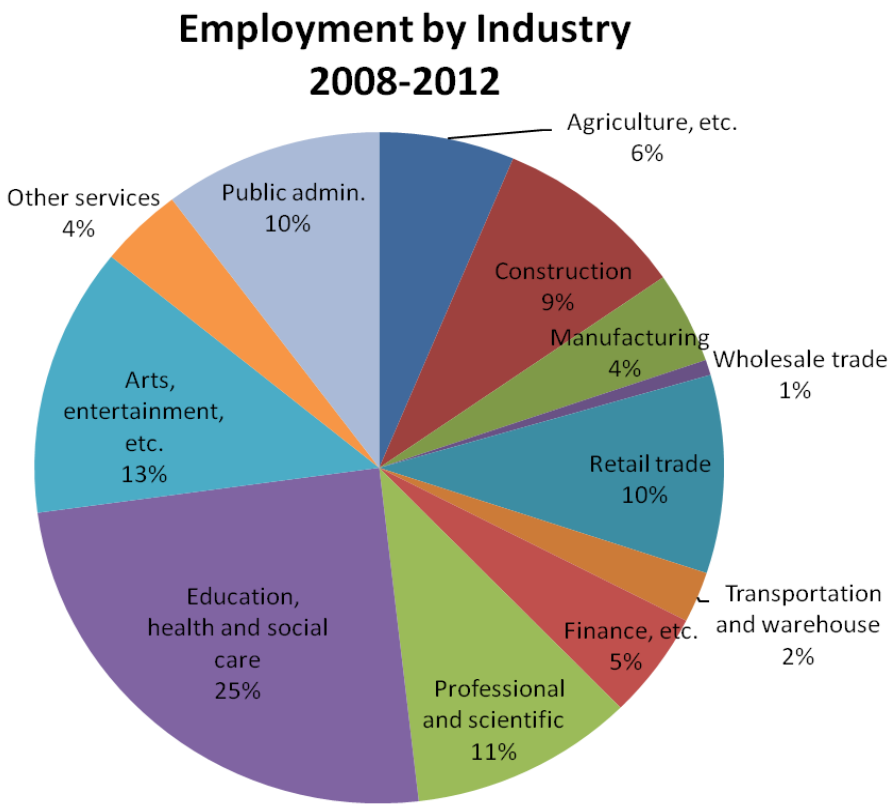
V. ECONOMIC DEVELOPMENT

Workforce

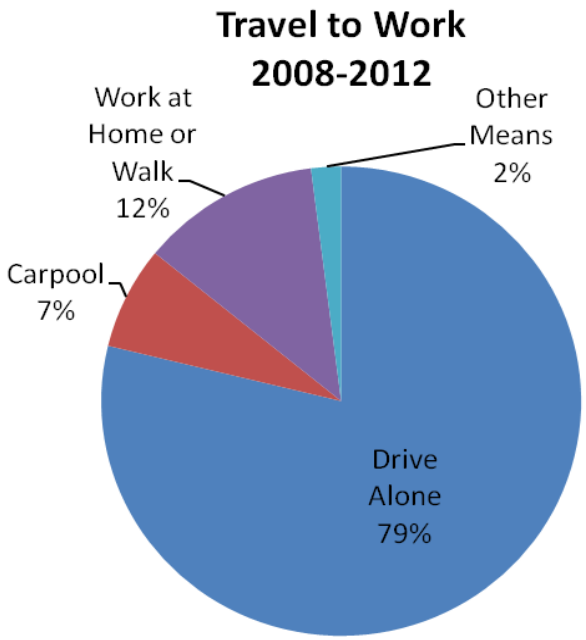
According to the 2006-2010 American Community Survey 5-Year Estimates, there were approximately 529 people 16 years and older from Jamaica in the labor force in 2010 and the annual average unemployment rate was 5.1%.

During the period 2008-2012, American Community Survey Estimates indicate that 24.0% of Jamaica residents worked in Jamaica, including the 8.1% of residents that worked at home.

Jamaica's civilian population was employed in the following industries:



According to 2006-2010 American Community Survey 5-Year Estimates, the average travel time to work was 18.7 minutes.



Current Economic Characteristics

As a rural community, Jamaica has a local economy based primarily on local services, small businesses, and tourist related or hospitality businesses. Businesses are primarily located along Route 30, with the greatest concentrations in Jamaica Village and Rawsonville. Local businesses include a country market, retail stores, art galleries, a general store, eating and lodging establishments, and professional services. In 2005, the only bank closed. Residents must travel outside of Jamaica for most of their major goods and services, including groceries and medical, dental and pharmacy needs, as well as other professional services.

Home occupations and resource industries (agriculture, forestry, and sand and gravel operations) are located throughout the Town. Home occupations continue to serve an important role in Jamaica by allowing for local economic development, encouraging the creation of new businesses, and providing flexible or accessible working conditions for residents.

While the number of businesses in Rawsonville has increased during the period covered by the previous town plan, the number in Jamaica Village has declined. The inability of Jamaica Village's current wastewater and drinking water systems to meet the requirements of state regulations governing isolation distances of drinking water sources and septic systems has forced the closure of two restaurants and a coffee shop, and is limiting the remaining food service business to takeout service only. Further, this condition is increasing the transfer of currently inactive businesses to new ownership and inhibiting new businesses from locating in Jamaica Village. While Jamaica Village's location on Route 30 and adjacent to a very popular Vermont State Park would seem to make it an ideal location for economic expansion, the inability to comply with critical state environmental requirements precludes any significant economic growth. This situation is discussed in greater detail in the Water and Wastewater section of the plan.

There are two conflicting visions for the economic future of Jamaica Village. The first is for vigorous economic growth and the second is to retain the status quo, i.e., to remain a quiet, rural residential community for families earning their livelihood elsewhere. While both have merit, neither is really sustainable in the long term without significant upgrades to the drinking and wastewater infrastructure. This element of the town plan addresses the first vision, identifying policies and actions needed to encourage economic growth of the larger town of Jamaica and revitalize the economic sector of Jamaica Village. Infrastructure improvements necessary to sustain Jamaica Village as a desirable residential community, again addressed in the Water and Wastewater section, will have the added economic benefit of allowing reopening of those businesses that have been forced to close.

The state publishes an annual report on covered employment and wages on a town by town basis. Covered employment is a phrase that is used to describe wage positions that are covered by unemployment insurance. Employment for these purposes is synonymous with jobs. In 2015, there were a reported 169 jobs at 34 reporting establishments in Jamaica, down from 175 reported jobs from 40 reporting establishments in 2010. These include 56 in construction, 80 in services, 9 federal employees, and 24 local government employees including education employees. The employment figures in the state reports are an average of the monthly

employment figures for the calendar year. In some industries where there are significant seasonal changes in the number jobs during the year, the annual average employment will differ significantly from the level of employment for any part of the year.

Recreational tourism plays a large role in Jamaica's economy. Ski resorts, summer and fall tourism, and second homes are three major components of the tourism and recreation industry. Businesses in Jamaica continue to benefit from growth related to tourism and recreation. While data is not available at the town level, a 2013 Vermont Department of Tourism and Marketing survey revealed that lodging expenditures were the largest spending category for visitors (23.6 percent), followed by food and beverage (22 percent) amusement and recreation (16.5 percent), shopping (12.1 percent) gasoline (8.1percent) and groceries (8.1 percent). The loss of two restaurants and a coffee shop in Jamaica Village represents a significant loss in a major component of the state's tourist economy. Preserving the natural environment and quality of life is important to support the Town's remaining tourists and vacation home based economy.

Respondents to the 2006 Community Survey seemed to favor commercial/retail development and land based economic activities (farming and forestry) over industrial development. A new community survey which will include the town's views on economic development is planned for the future.

COMMUNITY SURVEY

Question: What kind of development would you like to see more of/less of in Jamaica?

Answer:	More of	Less of	No Change
Commercial/Retail development	41%	17%	29%
Industrial Development	13%	40%	33%
Farming activities	53%	4%	30%
Forestry activities	49%	11%	28%

The Jamaica Village Business Council was formed in 1998 and in 2004 it was reformed as the Jamaica Community Council. The purpose of this group was to work on initiatives for the betterment of the Town as a place to work, live, and visit. The Community Council has since ceased operating. Reestablishing a village business council will be helpful to promoting economic development in Jamaica Village. The business council should consider the type of economic development that the community would like to attract to Jamaica, to include telecommuting and business incubation, value added product manufacturing, e.g., custom cabinetry, AirB&B, tourist oriented businesses, etc. Where appropriate, the council should consider the best location for new businesses, i.e., Jamaica Village, Rawsonville, or greater town of Jamaica. The community survey should include the business council's recommendations for the appropriate locations for economic development in Jamaica, Jamaica Village, and Rawsonville.

In 2016, Jamaica Village received renewal of its Village Center designation from the State. Created by the legislature in 2002, Village Center designation recognizes and encourages local efforts to revitalize traditional village centers. Communities that receive the designation

become eligible for a number of benefits which include tax credits for building rehabilitation and improvements as well as priority consideration for certain state grants.

A number of factors will influence economic development within Jamaica:

- Due to large second home market in Jamaica and surrounding towns, home maintenance and service, as well as construction, continue to provide opportunities for business ownership and employment for town residents.

- The continued build-out of the Stratton resort will continue to have a subsidiary impact on Jamaica, e.g., increased tourism traffic along the Route 30 corridor and increasing demand for employees in the retail and services industries.

- With grant funding from the Federal Communications Commission Connect America Funds (CAF) and substantial investment of company funds, Fairpoint Communications has made a substantial upgrade to Jamaica's communication infrastructure. The goal of the CAF program is to bring broadband internet service of at least 15Mbs (million bits per second) to rural areas. Fiber optic cabling has been installed on route 30, route 100, Windham Hill Road, South Hill Road and Pikes Falls Road to make broadband service available in Jamaica Village, Rawsonville, and many other locations in the town. Service to individual locations is provided by copper wire connection to the fiber optic cables. Basic broadband service utilizing ADSL (Advanced DSL) asymmetric technology is available at distances one mile the nearest point on the fiber optic cabling. Speeds of 15 Mbs download/1 Mbs upload or 7 Mbs download/1Mbs upload are available. Higher speed service is newly available in some locations using newer ADSL-2 + Bonded technology at rates of either 25Mbs download / 1 Mbs upload or 20 Mbs download / 1.5 Mbs upload speeds. There remain areas in Jamaica without broadband connectivity. While sparsely settled, they remain areas that are eligible for CAF phase II grants to establish broadband internet connectivity.

  Additionally, upgrades to Jamaica's communication infrastructure supports two classes of business service. Business Broadband Elite (BBE) utilizing multiple pairs of copper wire connections to the fiber optic cabling provides symmetric service of 20 Mbs download and upload speeds. For businesses requiring higher rates of data transfer, Carrier Ethernet Service (CES) can be provided to the business via a dedicated fiber optic connection to the main fiber optic cabling. Scalable speeds up to 10 Gbs (billion bits per second) can be made available. Depending on the distance of the dedicated fiber optic run and the complexity of the connections, the cost of a CES connection may be amortized over a period of years and included in the cost of service. Startup ventures requiring high bandwidth service need not make a large capital outlay to obtain necessary broadband service.

  In addition to Fairpoint Communications some areas of Jamaica have broadband service from other providers. Jamaica has one other DSL service provider, SOVERNET Communications, providing 1 Mbs service; a cable provider, Southern Vermont Cable company providing up to 50 Mbs service; three mobile broad band providers; and three satellite providers. There is significant overlap in the areas covered by the different providers.

In the period since the last town plan update, a major broadband digital communications infrastructure upgrade has taken place. Currently this capability, with its primary use of home entertainment, is significantly underutilized. Available high-speed service can now make telecommuting feasible for Jamaica residents. Its availability will support business use of the internet such as video conferencing, on-line collaborative software development, businesses with major data communications requirements, remote on-line cloud computing, and readily support telecommuting non-traditional work from home occupations. Employees of virtual companies, i.e., companies whose employees are connected by the internet, can now locate in Jamaica.

- Adequate infrastructure is essential to support economic activities. Not improving the infrastructure will limit the scale and type of businesses that can locate throughout the Town. Water and wastewater infrastructure requirements key to economic growth are addressed in the Water and Wastewater section of this plan.

Economic Development Policies:

1. Support revitalization efforts within Jamaica Village and Rawsonville.
2. Promote existing businesses and encourage new businesses to locate in the town of Jamaica, including Jamaica Village and Rawsonville, following the guidance of the updated economic development survey.
3. Support job creation and retention efforts.
4. Ensure adequate infrastructure (cellular, high-speed internet), road maintenance, fire/safety services, water supply and wastewater, and snow removal) to promote and support the increase of economic activities.
5. Develop a solution to Jamaica Village compliance with wastewater and potable water isolation standards that at a minimum will allow businesses forced to close to reopen and support Jamaica Village as a viable residential community and enable further economic growth within the Village. This topic is addressed further in the Water and Waste Water section of the town plan.
6. Exploit the availability of high speed internet service in the town of Jamaica to attract millennial non-traditional workers with internet based occupations to settle in Jamaica.
7. Advertize the availability of broadband internet service to existing business concerns, potential new ventures, and potential new residents wanting to telework from home.

Priorities for Action:

1. Establish a Jamaica Business Council. (Planning Commission)
2. Conduct a community survey on types of economic development desired for Jamaica based on the business council's determination of appropriate for Jamaica. (Planning Commission)
3. Explore the extension of public transit into Jamaica with stops in East Jamaica, Jamaica Village, and Rawsonville. (Selectboard)
4. Explore solutions for upgrading existing infrastructure to support economic development. Upgrades to water and wastewater infrastructure (including funding) are addressed in the Water and Wastewater section of this plan. (Planning Commission, Selectboard)

5. Update the town website to advertise the availability of broadband internet service in most locations. (Town Clerk)
6. Ensure realtors serving the Jamaica area provide prospective buyers with location specific broadband service options. (Planning Commission)
7. Explore other venues to advertise Jamaica's high speed internet capability to potential new businesses and residents. (Planning Commission)

VI. POTABLE WATER SUPPLY AND WASTEWATER

Wastewater treatment in Jamaica is handled by individual septic systems. Soil and topographic conditions play a major factor in designing on-site systems. In 2007, the State adopted the revised Wastewater System and Potable Water Supply Rules that regulate on-site wastewater systems. Since July 1, 2007, every parcel of land has come under the jurisdiction of the state's on-site wastewater and potable water supply permitting system program. As a result, a state permit is needed for most repairs, upgrades, and new construction of on-site wastewater treatment and disposal facilities, as well as on-site potable water supplies. Important changes include the elimination of the 10+ acre lot exemption from the permitting process and the requirement that area for a replacement system be identified, and new technical standards for isolation of wastewater from potable water supplies.[1]

Proper design, construction, and maintenance of on-site wastewater systems, including compliance with standards for isolation from potable water supplies, are important to keeping them operating effectively thereby preventing ground and surface water contamination. Existing septic systems and drinking water supplies are grandfathered, but new or replacement systems must comply with the new state regulations including isolation distances. Failing or substandard systems can release pathogens, nutrients and chemicals to groundwater and surface water. Areas of dense development such as Jamaica Village are vulnerable to system failure due to the cumulative effects of building on small lots with septic systems and drinking water wells in close proximity to one another, many of which were designed and operated prior to the establishment of State-level standards. Another area that can be susceptible to septic system failure is developed shoreland areas, such as Cole Pond. In these areas soil and water conditions near the shore may make the septic system less efficient in treating wastewater.

Several buildings in Jamaica Village have been underutilized and are strictly limited by wastewater and potable water supply capacity. Septic system failures are not easily remediated due to the density of development with on-site septic and water systems in the Village. Septic systems have a limited life. Typically they are designed for a 20 year life span, but do last longer if well maintained. Therefore it is anticipated that increasingly systems will need to be replaced over time. This is especially true for older systems due to their outdated design standards. Many of the disposal systems in the Village are older leach

[1] Vermont Department of the Environment, Environmental Protection Rules, Subchapter 5; Technical Standards for Wastewater Disposal and Potable Water Supplies: http://dec.vermont.gov/sites/dec/files/dwgwp/rorulesarchive/pdf/subchap5-6.08.16.02.pdf

fields and drywells without special filtering sand beneath them as would be required today in highly permeable soils. In many cases, because of the size of individual homeowner's lots, state mandated isolation distances for replacement systems cannot be met. Additionally, soil conditions within the Village are described as coarse and gravelly with severe limitation with regard to filtering septic system effluent before it reaches the groundwater table. Based on the above, it may be concluded that there is an increased risk of contamination to the Jamaica Village drinking water supplies from on-site sewage disposal systems.

If and when homeowner septic systems fail, engagement of a septic engineer licensed by the state and a state permit(s) are required for replacement systems. On its face, in a number sites the technical standards for isolation will not be able to be met or met with difficulty. However, it is the state's policy to work with homeowners to find a solution that does comply with state standards or, failing that, a best possible solution. Homeowners who will not make a good faith effort may face legal action including in extreme cases condemnation of their property. However, the state does not want to displace homeowners who are making good faith efforts to comply with regulations and will accept replacement systems that are the best possible solution for particular circumstances. State forbearance notwithstanding, replacing failing septic systems under new state drinking water and wastewater isolation standards can be anticipated to be a more complex and expensive process than would be the case in a less densely settled area.

The stricter standards for buildings utilized by the public, occupied by 25 or more persons for 60 days or more, has forced the closing of several businesses in Jamaica Village. Further, there is no state forbearance for public establishments. (See Economic Development section.) There are two conflicting visions for Jamaica Village's future; one of encouraging economic development and the other of maintaining a quiet residential rural village. The operating constraints on commercial building operations imposed by the state wastewater and potable water standards preclude any significant economic development in Jamaica village. They also make maintaining the status quo indefinitely possible only with considerable difficulty and expense to village homeowners. For these reasons, the Planning Commission believes that if at all feasible, a village-wide solution to complying with state wastewater and potable water standards should be pursued.

During 1999-2000, the Planning Commission conducted a study of existing wastewater disposal and water supply conditions in Jamaica Village. The purpose of the testing was to determine whether or not on-site septic systems within the Village are having an effect on the water quality of the wells that serve the Village population..

E-coli counts in Ball Mountain Brook in the Village center were found to be typically higher than counts at a control point upstream of the Village. The final reports and recommendations of this study are available from the Town Clerk, and are incorporated into this plan by reference.

The 2006 Community Survey indicated that there was uncertainty as to whether there are problems in Jamaica with the poor treatment of wastewater. However, 73% of respondents

indicated that they would support a Town effort to identify and address issues regarding wastewater and drinking water issues.

COMMUNITY SURVEY

Question: *Would you support a Town effort to identify and address issues regarding wastewater and drinking water issues?*

Yes – 73%

No – 15%

No Response – 13%

The most effective and least cost solution the wastewater and potable water supply isolation problem is the development of a municipal water system for Jamaica Village. Such a system would consist of a municipal well, or wells, and water pipelines to village homes. Existing homeowner wells would be capped or re-plumbed for non domestic use rendering the septic system isolation issue moot. Additionally, although potable water wells have longer life spans than septic systems, they do fail. A municipal water supply would alleviate the need to maintain individual wells. Municipal water systems typically cost on the order of $1M, a significant burden for the village. However, state and federal funding may be available for the purpose of building such a system.

Not having town water causes the businesses in town to suffer which decreases our tax base. The lack of a village decreases property values both in and out of the village. Also, residents tend statistically not to have their water tested on a regular basis. And even if they did have their water tested, the basic test will show only bacteria content, and not the presence of heavy metals and radioactive substances. There are areas that could have levels of lead, arsenic, and uranium and many residents may be unaware of the current quality of their water. A town water system would address these concerns. Regular comprehensive (full spectrum) water testing is recommended.

Potable Water Supply and Wastewater Policies:

1. Encourage on-site sewage disposal system owners and operators to properly maintain their systems.
2. Support collaborative potable water supply and and wastewater planning efforts that build on the Jamaica Village Water Quality and Septic Study and investigate alternatives for water supply and/or wastewater treatment.
3. Encourage the use of technical assistance to help address the potable water supply and wastewater issues in Jamaica and to allow existing buildings to be used at full capacity.
4. Building on existing Water Quality and Septic Study and require the development and review of options for municipal water and/or wastewater systems.
5. Explore potential funding options for development of a Jamaica Village solution to comply with state wastewater and potable water technical standards.

Priorities for Action:

1. Evaluate the feasibility of a water supply and distribution system and/or a wastewater collection and treatment system in Jamaica Village. Recommended steps for the evaluation are as follows:
   - Engage local citizens throughout the process by information dissemination and public meetings;
   - Identify, collect, and analyze all relevant reports, findings, and data that may have a bearing on water quality issues in the community;
   - Evaluate economic impact of existing conditions;
   - Investigate different solutions to the water and wastewater issue in Jamaica Village based on their cost, reliability, management and maintenance requirements, regulatory restrictions, soils requirements, and possibility for future expansion;
   - Explore state and federal funding sources. If identified, establish a budget pursue develoment of a municipal solution for a water supply and distribution system or a waste water collection and treatment system for Jamaica Village. (Planning Commission, Selectboard)
   - Establish a budget and funding sources. (Planning Commission, Selectboard)
2. Explore the possibility of creating a public restroom within Jamaica Village. For example, research what existing public building (such as the Library, Bank/Historical Society building, Town Hall, Church) could provide for allowing off hours secure public access. (Planning Commission, Selectboard)
3. Follow up on the Jamaica Village Water Quality and Septic Study, 2000, including mapping potential water supply sources. Specific possibilities discussed in the Study include creating a Decentralized Wastewater Management System (Study page 27) or creating a Centralized Community Treatment and Disposal System (Study page 29). (Planning Commission, Selectboard)
4. Educate citizens about septic system maintenance. (Planning Commission)

VII. ENERGY

Local Energy Consumption

Although the availability and cost of energy resources is beyond the direct control of the Town, the type and amount of energy resources consumed can be influenced by the Town. Space heating constitutes the largest consumption of energy within most homes. According to the 2010 Census, 36% of homes in Jamaica were primarily heated with fuel oil or kerosene, 40% with firewood, 12% with bottled, tank, or LP gas, and 6% with electricity. 2015 estimates of the American Fact Finder of the U.S. Census Bureau, 39.5% of homes in Jamaica are heated primarily with fuel oil or kerosene, 40.1% with wood, 12.2% with bottled, tank or LP gas, 5.5% with electricity, 3.9% with coal or coke, 1.8% with utility gas, and 0.5% with other sources. The relative heating fuel prices in Vermont are shown in Table 3-6.

Table 3-6: Vermont Fuel Prices in November 2016

Fuel	BTU/unit	Efficiency	Cost per Unit	Cost per 1 Million BTU
Fuel Oil	138,200	80%	$2.09 per gallon	$18.88
Kerosene	136,600	80%	$2.68 per gallon	$24.56
Propane	91,600	80%	$224 per gallon	$30.51

Natural Gas	100,000	80%	$1.38 per gallon	$17.23
Electricity	3,412	100%	$0.15 per kwh	$43.46 hour
Firewood	22,000,000	60%/90%	$227 per cord	$17.21/??
Wood Pellets	16,400,000	80%	$275 per ton	$20.96

Source: Vermont Fuel Price Report June 2016

One local source of energy is firewood from local woodlots. Jamaica's vast forest resources, much of which are low quality hardwoods that are unlikely to be harvested for lumber, could potentially supply a significant source of home heating fuel while benefiting the local economy. Many homes already have the capability to use wood for space heating and there are several local suppliers of firewood. The degree to which homes use firewood for heating depends to a great extent on the cost of other fuel sources.

Energy Supply

Green Mountain Power (GMP) supplies electrical service to Jamaica. GMP's main transmission line runs from the southeastern to the northwestern corner of the Town. There are several GMP electrical energy substations. Jamaica is served by the GMP transmission circuit known as the "Southern Loop." which been upgraded through addition of substations. This combined with efficiency improvements in conjunction with Efficiency Vermont, load balancing, and new sources of generation will help meet the future demands of Jamaica and Southern Vermont.

Several renewable energy sources are being used in Jamaica including solar, wind, geothermal and hydro. Passive solar designs can reduce heating and electricity bills. No mechanical means are employed in passive solar heating. Instead, siting and design measures, such as south facing windows, open floor plans, and ventilation are used. Photovoltaic systems can be used to convert sunlight to electricity. Wind energy systems are also being used as an energy source on a residential scale.

Residential photovoltaic and wind systems that are connected to the power grid under net metering are regulated by the State. Under net metering, a homeowner is permitted to connect suitable generating equipment to the public power grid. During periods when more energy is generated than the property is using, the metered amount of electrical energy provided to the grid reduces residential electric bills. In order to net meter, the homeowner must receive a Certificate of Public Good from the Vermont Public Service Board under Section 248. Vermont's net metering law caps the size of net metering generators at 500 kilowatts of generation for the following renewable forms of energy generation: photovoltaic, wind turbines, anaerobic digestion of agricultural products, by-products or waste, biomass, and fuel cells (when fueled by renewable sources). For qualified micro-combined heat and power systems using non-renewable fuels, the size of the cap is 20 kW or less. Total net metering is limited by statute to 15% of prior year peak load. Certificates of Public Good are issued on a first come first served basis until this limit is reached. Jamaica supports net metering and does not view it as a commercial use.

Wood furnaces or boilers are gaining popularity across the country as a home heating method. These systems can either be a stand-alone unit located outside and connected to the structure being heated or located internally and completely integrated into the building. New technologies along with other efficiencies allow these systems to be very economical, efficient and environmentally sensitive. When used properly these systems can be a clean and economical way

to heat a house and water. Nonetheless, concerns over the safety and environmental impacts of these heating devices, particularly the production of offensive odors and potential health effects of uncontrolled emissions exist. The State of Vermont does have regulations pertaining to these systems. Amongst the provisions are the fact that they must be located at least 200 feet from neighboring residences and that the stack on the furnace must be higher than the roof line if the furnace is between 200 and 500 feet from the nearest neighboring home.

Currently Ball Mountain Dam and Townshend Dam in Townshend are being used, through a partnership of Eagle Creek Renewable Energy, LLC with the US Army Corps of Engineers, as hydroelectric energy generating facilities. This power is on line now, with Ball Mountain Dam at rated at 2.2 MW and Townshend Dam at 0.9 MW.

Energy Conservation

Energy savings can be realized by retrofitting existing buildings with insulation, more efficient doors and windows, weather-stripping, compact fluorescent lights, and more efficient appliances. Southeastern Vermont Community Action (SEVCA) offers a variety of programs that are designed to assist low-income residents with their energy costs. These programs include seasonal fuel assistance, emergency fuel assistance, and free weatherization services to reduce heating costs. Additional programs that support low-income housing and households are available through Efficiency Vermont. Efficiency Vermont, a state program, provides technical advice, financial assistance and design guidance along with rebates on Energy Star lighting and appliances.

Jamaica's Land Use Plan targets new development towards areas located close to the community's major roads and existing settlements. This land use pattern will minimize the energy consumed by residents commuting and will reduce the energy required to deliver essential services to residents and businesses.

Innovation

Compliance with ACT 174 and the Windham Regional Commission Municipal Energy Data & Technical Assistance Package for ACT 174 Compliance will require innovative approaches to utilization of renewable energy sources. One such innovation may be utilization of the Ball Mountain and Townshend Dams in a pumped energy storage system to store energy produced by local renewable sources. (See Pumped Energy Storage in the West River Valley white paper in the Appendix.) The feasibility of such a system should be investigated and if proven feasible, its development by appropriate commercial power firm encouraged.

Energy Policies:

1. Electric utilities shall use existing transmission corridors whenever upgrades or modifications to the existing transmission network are made. New electrical transmission facilities shall be sited in locations that are not visible from densely populated areas or Class 1 roads.
2. New electric distribution lines shall be sited within existing road corridor rights of way. Whenever they are updated or replaced, existing distribution lines shall be relocated so that they are within road corridor rights of way.
3. The extension of electric distribution lines along Town Trails and Class 4 roads is discouraged.

4. Encourage energy efficiency in the design, construction and rehabilitation of buildings. Encourage weatherization of existing buildings.
5. Encourage the use of solar energy and other renewable resources for residential, commercial, industrial, and public buildings.
6. Residential connection of individual wind energy and photovoltaic systems to the electric power grid under "net-metering" shall not be considered commercial use.
7. Promote Vermont's Use Value Appraisal Program to stimulate fuelwood production and improve forest management. Conserve and develop local forest resources for use as an energy resource.
8. Ensure the siting of new residential units to maximize energy benefits and utilize existing infrastructure.
9. Encourage the reduction of energy consumption in new residential units by promoting standards as recommended by the Vermont Department of Public Service for building materials and construction techniques; standards for new construction should specify insulation, lighting, heating, and appliance performance level.
10. Require that future Town and school district facilities will be renovated or designed and constructed for maximum energy efficiency.
11. Promote the use of energy-efficient vehicles; require public vehicle maintenance to minimize energy costs and maximize efficiency.
12. Discourage vehicle idling to reduce carbon emissions.
13. Assist and encourage car and van-pool programs.
14. Where feasible, develop and maintain sidewalks and bicycle paths.
15. Encourage innovative approaches to meeting ACT 174 renewable energy use goals.

Priorities for Action:

1. Monitor municipal energy use and, where feasible, implement energy conservation measures and the use of renewable energy sources.
2. Increase awareness among residents and businesses about incentives for energy conservation through programs such as Efficiency Vermont, which promote energy audits, weatherization, and upgrades to energy efficient appliances to reduce consumption.
3. Work with the school district to coordinate school busing schedules to reduce fuel consumption and costs.
4. Develop a "No Idling" ordinance.
5. Update the Town Plan to plan support the Windham Regional Commission Municipal Planning Commission Energy Data & Technical Assistance Package for ACT 174 Compliance.
6. Investigate initial feasibility of a pumped energy system utilizing the Ball Mountain and Townshend Dams.

VIII. COMMUNITY FACILITIES AND SERVICES

The quality of and capability of community facilities and services are important components of a town and are often used as a measure of the quality of life within the community. Therefore, the planning for community facilities and services is important in providing for the needs of the community.

This chapter examines the existing conditions, levels of services, and future needs of the municipal facilities and services provided in Jamaica. As a rural community, Jamaica must often rely on services provided by agencies from the outside. Therefore, a variety of services that are provided to Jamaica residents from outside the Town are also considered.

Town Services

Administration

It is through the combined efforts of elected officials, appointed officials and hired employees that the services of the Town are provided. Town government is overseen by a five-member Selectboard. Other elected officials that are involved in Town government include the three Listers and the Library Trustees. Elected officials such as Moderator, Grand Juror, Town Agent, First and Second Constable, and others serve their respective roles as may be required. There are many officials who are appointed by the Selectboard, including the Town Clerk, Town Treasurer, Delinquent Tax Collector, Fire Warden, 911 Address Coordinator, Planning Commission, Zoning Board of Adjustment, Health Officer, and various other appointees who actively participate in Town government.

Jamaica holds a traditional Town Meeting to elect local officials, approve a budget for the following year, and conduct other local business. At the Town Meeting, eligible citizens of the town may vote on specific issues that are announced through a warning.

Ambulance Service

Formerly, Rescue, Inc. (stationed at West Townshend), Londonderry Ambulance, and Stratton Mountain Rescue all provided ambulance service to different parts of Jamaica. However, at the June 26, 2017 Selectboard meeting, the Selectboard voted to revise the Rescue, Inc contract for the Town so that Rescue, Inc will be responsible for covering the complete Town, not just a portion. The Town will continue providing Londonderry Ambulance with financial support.

Emergency Management

The Town has an appointed Emergency Management Director, whose duties include the coordination of municipal resources in the event an emergency is declared by the Selectboard. The Fire Department is typically the first to respond to most local emergencies, and has a number of written procedures for specific emergency situations.

In the event of an emergency, the Town Clerk's Office has been designated as the Emergency Management Post Command Center. It is here that the Emergency Management Director coordinates all involved service providers during an emergency. In addition, the Masonic Hall is the Evacuation Center during Town emergencies. It has been certified by the American Red Cross as the Town shelter.

The Town of Jamaica has a FEMA-approved Final Approved Local Hazard Mitigation Plan, dated February 19, 2015. This plan, in conjunction with the Town Plan, will aid the Town in resource management and coordination of Town Services. The Hazard Mitigation Plan will be available at the Town Clerk's office.

The Town has adopted the National Incident Management System (NIMS). The Town continues to work on efforts to support the safety of the Town.

A statewide Enhanced 911 system has been implemented locally. All structures now have unique road addresses in accordance with 24 V.S.A. Sections 229(16), and 4421, and the *Town of Jamaica Ordinance Regarding Street Names and Addressing*. These addresses correlate to the site's distance from the beginning of the road in increments of 5.28 feet (based upon fraction of a mile) so that they may be easily located in the case of emergency. Each address falls within one of the four mapped Emergency Service Zones in Jamaica and 911 calls are automatically routed to the closest rescue service based on these zones. The primary responders for these zones are from towns of Winhall, Jamaica, Wardsboro, Stratton, and Windham. The Jamaica Address Coordinator, a Town appointed official, is responsible for the update and maintenance of the municipal 911 database. Applications for a new 911 address are available in the Town Clerk's office.

Jamaica Volunteer Fire and Rescue Association

The Jamaica Volunteer Fire and Rescue (JVF&R) provides fire suppression operations, advanced emergency medical treatment, and various forms of technical rescue operations. The department has approximately 30 members to its roster.

The department operates out of a six bay garage facility. Attached to the garage are a command center, supply room, and meeting room. This facility has capabilities to be an evacuation center or serve in some other civic function. Built in 1994, the fire house replaced a much older building in the center of the Village. Jamaica has 3 engines and one rescue truck.

JVF&R is funded through tax appropriation, donations, and fundraising efforts. Since September 11, 2001, state and federal funding has been available and awarded to JVF&R. These funds have been used to purchase equipment and pay for training to improve the protection and ensure the safety of the community.

There are five cisterns throughout the Town. The two municipally owned cisterns are located in the Village center along with a hydrant, guaranteeing a consistent source of water to assist in the event of a major structure fire in the Village. There are three privately owned cisterns located on Sugar Lot Lane, Dalewood Road, and Trager Road, which provide fire protection. New developments may be required to install cisterns for fire protection if the JVF&R cannot provide adequate fire protection.

JVF&R is a member of Tri-Mountain Mutual Aid Association, which includes the towns of Londonderry, Peru, Weston, Winhall, Stratton, and Windham. Tri-Mountain Mutual Aid is also a member of the Southwest New Hampshire Fire Mutual Aid. Mutual aid systems are associations of fire companies that allow local fire companies to receive fire-fighting assistance or back-up service from other member fire companies.

Police Protection

The Town contracts annually with the Windham County Sheriff's Department for motor vehicle enforcement. The Vermont State Police handle criminal complaints and cases. Jamaica

also elects a First Constable and a Second Constable. Constables are responsible for animal control and keeping the peace.

Solid Waste Management

The Jamaica Transfer Station, located on Castle Hill Road, processes waste materials for the residents of the town. It is open five days a week at specified times. Residents are required to show the Attendant an identification card each time they enter the facility. These cards are available at the Town Office and are renewed yearly on October 1st. The Transfer Station accepts trash in the "Pay as you Throw" bags. Recyclables of paper, cardboard, glass, plastics, and organic garbage are accepted at no charge. Other items such as electronics, refrigeration, demolition/construction materials, and metals are also collected. Some of these materials are chargeable items. Brush, leaves, and clean lumber are debris accepted at no charge. The Swap Shop provides residents the opportunity to bring in reusable items or take items free of charge. It is open at the same hours as the Transfer Station.

Jamaica is a member of the Windham Solid Waste Management District (WSWMD). The purpose of the District is to provide effective and efficient waste management for the 18 member towns. It provides educational workshops for community members and employees of town waste facilities. The WSWMD staff also provides educational classes for school students focusing on recycling in the classrooms. The District also accept hazardous waste disposal.

Town Services Policies:

1. The Town's rate of growth should not exceed the Town's ability to provide the community facilities and services needed.
2. If the capacity of community facilities or services (e.g. sewer, water, fire, police protection, schools) cannot be expanded without incurring significant capital expenditures, then the expansion of such facilities or services shall be limited to that which the Town can finance or a fair share of the burden for required services or facilities shall be borne by the beneficiary of such services.
3. Support the efforts of the JVF&R to provide effective fire and emergency services.
4. Require that all new development provide adequate water availability and additional equipment or infrastructure needed for effective fire protection. Developers must consult with JVF&R to ascertain if additional provisions will be necessary.
5. Support surrounding towns by providing Mutual Aid assistance when needed.
6. Continue to contract the services of the Windham County Sheriff's Department, or other appropriate law enforcement organization, for police protection in the Town.
7. Maintain a certified solid waste transfer and recycling facility.
8. Participate in the Windham Solid Waste Management District (WSWMD) as long as it remains advantageous to do so.
9. Require recycling and composting efforts and support efforts to provide additional recycling programs.
10. Support the assessments of waste disposal fees that accurately and fairly charge disposal costs to the generators of unique or large amounts of solid waste.

Priorities for Action:

1. Continue providing an annual Town appropriation to the JVF&R. (Selectboard)

2. Establish a procedure for JVF&R to review subdivision proposals so that they can work with developers to minimize the risks of fires and maximize their ability to combat fires. (Planning Commission, Selectboard, JVF&R)
3. Participate in local emergency planning efforts. (Planning Commission, Selectboard, JVF&R, Emergency Management Director)
4. Stock the emergency shelter at Jamaica Village School with emergency supplies. (Selectboard, JVF&R, Emergency Management Director)
5. Continue to monitor benefits of continuing to participate in the WSWMD. (Selectboard)

Town Facilities

Cemeteries

There are six cemeteries in Jamaica that receive appropriations from the Town: Rawsonville, East Jamaica, South Hill, South Windham, West Jamaica, and Pikes Falls. A five-person Cemetery Commission is responsible for the administrative duties and maintenance of all six cemeteries. The cemeteries are shown on the Transportation and Community Resources map.

Jamaica Memorial Library

The Jamaica Memorial Library occupies the former District #2 School. This library was established under state law in 1923, but it wasn't until 1969 that the book collection was moved into the present building on Depot Street just off Main Street (VT Route 30). There are currently 5, 532 books for adults and over 3.000 children's' books. There are 267 audio books, 495 DVDs and 10 periodical subscriptions. The library has a large adult mystery section as well as large print books.

Library services continue to be funded through tax monies, fundraisers, and grants , as the State of Vermont does not subsidize libraries. Maintenance and operation of the library is overseen by the Library Trustees, which are elected positions.

The library has been expanding its public outreach. In 2016, the hours were expanded to be open 19 hours per week over 4 days. The library offers many programs including Children's Summer Reading Program, "Open Book" Adult Book Group, Film Series and Programming for All Ages, Vermont State Parks Pass & Vermont Historic Sites Pass, BMAC Free Pass, Echo Lake Aquarium Discount Pass, the ongoing Book Sale, and offers free audiobooks and ebooks through One Click Digital.

The library is one of twenty-five in the State of Vermont chosen to participate in the "Vermont Early Literacy Initiative in Science, Technology, Engineering, and Math" (VELI-STEM), an IMLS National Leadership Grant promoting early learning in the library. This grant provides training, some equipment and books for libraries but no funding. In 2016, eleven events were presented to 119 children including "Little Ones Story Time," JVS Classroom visits, homeschooling groups and WCSU Explorer's Camp programs. One Camp Program was created for 50 campers who explored Force and Motion and gave children the opportunity to create marble runs with inclined planes.

Internet access has allowed the library to join the Vermont Online Library, which provides community residents access to online electronic information databases. The library participates

in the Inter-Library Loan program which allows for book exchanges with other Vermont libraries. The library has a website at www.jamaicavtlibrary.org and a Facebook page. The library is in the process of automating its collection with barcoding and scanning capabilities, providing patrons with online catalog access. Unfortunately, the State of Vermont has recently cut back on personnel and services that support small town libraries such as ours. In these circumstances, it is desirable that the Town consider increasing its support for the library in order to maintain and support essential programming, collections, personnel and services.

There are currently two public computers as well as Wi-Fi access. Other resources available for use are the Universal Class & Other Online Resources, and a photocopier/fax machine. The library also has one volunteer who helps on a regular basis, but no "Friends of the Library" organization.

The building has two main rooms currently in use--an adult reading room that includes a Young Adult section, and a Children's room. The full basement is under renovation and will be converted to a community meeting and activity room, as well as a permanent book sale room, when funding becomes available. The building was also approved to have an onsite bathroom installed and these renovations are taking place will begin in the summer of 2017. Other space in the building could be put to use for library services and collections, but they are uninsulated and unfinished. Finding funding for these additional improvements would greatly increase the comfort and availability of the library collections and services and lead to increased use and enjoyment by Town residents.

Rawsonville Schoolhouse

The Town also owns the historic Rawsonville Schoolhouse. The Schoolhouse is a one-room building that has the potential to be connected to a wastewater system and has the ability to connect to a potable water supply.

Town Hall

Town Hall is currently used for Town Meetings and both public and private community gatherings. This historic building was built in 1853 as the Universalist Church of Jamaica. In the late 1870s, with two churches in Town, attendance dropped and the building was sold to the Jamaica Dramatic Club in 1880. After some renovations; stage and dressing rooms, vestibule and ticket window, the "Jamaica Opera House" opened in 1888. The Opera House became the social gathering place for the area, hosting many events. As the population and economy in Jamaica declined so to did the use of the Opera House. In 1921, the Dramatic Club closed its door (called its curtains) and donated the building to the Town to use as the Town Hall.

The Town Hall is now operated and maintained by the Jamaica Town Hall Programming Committee and the Jamaica Town Hall Building Committee. The building is currently used for public meetings, theater and music events, and private functions.

Town Offices

The Town Office houses Town records, land deeds, Town Treasurer and Town Clerk's office and Selectboard activities. The Town Listers and Planning Commission also use the building. The second floor meeting room is used primarily for office work. The most recent additions

include the vault and first floor meeting rooms used mostly by the Selectboard and Planning Commission.

West River National Bank Building

The West River Bank was charted as a State institution in 1853. The first bills were issued on July 20, 1854 and continued until 1865 when it reorganized as the West River National Bank with charter number 1564. The brick building is located at the south end of Main Street in Jamaica Village and is listed on the state historical register. The building served continuously as a bank until February 2006, when it was closed.

In 2006, after the bank was closed, the building was put up for sale. At a special Town Meeting the residents of Jamaica voted to purchase the building. The Jamaica Historical Foundation currently uses this building for meetings and exhibits. However, the Town is still working on a plan for future use of this building.

Town Facilities Policies:

1. Construct or expand community facilities in Jamaica Village first in order to maintain the Village as the Town's center.
2. Encourage community-based partnerships working for the revitalization and expanded public use of Town owned historic buildings.
3. Maintain and encourage activities that support or enhance the provision of library and information services.
4. Ensure that Town property, including all town-owned municipal buildings (Town Hall, Town Office, Library, bank building, Rawsonville School, Town garage, and Fire Station) is adequately maintained and serviced in order to provide a safe and efficient work environment for Town employees and to maintain the safety and aesthetic quality of Town property.

Priorities for Action:

1. Investigate using sole source vendor contracting to provide certain goods and services such as insurance, fuel, and maintenance for Town facilities. (Selectboard, Planning Commission)

Recreational Resources and Events

Jamaica has a wealth of recreational resources, especially in regards to public forests and natural areas. There are facilities owned and operated by the State of Vermont, the Town and the Army Corps of Engineers. An extensive network of trails and back roads provide impromptu opportunities for hiking, biking, cross-country skiing, snowshoeing, and horseback riding through the Town and the many miles of streams and rivers provide opportunities for fishing and swimming. Private recreation facilities, including golf courses, camp grounds, and major ski resorts, are located in surrounding towns and are easily accessible from Jamaica.

Jamaica's recreational and cultural resources include:

Recreation Areas

- Ballantine Ball Field: Through a cooperative agreement, the US Army Corps of Engineers and the Town maintain a ball field in East Jamaica at the intersection of Routes 30 and 100 that supports a wide range of recreational use and is home to the Jamaica Jets baseball team.
- Jamaica State Park: Owned and maintained by the Vermont Department of Forest, Parks, and Recreation, Jamaica State Park is popular for hiking, picnicking, swimming, fishing, camping, canoeing, kayaking, and hunting. The State Park includes two parcels of land, the West River block and the Shatterack block, that together comprise 656 acres. Salmon Hole, in Jamaica State Park, is used as a swimming area.
- Hamilton Falls Natural Area: This natural area, comprised of 52 acres surrounding Hamilton Falls is owned and managed by the Vermont Department of Forests, Parks, and Recreation. It is a popular hiking and swimming destination.
- Ball Mountain Dam and Lake: Owned and operated by the US Army Corps of Engineers, use of the land in this area includes hiking, picnicking, fishing, and hunting.
- Winhall Town Forest: Public recreational use of this land includes hiking, hunting, trapping, and fishing.
- West River: The river provides an excellent habitat for native fish species and was included in the federally sponsored Atlantic Salmon Restoration Program.
- Whitewater Runs: The two-mile section from Ball Mountain Dam to the Salmon Hole at Jamaica State Park is famous as a challenging whitewater run. Downstream from the State Park the river continues to be navigable with moderate whitewater features for 7 miles to the Townshend Dam. In early fall, conditions permitting, the Army Corps of Engineers provides one weekend when the flow is augmented by releases from Ball Mountain Dam.
- West River Trail: The West River Trail is open from Jamaica State Park to South Londonderry and from Townshend Dam to West Townshend. Public Lands Highway funding (funding that is available for projects that are on, adjacent to, or provide access to federal public lands or Army Corps of Engineers property) have been used for improvements along the West River trail. In Jamaica, improvements have included supporting the Cobb Brook Bridge and the Ball Mountain Dam switchbacks in 2003 construction projects.
- Pikes Falls: Located on the North Branch of Ball Mountain Brook, Pikes Falls drops over two ledges before entering into a large pool which serves as one of many swimming holes in Jamaica. Several acres of land between Pikes Falls Road and the brook are owned by the town and provide public access.

Events

- Old Home Day: A celebration, dating back to the1800's, where new and old residents come home to Jamaica to celebrate the Town's history. Old Home Day is held on the last weekend in July.
- Jamaica Masonic Hall: Bingo is held weekly on Friday nights.
- Jamaica Community Arts Council: a local volunteer group organizes the Craft Show and an ongoing concert series in the Town Hall.

Support for Events/Community Revitalization:

- Traffic calming (see Transportation chapter)
- Parking issue (see Transportation chapter)

- Public bathroom
- Revitalize Business Council
- Revitalize Town Hall like what Winhall has done with their old Town Hall to create a community center

Recreational Resources and Events Policies:

1. Support public access to and maintenance and improvement of recreational areas.
2. Support cultural and arts events and programs.

Priorities for Action:

1. Encourage the development and construction of alternative recreational facilities for children and young adults on underutilized town land. (Selectboard, Planning Commission)
2. Revitalize Business Council. (Planning Commission, Selectboard)
3. Revitalize Town Hall like what Winhall did with their old Town Hall to create a community center. (Selectboard, Planning Commission)

Senior Services

As a small town, Jamaica depends on regional services to offer opportunities for its seniors. To support such service, the Town makes annual contributions to several organizations. The Senior Solutions (formerly known as The Council on Aging provides support services to seniors aged 60 years and older living independently in Windham County. This organization can assist seniors in obtaining information on caregiver support, nutrition, legal services, transportation, housing, visiting nursing and hospice. Below are some of the services that Jamaica residents either are using or can take advantage of:

- Nutrition Services: For a small donation, seniors can take advantage of community meals that offer nutritious meals and are often accompanied by interesting programs such as guest speakers or educational programs and information about other senior activities. Residents can take advantage of meals in Jamaica, as well as other towns including Londonderry and Townshend. Senior Solutions also coordinates home delivery of meals (known as Meals on Wheels) by using volunteer networks that bring the meal to the individuals. Other nutrition services provided by Senior Solutions include food benefit and supplemental food programs for age and income-eligible Vermonters.

- Transportation: Seniors can take advantage of transportation services that are provided by Southeastern Vermont Transit, Inc. (SEVT). Residents with Medicaid, over the age of 60, or that have an ADA-defined disability can schedule point-to-point transportation for medical appointments by calling CRT's Dial-A-Ride service two days in advance. In addition, the Betty Boop bus runs twice a month from Wardsboro to Brattleboro. Grace Cottage Hospital also coordinates rides to and from medical appointments using volunteer drivers vetted by RSVP.

- Caregiver Support: Adult Day Services (ADS) provides supervised activities for the frail and/or cognitively impaired, and respite for family and caregivers. The closest Adult Day Service to Jamaica is The Gathering Place in Brattleboro. Senior Solutions can also arrange for senior companions, who provide friendship and support to homebound

elderly. In addition, the Grace Cottage Health Care Center provides educational and care programs for seniors.

Despite the existence of these programs, Jamaica and surrounding rural towns are underserved by social services. The programs closest to home for Jamaica's seniors to access are the Senior Solutions senior advocate that works part-time at the Grace Cottage Hospital and the Community Food Pantry that serves families in need in both Jamaica and Wardsboro. The Community Food Pantry provides supplemental food to families in need without any questions. Though not just available to seniors, the Community Food Pantry does deliver food and can cater to special dietary needs.

Senior Services Policies:

1. Support the well being and quality of life for seniors.
2. Continue to improve accessibility to public buildings and sidewalks.

Communications

Wireless phone services and broadband internet access are now available in many parts of Jamaica, although with wide variations in options, reliability, and speed. Cable TV and broadband internet access is available, mostly in the more densely populated areas along the Route 30 and Route 100 corridors. In addition to this, DSL and satellite access are available. Wireless phone service is available in many parts of Jamaica. Due to Jamaica's rural landscape and the cost associated with providing some services to all areas of Jamaica, some people still do not have access to the latest technologies.

Communications Policies:

1. Encourage expansion of wireless broadcast and telecommunications facilities at existing sites.
2. Require that the location of and design of communication facilities and services provide quality transmission and minimize the negative impacts on natural resources and special sites and areas (including access roads).
3. Require that provisions are made for the removal of communications facilities when they are no longer in use.
4. The development or alteration of wireless broadcast and telecommunications facilities that would require lighting or marking by the Federal Aviation Administration (FAA) shall not be permitted.
5. Encourage underground utilities in new subdivision proposals of more than 10 lots.
6. Ensure that public safety and the public works department have the best communication system possible.

Priorities for Action:

1. Coordinate with providers of communication services in the siting, construction, alteration, development, decommissioning, and dismantling of new lines, towers, poles, and equipment. (Selectboard, Planning Commission)

Child Care

In June 2003, Public Act 67 amended Chapter 117 of 24 VSA (Municipal and Regional Planning and Development) to add planning goal number 13, "To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process, including child care financing, infrastructure, business assistance for child care providers, and child care work force development." Child care, in this context, encompasses children ages birth to twelve, in congruence with the Vermont Child Care Services Division definition of child care.

The accessibility, affordability, and quality of child care affects parents' ability to enter the workforce, be productive while at work, and remain employed. The 2010 US Census reported that there were 46 children under the age of five. This indicates a potential need for child care.

According to the Bright Futures Information System, a service of the Vermont Department for Children and Families, there are two registered family child care home currently operating in Jamaica. In addition, the Jamaica Pre-K Program is a licensed child care provider. There are other registered child care homes in Londonderry and Townshend and other licensed child care providers in Wardsboro, Townshend, Londonderry (2), Winhall, Stratton (2), and Athens.

There may be other child care operations in Jamaica that are not registered. The Vermont Agency of Human Services, Department for Children and Families requires any person who provides child care for children from more than two families, other than their own, to be registered or licensed. Family child care home registration is for a care giver seeking to operate out of his or her home. A registered care giver may provide care for up to six children, including up to two children under the age of two, at any one time. In addition, he or she may care for up to four school-age children for not more than four hours daily per child. A care giver wishing to care for children in a building other than his or her home requires a state license.

Child Care Policies:

1. Support town and regional efforts to increase the availability and affordability of child care.
2. Consider Jamaica's capacity to provide quality child care for its youngest population when the Town responds to new development in the town and region.
3. Encourage home-based registered child care facilities in the community.

IX. EDUCATION

Early Education

Early Educational Services of Brattleboro (EES) is an organization that provides several programs for families with children from birth to five years of age. The programs include Head Start classrooms in Brattleboro and Westminster, Family Support Specialist services including nutrition, dental, medical, and behavioral support, home visiting for support and education of community resources, the Welcome Baby program that gives out bags and collaborates with schools to provide Teddy Bear Teas, playgroups (the closest currently is in Townshend), the Dedicated Dads Program that meets weekly, the Dental Clinic, information and referral servies, and Parent Education Classes and Support Groups. Jamaica residents are eligible to participate

in all of the EES programs.

Windham Central Supervisory Union Preschool Support

Windham Central Supervisory Union is starting a new program for families with preschoolers in the West River Valley towns of Jamaica, Wardsboro, and Townshend. The Preschool Support Program is funded by a state/federal Preschool Expansion Grant. Through this program, families with preschoolers can get help with a variety of needs. The preschool support worker can help families; receive beneficial screenings for their child (hearing, vision, dental, health and developmental), connect to community resources for help with things like housing, food, etc., and coordinate/pay for transportation to and from appointments or preschool.

Pre-Kindergarten

Another opportunity for early education is the Jamaica's pre-kindergarten program that began in the 2006-2007 school year. The program now runs for the full day with the option of five morning half days for Pre-Kindergartners. In order to be eligible for the Preschool Support Program, a child must be 4 years old by September 1st and as mentioned above, be living in Jamaica, Wardsboro, or Townshend. This Preschool Support Program also sponsors family and parent events that are open to all families with preschool-aged children in the three towns. Look for information on these events under the family events subpage on this site.

Primary and Secondary Education

Jamaica Village School and Community Center

The Jamaica Village School serves the town's children from pre-kindergarten through sixth grade. A full time kindergarten program was initiated in the 2000-2001 school year. The school building has six classrooms, a small meeting/work room, library, principal's office, administrative office, multi-purpose room and kitchen. There are currently four mixed-age classrooms, which are a Pre-K/K, 1st/2nd grade, 3rd/4th grade, and a 5th/6th grade. The current wastewater system has a capacity of 102 occupants. Enrollment in the 2016-2017 school year was 56 students (pre-kindergarten through sixth grade). The Jamaica Village School Board has five members.

The LAFTER Program (Learning After School), runs Monday through Thursday from 3:00-5:00 PM and offers a variety of enrichment activities from community members and beyond. The LAFTER program stresses: (1) learning by doing in activities such as building, drawing, constructing, and sewing, (2) practicing new skills in literacy, math, science, and studies, and social skills emphasizing healthy recreation and cooperation. The program is supported with a late bus schedule so all students may participate.

The Jamaica Village School building is also a community center and designated emergency shelter. It has a non-transient public water system and a back-up generator. It can be, and has been, used for yoga classes, fundraisers, and birthday parties.

Leland and Gray Union High School and Middle School

Jamaica is a member of the Leland and Gray Union High School & Middle School District in Townshend (LGUHS). As a District member, Jamaica has two seats on the Leland and Gray

Union Board. In the 2016-2017 school year, there were 42 students from Jamaica enrolled at Leland and Gray; 30 students at the high school and 12 students at the middle school. LGUHS participates in a limited school choice program that was authorized under Act 150. This program allows a limited number of public high school students in grades 9-12 to transfer from their district into another school in the choice region. No funding for transportation is provided and, unless otherwise agreed upon, no tuition is exchanged. LGUHS is in a choice region with Hartford High School, Rivendell Academy (Orford, NH), Black River High School (Ludlow), Springfield High School, Bellow Falls Union High School, Brattleboro Union High School, Twin Valley High School (Wilmington), Woodstock Union High School, Windsor High School, and Green Mountain Union High School (Chester).

West River Modified Union School District

In compliance with ACT 46 upon completion of the school year in 2019, the Leland and Gray High School Union will become the West River Modified Union Education District (WRMUED) governing primary, middle and high schools of the member towns. Jamaica has joined the modified union along with the towns of Townshend, Newfane, and Brookline. Jamaica has two members on the new board overseeing the Townshend, NewBrook, and Jamaica primary schools, as well as the Leland and Gray middle and high schools. While overseeing all schools in the unified union, Jamaica members of the unified school board must ensure the unique interests of the Jamaica primary school are met. Prior to activation, the WRMUED is meeting to establish organization and governing policy. When the WRMUED is activated, the Jamaica School Board will be dissolved. It is anticipated that the Jamaica School Advisory Board will then be formed to provide continuing community input to the Jamaica primary school, but this board will not have a governing role.

Education Costs

Educational costs in Jamaica have been increasing. The reasons for this are similar to those that affect other school districts all over Vermont. These include increases in under-funded government mandates regarding the type and quality of education, salaries and accompanying benefits, tuition at Leland and Gray Union High School, costs of special educational programs, transportation, and operation and maintenance costs. The current Education Funding System under Act 60 establishes education tax rates meeting school operating costs on a per normalized student basis. Normalized student numbers are determined by the number of actual students weighted by certain factors such as age and family income. Decreasing student enrollment numbers has been the primary reason for significant education tax rates. With the formation of the West River Modified Union School District, education tax rates will be set on a district wide basis. The impact on Jamaica is dependent on operating costs of all schools in the modified union and are not yet clear..

In spite of these factors, the Jamaica School has made a number of improvements. The water quality at the school through its potable water system is now in compliance with State regulations. The wastewater capacity was increased not only to meet State regulations, but also to allow for future growth. Water fountains, bathroom facilities and a backup power system were added. Playground facilities were also upgraded providing better safety for the students.

Adult Education

Adult education opportunities for Jamaica residents are available regionally. The Community College of Vermont has learning centers in Brattleboro, Bennington, Rutland and Springfield that offer associate degrees, career-related certificates, and credit and non-credit training programs. Adult education and literacy programs are offered through Learning Works, a program of the Vermont Department of Education, with offices in Brattleboro, Bennington, and Manchester Center. Career and technical education is available at the Windham Regional Career Center in Brattleboro, Stafford Technical Center in Rutland, or Southwest Vermont Career Development Center in Bennington. These centers offer adult technical education and career skills both on-line and in the classroom or shop.

Windham Regional Career Center

The Windham Regional Career Center provides all learners, adults and high school aged students, with skills and competencies leading to post-secondary success. The Career Center supports a system of communication promoting an organizational climate that maximizes learning opportunities. The Career Center utilizes advanced technology to deliver valid curriculum aligned with recognized educational and industry standards and competencies to all learners in Windham County and the surrounding region. Participants in the STEM (Science, Technology, Engineering, and Math) and FVPA (Fine, Visual, and Performing Arts) Academies require a combination of required and elective coursework, a student portfolio, professional interaction within the chosen field and a capstone course. Successful completion of a STEM or FVPA program will result in a notation on a student's transcript and high school diploma. These academies are open to students graduating in 2017 and later. An application and interview are required for acceptance to both academies. On Campus and On-line courses in areas of health careers, career training and development, computer courses, and personal development are available to adult learners.

Continuing Education at Marlboro College

Marlboro's continuing education courses give students the opportunity to increase their knowledge in a specific subject or to "test drive" a degree or certificate program. For those who've been out of the classroom for a long period of time, continuing education courses also offer a way to ease back into the student routine. Courses may be taken for credit or audited for no credit. Most courses are 3 credits; a maximum of 9 credits may be earned without matriculating as a degree student. Until that threshold is met, there are no admissions requirements for continuing education courses, which are offered on a space-available basis. If pursuing a degree program after taking one or more continuing education courses, course credits can be applied toward your final degree in most cases.

Windham County Adult Learning Center

The Windham County Vermont Adult Learning Center helps high school and adult learners to reach their goals with classes and programs designed for success. Our experienced staff design educational plans that fitting individual needs. Courses are offered in basic skills education, high school completion programs, GED preparation and testing, English Language Learner (ELL), Workkeys Certification(job critical real world skills), work readiness, and college transition. Programs are free except for some incidental fees such as GED testing and textbooks.

The Southwest Vermont Career Development Center

The Southwest Vermont Career Development Center (SVCDC) is committed to career and lifelong learning to prepare secondary and post secondary students for career and lifelong learning in a rapidly changing world. The SVCDCs aew located in Bennington, Manchester, and Danby, Vermont. They serve high school and adult students from the southwestern region of Vermont and adjacent New York and Massachusetts. The SVCDC Adult and Continuing Education (ACE) program provides classes and workshops that support varied professional and personal learning goals and interests that are aligned to industry, educational, occupational, and recreational trends. On line and Classroom Courses are offered in a variety of career oriented fields.

Education Policies:

1. Require and support the provision of early education and K-12. Encourage and support post-secondary, vocational and adult education programs.
2. Provide energy efficient and appropriate space to meet current and projected educational, health, and safety needs.
3. Promote the utilization of community based facilities and organizations that will support the educational, recreational, and cultural needs of residents.
4. Disseminate information on adult learning including the resources available at the Jamaica Memorial Library.

Priorities for Action:

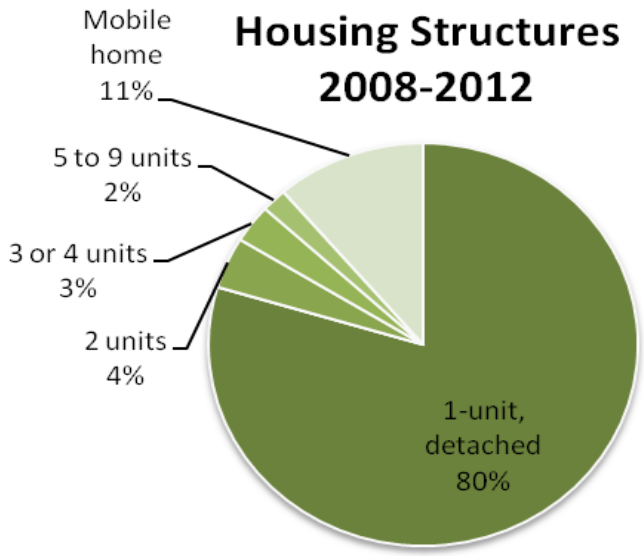
1. Continue, through membership in the LGUHS District or by other appropriate means, to provide comprehensive educational and vocational training opportunities for young adults. (School Board)
2. Explore creating a wilderness education program using the resources of the Jamaica State Park, the Jamaica Village School, and the Jamaica Memorial Library
3. Identify needs and initiate stocking of emergency shelter with supplies, equipping the school with emergency supplies including blankets, food, and water. (Planning Commission, volunteers)
4. Encourage the use of all facilities including the State Park and Library with its VELI-STEM (Vermont Early Literacy Initiative-Science, Technology, Engineering, and Math) program. (school Board, Library)
5. Encourage opportunity to serve the individualized needs of all students drawing on the regional resources available. (School Board)
6. Desiminate information on adult education resources available. Reach out to those residents that may benefit from adult learning. (volunteers, local charitable organizations)

X. HOUSING

Housing Units by Type

During the 1990's the number of single family, multi-family, and mobile home housing units grew in Jamaica. While there is a variety of housing types available in Jamaica, the predominant housing unit type is the single-family detached dwelling.

Over 80% of Jamaica's housing units are single-family units. Mobile homes account for 10% of the housing units. With the exception of densely settled Jamaica Village and some large subdivisions, residential development has occurred in a dispersed pattern, with a small number of lots being subdivided at a time. Housing density is 21 units per square mile.



Housing Tenure

Of the 1,055 housing units in Jamaica, 460 units were occupied in 2010 and 595 units were considered vacant (vacant units include seasonal housing units). Of the occupied units, 377 were owner-occupied and 83 were renter-occupied. Of the vacant units, only 24 were for sale or rent while 556 units were seasonal units. Table 2-8 uses VT Housing data which represents important trends, including the conversion of some seasonal housing to year-round units.

Table 2-8: Housing Units by Tenure and Vacancy in Jamaica

	2000	Percentage	2010	Percentage	Change
Total Units	*967*		*1,055*		*9%*
Occupied Units	416	43% of total	460	44% of total	11%
Owner Occupied	311	75% of occupied	377	82% of occupied	21%
Renter Occupied	105	25% of occupied	83	18% of occupied	-21%
Vacant Units	551	57% of total	595	56% of total	8%
Vacant For Sale	10	2% of vacant	7	1% of vacant	-30%
Vacant for Rent	11	2% of vacant	17	3% of vacant	55%
Vacant Seasonal	507	92% of vacant	556	93% of vacant	10%

Source: 2010 VT Housing Data

Vacation and Second Home Development

Beginning in the 1960's, Jamaica began to experience tremendous housing growth. In the early 1980's, Jamaica housing units exceeded the population. This coincides with a time when the nearby ski resorts were expanding their facilities.

Jamaica's proximity to three major ski areas is both a blessing and a curse. On the one hand, these resorts create economic opportunity for Jamaica residents, from jobs at the resorts to private businesses, such as care-taking, landscaping, hospitality and retail establishments. On the other hand, the vacation-home real estate market has driven the cost of single-family homes in Jamaica to the point where it is increasingly difficult for the average wage earner to own a home. Housing costs reached an all time high in 2006. Over half the respondents to the 2006 Community Survey indicated that housing for fixed income seniors, moderate income people, and the local workforce were moderate or top priority housing needs. The real challenge for the future will be to create and maintain balance and diversity in Jamaica's housing stock, providing for the needs of the entire community.

While it is difficult to predict the future, it is likely that Jamaica's proximity to ski resorts will continue to affect the housing values. Jamaica offers a different experience than the resort's real estate opportunities, and one that many people enjoy. Second home ownership will continue to exert speculative pressure on both the Town's dwellings and open land.

COMMUNITY SURVEY Question: *Prioritize the housing needs in Jamaica over the next five years.*					
Answer:	Top	Moderate	Low	Not	No Change
Housing for fixed income seniors	23%	31%	9%	13%	13%
Housing for low-income people	19%	24%	15%	19%	13%
Housing for moderate income people	17%	35%	11%	15%	12%
Housing for the local workforce	23%	31%	8%	13%	12%
Single family housing	25%	33%	10%	8%	11%
Multi-family housing	5%	16%	19%	33%	13%
Second homes	11%	19%	15%	32%	11%
Increased rental opportunities	11%	25%	15%	23%	14%
Provide housing assistance	14%	23%	11%	25%	15%

Housing Affordability

Affordability is defined as dwelling units for those households whose annual income is less than 80% of their county median income and whose housing cost are no more than 30% of gross income including rent or mortgage payments, utilities, property taxes, and insurance. Annual income is the adjusted gross income as reported for annual federal income tax purposes. Affordable housing takes into account "workforce housing" units because they are often housing the very people employed by businesses in the community and town employees.

According to the Vermont Housing Data, the median sales price for a primary residence in Jamaica as of 2010 was $157,000 To purchase a home at that price, an annual income of approximately $55,000 would be needed. However, the median household income in Jamaica is only $50,375 a year (median income divides the total household income distribution for the Town into two equal groups). Simply stated, the cost of housing has outpaced any increase in income for many residents of Jamaica.

Median price of primary residences sold

2000	$118,750
2005	$142,000
2010	$157,000
2015	$77,700

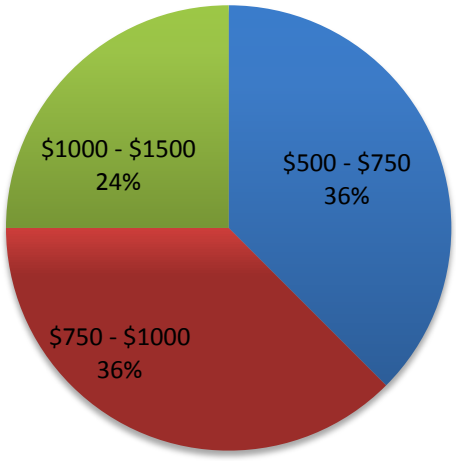
Median price of vacation residences sold

2000	$125,000
2005	$250,000
2010	$197,500
2015	$167,000

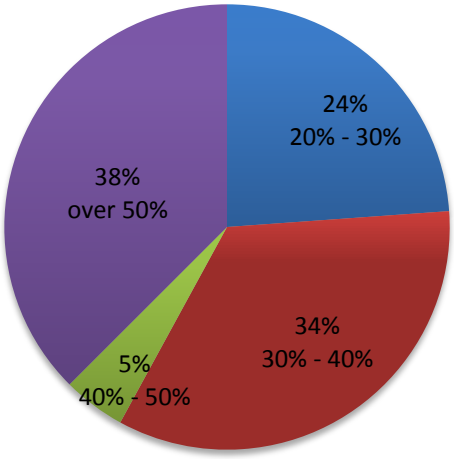
Vermont housing data profiles; Vermont Housing Data V2

There continue to be more second homes in Jamaica than primary homes. Often second homes are purchased or constructed at prices out of scale to the local economy and can put upward price pressure on local housing. This is evident in Jamaica when comparing the 2010 median sales prices of $197,500 for a second home to the median sales price of $157,000 for a primary residence.

Planning for Affordable Housing

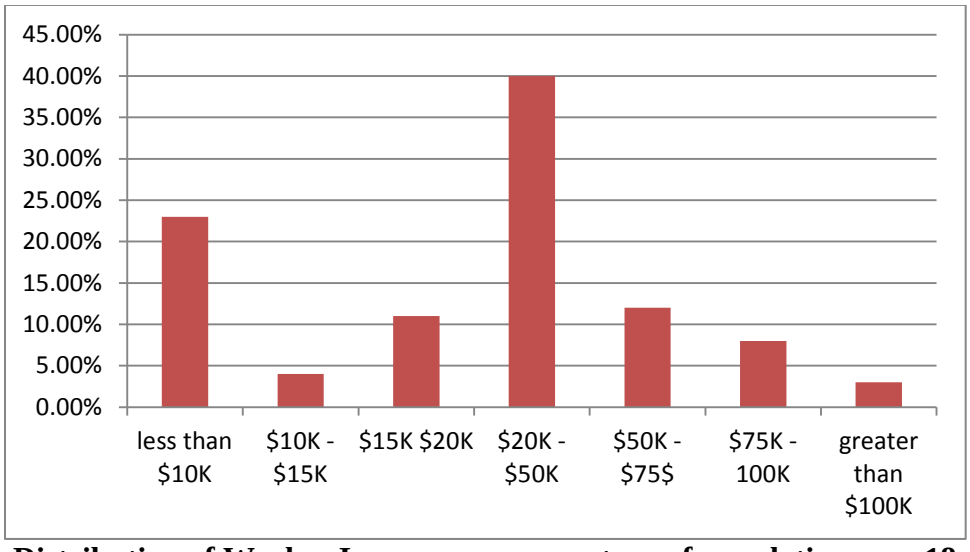


Distribution of Rent Payments



Distribution of Rent as a percentage of Income

As of 2016 per the Towncharts.com – United States Demographics Data estimates the distribution of rent payments and rent as a percentage of income as shown above. An estimate of the mean rent payment of Jamaica renters is $847 of which would require a hourly wage of $17.65 or an annual income of $33,878 to fall within the 30% affordability guideline. The distribution of income as a percentage of wage earners is shown below. The median household income is $55,921 and the median worker income is $38,436. From the distribution of worker income as a percentage of population it can be seen that between 38% and 50% of individual worker incomes fall below the 30% affordability guideline. The statistics do not address the percentage of individual workers who live in two worker households. However for the significant number that do not, this is a significant problem. For the 13% living at or below the poverty level, this is a major concern.



Distribution of Worker Income as a percentage of population over 18

The realities of the real estate market and development costs preclude private sector production of housing that is affordable to typical working families. Therefore, housing affordability is largely addressed through the activities of non-profit agencies in the area. Windham/Windsor Housing Trust (WWHT) provides affordable rental housing to low and moderate income households, including families and individuals, persons with disabilities or special needs, and the elderly. WHT can also provide income-eligible home buyers with a subsidy towards the purchase of a qualifying home. In addition, home buyers under this program have access to below market rate mortgages as well as financial assistance with closing costs. Southeastern Vermont Community Action Agency (SEVCA) provides referrals to area shelters, landlord lists, and assists in completing applications for affordable housing possibilities. SEVCA also operates weatherization and fuel assistance programs for income-eligible homeowners and renters. In 2006, there were five fuel/utility assists in Jamaica.

Accessory apartments (second units that are self-contained living units either attached or detached from the primary residential unit) are an excellent way to create affordable housing units in the community. Density, the measure of the number of housing units per acre, is a key factor in the creation of an affordable range of units within the community. With land and construction costs increasing drastically in recent years, building low-density housing increases per unit costs thereby making it difficult to keep the housing affordable. Locating housing near the village centers provides residents with access to services and can help to keep individual housing costs reasonable as well.

As part of the Stratton Mountain Master Plan, Stratton Mountain is required to contribute money on a per unit basis for every housing unit constructed. That amount is currently $400 per unit and is used to help bridge the affordability gap rather than construct affordable housing units. The money is given to the Vermont Housing and Conservation Board who has primarily distributed it to the Rutland Area Housing Coalition for use on housing projects in Manchester.

Senior and Handicapped Housing

The supply of affordable housing units is important to residents at many stages of their lives. In 1990 Jamaica's population of citizens aged 65 years and older numbered 112, representing 14.8% of the Town's total residents. According to census figures, there were 125 citizens aged 65 and older in 2000, representing 13.3% of Jamaica's total resident population – an 11.6% net increase in the senior population, but a 1.5% decrease relative to the proportion of Jamaica's total population. 2016 estimates of Jamaica's population over 60 years of age is 18.6% or 155. Of those, 145 or 16% receive retirement income. This is an increase of 5.3% from 2000. While Jamaica's senior population is not unusually high, it is increasing and special considerations may be needed to meet this group's housing needs. In Townshend, several units of senior housing currently exist and more are under construction. Valley Cares, a non-profit organization, provides 24 units of independent housing with supportive services and 28 units of assisted living. The Smith Haven Home in South Londonderry offers 24 subsidized housing units for the elderly. In Manchester there are several units of affordable rental housing for the elderly and disabled at Manchester Knoll, Meadows I and II, and

Manchester Fields. There are other senior housing developments in Windham County, primarily in Rockingham and Brattleboro. Neighborhood Connections, a volunteer organization, provides emergency housing assistance.

Housing Policies:

1. Recognize, encourage, and support private non-profit and for-profit organizations in the development, rehabilitation and conservation of affordable housing within Jamaica.
2. Encourage the rehabilitation of existing housing stock to ensure safety and an adequate standard of living.
3. Keep publicly funded affordable housing projects from reverting to market driven housing.
4. Work cooperatively with neighboring towns and the Windham Regional Commission to ensure an appropriate dispersal of affordable housing stock throughout the region.
5. Encourage accessory apartments.
6. Encourage developers and builders to minimize the costs of living through quality housing design and energy efficient construction.
7. Require that housing development is coordinated with the adequate provision of public utilities, facilities, and services.
8. Encourage the installation and maintenance of code-conforming fire protection sprinkler systems and alarms in commercial buildings and multi-family housing units.
9. Support new housing locations that are in close proximity to more densely populated areas that have easy access to services and potential for public transportation.

Priorities for Action:

1. Work with the Windham Regional Commission and neighboring towns to address the impact of high end development on housing prices for typical working families and area or local employers. (volunteers)
2. Develop a vision statement for affordable housing. (Planning Commission)
3. Investigate possible new construction or rehabilitation housing projects in Jamaica which may be eligible for grants under the Housing Revenue Bond Initiative (http://www.vhcb.org/housing-for-all-bond-funds.html) enacted in Spring 2017 by the Vermont legislature. Since "At least 25% of the housing will be targeted to households with incomes below $35,000 and another 25% will be targeted to moderate-income Vermonters earning $55,000-$83,000 annually (for 4-person households)", it may be a way to create much-needed affordable housing in the Town. (Planning Commission)

XI. TRANSPORTATION

Road Network

The transportation of people, goods, and materials in Jamaica occurs almost entirely on State and Town highways. Pedestrian travel is a significant means of transportation in the village of Jamaica and hiking and bicycling occur along all the country lanes and byways of the entire town. Town highways are divided into four classes according to use and condition. The total of road miles in Jamaica, by classification, is as follows:

Table 3-1: Town Highway Mileage

Class	1	2	3	4	Total Mileage
Town Roadways	0	6.44	43.02	2.95	52.380
State Highways					14.675
Legal Town Trails					19.610
Total					86.625

Source: 2017 VT Agency of Transportation Town Highway Map

Vermont Routes 30 and 100 are identified as major collector routes in the regional transportation plan and serve most of the traffic bound for and passing through Jamaica. These routes connect Jamaica's village centers and have scenic qualities valuable to the recreation/tourism industry as well as local residents. Increasing traffic volume on Vermont Routes 30 and 100 present a challenge to the town and careful attention must be given to planning development along these routes.

Speed on Route 30 in the village areas is a serious problem and threat to the safety of Town residents. Traffic calming techniques designed to reduce speeds or redirect traffic flow have the potential to mitigate this problem. In 1999, the Vermont Route 30 Corridor Management Study was completed. The study called for a systematic and thematic approach to traffic calming along this road. In 2004, three traffic calming techniques were selected to be implemented: lowering speed limits, installation of Town welcome signs, and experimental installation of dynamic stripes. All of these calming techniques have been implemented. Jamaica continues to participate in a regional planning process addressing issues related to traffic calming along the Route 30 corridor.

A large percentage of Jamaica's roads are Town-owned back roads. Speed is a major concern on these back roads, as well as on the major collector routes. Since the Town of Jamaica does not have a local police department, it is difficult to enforce speed limits on the many miles of back roads. Consideration must be given to motorist and pedestrian safety on these roads during future development planning.

The three principal Town maintained highways which link Jamaica with other destinations in the Upper West River Valley include: South Hill Road (Town Highway #35), Pikes Falls Road (Town Highway #1), and West Jamaica Road (Town Highway # 30). South Hill Road is a steep rugged road which used to be used primarily by local residents, but now is more widely used as a shortcut from southerly towns, such as Wardsboro, Dover, and Wilmington, through Jamaica village and northward, taking the place of Route 100. There is continued concern regarding the volume and speed of traffic on South Hill Road, Pikes Falls Road and, to a lesser extent, West Jamaica Road, associated with development at the Stratton Mountain Resort and vacation housing associated with Resort expansion. Stratton Corporation has taken steps through the installation of signage to direct traffic away from Pikes Falls Road and onto the main Stratton access road and Route 30. Resort traffic should continue to be directed away from local roads.

The scenic qualities of Pikes Falls Road and West Jamaica Road are unique in the Town. Both roads wind through ravines and along scenic segments of North Branch Brook and Ball Mountain Brook. Travel on these roads is part of the recreational experience of the area.

Because of their scenic value, physical constraints, and the rural character of the area they serve, major upgrades, beyond regular maintenance, to these roads are not considered feasible or desirable.

Many local roads in Jamaica are unpaved. Gravel roads and driveways are a potential source of sediment and phosphorus to surface waters. State programs, such as *Better Roads,* educate communities on proper road construction, access policies, and road and bridge standards. They focus on inventory and maintenance of local roads and advocate practices and techniques to preserve the integrity and vitality of roads as well as bridges, culverts, drainage, and ditching.

Jamaica currently has an infrastructure inventory that includes the condition of bridges and culverts. The Town maintains an electronic list of all bridges and culverts that includes information on condition, material, and dimension. By maintaining an up-to-date bridge and culvert inventory (updated every three years), Jamaica can potentially reduce the required local funding match on road projects by up to one half.

The town of Jamaica highway system depends on 28 bridges, 17 of these bridges are owned by the State of Vermont and 11 are owned by the Town of Jamaica. Two of the town bridges are a high priority for repair or reconstruction in the near future. The town will continue to work with the WRC and the VTrans District staff to seek advice about if repair or replacement is appropriate for each bridge and about other possible approaches to managing these infrastructure concerns.

Jamaica Bridge number 32 also called the State Park Bridge carries Depot St. over the West River leading to the Jamaica State Park Entrance. The State Park Bridge is a Candidate in VTran's Town Bridge Capital Program with a rank of 27 out of 46 in for FY 2018. The State Park Bridge has been on the Candidate list since at least FY 2015. The Windham Regional Transportation Committee ranked the State Park Bridge as their second highest regional priority within the town bridge category. This ranking will be incorporated into the final rankings for FY 2019. The bridge currently has a posted weight limit of only eight tons which limits activities including logging, large recreational vehicles, emergency access, firewood deliveries, and dam repairs. It is not yet known if the bridge can be repaired or will need to be replaced. At this time it is also not known how long the town should expect to wait for a solution for this bridge from VTrans town bridge program.

Jamaica Bridge number 24 carries Depot St. over Ball Mountain Brook leading to the Elementary school and the Jamaica State Park Entrance. Bridge 24 is in VTrans' Town Bridge Pre-Candidate Program with a rank of 101 out of more than 1,500 for FY 2018. The Windham Regional Transportation Committee ranked the State Park Bridge as their second highest regional priority within the town bridge pre-candidate program. This ranking will be incorporated into and updated ranking for FY 2019. The bridge survived four houses and multiple cars traveling under it during Hurricane Irene. Because of the removal of a center pier on an upstream bridge, this bridge presents a more significant hazard mitigation concern for future extreme weather. It is not yet known if the bridge can be repaired or will need to be

replaced. At this time it is also not known how long the town should expect to wait for a solution for this bridge from VTrans Town Bridge program.

The town of Jamaica has taken a proactive approach to compliance with the upcoming Municipal Roads General Permit (MRGP). The town applied for and was awarded a Category A Better Roads grant in 2017 for a road erosion inventory that will be performed by the Windham Regional Commission (WRC) in the 2018 field season. The town of Jamaica was also awarded $14,200 through the pilot Grants-in-Aid program to bring at least one "hydrologically connected" road segment into compliance with the MRGP in either the 2017 or 2018 field season. The town of Jamaica will continue to participate in educational opportunities and work with the WRC and the VTrans Maintenance district to facilitate road maintenance practices and capital improvement projects that proactively move Jamaica town roads toward compliance with the MRGP.

Because so many Jamaica residents depend on automobile travel to get to their jobs, snow removal is a critical element of the town's road management responsibility. The state is responsible for snow removal on state highways, Routes 30 and 100. The town is responsible for the remaining 49 miles of class 1, 2, and 3 town roads. With the exception of a small amount of roadway mileage in the Northeast corner of Jamaica, Town owned and maintained snow plows are used for snow removal. Snow removal for the roadways along the Windham/Jamaica border is done under contract. Snow removal is accomplished according to a priority system. Class 2 roads are cleared first with South Hill and Pikes Falls roads at the beginning of their routes. The remaining roads are cleared in order of population density often with snow plow operators working well in excess of eight hour work days to ensure town roads are cleared as expeditiously as possible. Adjustments can be made in response to special needs. Because snowfall can vary significantly from year to year, snow removal budgets are based on worst case snow fall with any unused funds held in reserve of other unanticipated needs.

Local Road Policies

The Selectboard is responsible for the maintenance and repair of public roads in Jamaica. In order for private roads or driveways to access town roads an access permit is required. Applicants must adhere to Vermont Agency of Transportation's driveway design standards. Jamaica also has adopted road design specifications. The regulations are available from the Jamaica Town Clerk.

The Selectboard adopted a Class 4 Road Policy Statement in 1996. The policy states that existing rights-of-way of Class 4 highways and trails as of the date of the adoption of the policy shall be retained by the Town for the following purposes: recreational and multi-use activities, access to private property, and agricultural and forest management. Amongst other items, the policy statement reserves the Selectboard's right to exercise weight limits, establish speed limits, prohibit or restrict wheeled vehicle use during mud and snow season, and require temporary permits for heavy equipment access.

Alternative Forms of Transportation

At present, public transit in Jamaica is limited to specialized services to targeted populations. Southeastern Vermont Transit (SEVT) provides paratransit and elderly/disabled service to Windham County towns. Fixed route bus service is currently not available in Jamaica. However, SEVT has applied for a grant to run bus service up Route 30 from Brattleboro to Townshend, and possibly extending into Jamaica. This would provide many more opportunities for Jamaica residents. The extension of fixed route service with stops along Route 30 in Jamaica and continuing to Stratton Mountain Resort, a major employer in the region, would also be desirable.

Relatively low usage/population densities, weather conditions, automobile oriented development patterns, and lifestyle preferences keep biking and walking from serving as a significant mode of transportation in Jamaica. In Jamaica Village, where usage/population density is relatively high, walking can be a viable alternative to automobile use especially for short trips or recreation. Jamaica Village does have a limited sidewalk network which was upgraded in 2016, with plans for ongoing maintenance. As growth occurs in the compact areas of Jamaica Village and Rawsonville, sidewalks and other paths for non-motorized transportation should be considered. Adequate pedestrian and bicycle access to village districts enhances marketability, reduces vehicular traffic, and ensures greater safety.

Since 1996 the Friends of the West River Trail (FWRT) has been working with the towns of Jamaica, Londonderry, and Townshend along with the Windham Regional Commission and State and Federal government agencies to plan and maintain a trail roughly following the rail bed of the former West River Railroad. The steering committee overseeing this project has the objective of connecting a bicycle and pedestrian pathway along the West River corridor from South Londonderry through Jamaica and continuing to the Townshend Dam. Comprehensive planning and some portions of the project have already been constructed. Most notably in the town of Jamaica, a pedestrian bridge crossing Cobb Brook in Jamaica State Park was completed in 2000 and in 2003, Pratt's Bridge Trail, 1.7 miles of hard packed, handicapped accessible trail, was completed. This portion of the trail extends from Winhall Brook Campground in Londonderry to Pratt's Bridge in Jamaica. This portion of the trail was completed in partnership with the Paralyzed Veterans of America.

. The FWRT have worked to redefine the route, taking into account the needs and desires of property owners and the safety of bicyclists and pedestrians along the Route 30/100 corridor. Comprehensive planning has been conducted and some portions of the project have already been constructed. Notably, a pedestrian bridge crossing Cobb Brook in Jamaica State Park was completed in 2000. In 2003, Pratt's Bridge Trail, 1.7 miles of hard packed, handicapped accessible trail, was completed. The trail extends from Winhall Brook Campground in Londonderry to Pratt's Bridge in Jamaica. This portion of the trail was completed in partnership with the Paralyzed Veterans of America.

Transportation Policies:

1. Require that any project or regulatory change for existing State highways be consistent with the Land Use policies of this Town Plan.
2. Encourage development to incorporate pedestrian links to existing sidewalk networks.

3. Minimize the number of new access points to State highways in order to promote the safe integration of local traffic along these through routes.
4. Require that any project for increasing the capacity of any existing local road is consistent with the general character of the Town and will perpetuate the rural character.
5. Restrict construction of new roads or improvements to existing Class 4 roads and legal town trails in Rural Resource Areas. If constructed for specific one time/one use purpose (e.g. logging), they shall be restricted from becoming roads for further development.
6. Prohibit new permanent roads from being constructed close to any roadless stream segment identified in the Town Plan as having significant ecological or recreational value. When stream crossings cannot be avoided, or when access to an area cannot avoid a stream corridor, the road shall be designed with an adequate buffer to minimize disruption in order to preserve the ecological and/or recreational value.
7. Require that all road construction activities, public and private, preserve the rural character of the landscape and limit adverse impact upon important natural areas. Properly grade and seed all road cuts and embankments to minimize erosion and to maintain their rural character. When creating new roads, provide an adequate buffer distance and plant cover from the edge of road to surface waters.
8. Maintain and improve bridges on Town roads in a manner that ensures public safety and is consistent in terms of scale and capacity with the use and classification of the road.
9. Establish speed limits on Town roads that respect safety, the rural character and multiple uses of these byways.
10. Encourage and support the continued planning and development of the West River Trail continuously from Townshend Dam to South Londonderry.
11. Promote the use of Class 4 roads, legal trails, trails on public land, and trail easements on private land as part of a trail network throughout the Town.
12. Encourage and support opportunities for public transportation in and through Jamaica, including special accommodations for the elderly and handicapped.
13. Encourage and support the continued development of traffic calming strategies for the Route 30 corridor.
14. Repair and maintain sidewalks in Jamaica Village, including a plan for snow removal, in order to promote a safe pedestrian environment.
15. Encourage future roadway improvements to include non-motorized, multi-use trails.
16. Promote the development of adequate and safe parking facilities in Jamaica Village.
17. Encourage strategies and techniques to increase safety on the Town's back roads.

Priorities for Action:

1. Continue to work with state and regional officials toward implementation of traffic calming on Route 30. (Planning Commission, Selectboard)
2. Maintain a road inventory that lists each road, its mileage, and its current condition. Maintain a bridge inventory that lists each bridge and its current condition. Use these inventories to prioritize and plan for needed improvements. (Selectboard, Road Commissioner, Highway Department)
3. Make recommendations for long and short-term improvements and implement projects on a consistent basis. (Selectboard, Road Commissioner, Highway Department)
4. Review options for adequate and safe parking facilities in Jamaica Village and make recommendations for improvements. (Planning Commission)

5. Encourage resort traffic to be directed away from South Hill Road and Pikes Falls Road. (Planning Commission, Selectboard)
6. Encourage biking and walking traffic and development of paths. (Planning Commission, Selectboard)
7. Add speed limit signs on roads such as South Hill Road, Goodaleville Road, and Water Street. (Selectboard, Road Commissioner, Highway Department)
8. Implement a maintenance plan, including snow removal, for sidewalks. (Road Commissioner)

XII. FLOOD RESILIENCE PLAN

Historic Flooding
Jamaica has seen several great flooding events since the beginning of its recorded history.

A. The flooding Ball Mountain Stream of November 1869 destroyed a covered bridge spanning Depot Street, sweeping William Carr with his horse and carriage downstream to Turkey Mountain Brook.

B. Flooding from 4.12 inches of rain in 24 hours in 1927 carried several mill dams downstream while covering several roadways with mudslides. Twelve bridges in Jamaica were severely damaged in that flood.

C. In March 1936, 3 inches of overnight rain, along with melting mountain snow, threw Jamaica back into a state of emergency. It took roughly 11 months to clean up the mess from that storm.

D. Five days of rain thoroughly saturated the ground in September of 1938. A hurricane rapidly dropped three more inches of rain on Jamaica, ripping out 12 bridges, the telephone and electrical lines, and covering Water Street with 3-5 feet of water.

E. Another flood in 1948 gutted Water Street and left 14 without homes.

F. The latest flooding even was in late August 2011. After a week of rain, Tropical Storm Irene devastated southern Vermont and totaled the town of Jamaica, as had happened in the major floods of days past. Most of the town's bridges and roads were compromised or destroyed completely. Jamaica, as well as most of the southern Vermont, was in a "can't get there from here" state of affairs. It has taken five years to get the town back to a "Pre-Irene" condition.

Background
In 2013 Vermont enacted Act 16, "An act relating to municipal and regional planning and flood resilience, which requires that all town plans effective after July 1, 2014 include a "flood resilience element" pursuant to the purpose and goals of 24 V.S.A. § 4302(c)(14):

(14) To encourage flood resilient communities.
(A) New development in identified flood hazard, fluvial erosion, and

river corridor protection areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.
(B) The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.
(C) Flood emergency preparedness and response planning should be encouraged.

Act 16 also amended 24 V.S.A. § 4382 to add a twelfth element to the required contents of a municipal plan, specifically adding a flood resilience plan:

(a) A plan for a municipality . . . shall include the following:
(12)
(A) A flood resilience plan that:
(i) identifies flood hazard and fluvial erosion hazard areas, based on river corridor maps provided by the Secretary of Natural Resources pursuant to 10 V.S.A. § 1428(a) or maps recommended by the Secretary, and designates those areas to be protected, including floodplains, river corridors, land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property; and
(ii) recommends policies and strategies to protect the areas identified and designated under subdivision (12)(A)(i) of this subsection and to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments. (emphasis added)
(B) A flood resilience plan may reference an existing local hazard mitigation plan approved under 44 C.F.R. § 201.6.

Fluvial Erosion
By statutory definition, "fluvial erosion" means the erosion or scouring of riverbeds and banks during high flow conditions of a river. Most of the flooding damage experienced in Vermont is from the power of moving water causing the sudden destruction of under-sized culverts and erosion of stream banks supporting roads and buildings. Providing a river the room it needs to slow the flow, over time can allow it to function as a responsive system and avoid repeated losses to public infrastructure and investments.

Erosion (and deposition) along a stream or river is natural. Sometimes, efforts to stop this process in one place can make it worse in others. Rivers, streams, and their channels are changing constantly in response to the inputs of water, energy, sediment and debris that pass along them. Every few years a stream fills to bankfull and the shape of the channel responds to this force by cutting deeper into some streambanks and also by depositing sediments in the quiet inside bends. This process is visible as an "S" shaped form that slowly changes position.

If the stream cannot spill out of its banks, the power of the trapped water increases and the channel either digs down or cuts out further to the sides. Where there are roads and buildings nearby these adjustments to the channel's shape can become dramatic and costly.

A river is in geomorphic equilibrium when its water, energy, sediment, and debris are in balance. In this condition a river is neither building up sediment in the channel nor losing sediment from its bed. Importantly, a river in equilibrium has not become overly deep and can continue to overflow onto its floodplains. The water that spills onto the floodplain slows down, and the velocity of the water still in the channel does not become excessively powerful.

In order to protect roads and buildings it is important to be sure that the river is able to function as well as possible upstream and downstream. We need functional streams and rivers with room to adjust (River Corridors) and intact floodplains to moderate the impact of high water events.

River Corridors and floodplains

River Corridors and floodplains are different but related. The River Corridor is the area that provides the physical space that the river needs to express its energy and meander without it having to dig out to the side or down into its bed. The state-designated River Corridor includes a 50-foot buffer on either side of the fluvial erosion hazard area to prevent disturbance in this area and allow for bank stabilization. In statute the area is defined as: *"River corridor" means the land area adjacent to a river that is required to accommodate the dimensions, slope, planform, and buffer of the naturally stable channel and that is necessary for the natural maintenance or natural restoration of a dynamic equilibrium condition and for minimization of fluvial erosion hazards, as delineated by the Agency of Natural Resources in accordance with river corridor protection procedures.*

A floodplain is the area where water flowing out over a river bank can spread out and slow down. The floodplain as defined by FEMA is the area that will be inundated by the flood event having a 1-percent chance of being equaled or exceeded in any given year. The 1-percent annual chance flood is also referred to as the base flood or, most commonly, as the 100-year flood.

River Corridors and floodplains overlap a great deal. One on top of the other there might be 60 – 90% overlap. However, there are areas in the River Corridor that will be eventually shaped by the channel - although they may be currently high and dry - and other areas in the floodplain that will be under water during a large flood, but which the river channel may not need to access to maintain its geomorphic equilibrium.

The extent of a River Corridor is based on calculations including such things as the meander belt of the stream, soils, watershed size and gradient, and channel width. The extent of floodplains is based on calculations such as stream peak flow history and frequency.

Regulatory Flood Hazard Designations

There are two types of regulatory flood hazard designations and two sets of official maps that identify those flood hazards in Vermont: inundation hazard areas are identified by the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs): fluvial erosion hazard areas are identified by the VT Agency of Natural Resources (ANR) on River Corridor maps.

Jamaica has land, homes and businesses that are susceptible to the two types of flooding impacts: inundation and fluvial erosion. Inundation flooding occurs during high water events on the West and Winhall Rivers and many brooks. Fluvial erosion occurs in areas both in and out of the flood

hazard area (floodplain) as mapped by the Federal Emergency Management Agency (FEMA). Both inundation flooding and fluvial erosion are potential hazards along the West River, Winhall River, and Ball Mountain, Turkey Mountain, and Wardsboro Brooks.

Inundation Hazard

Towns participating in the National Flood Insurance Program (NFIP) must regulate development in areas designated on the FIRMs that show the floodplain that FEMA has calculated would be covered by water in a 1% chance annual inundation event, also referred to as the "100 year flood" or base flood. This area of inundation is called the Special Flood Hazard Area (SFHA). FIRMs may also show expected base flood elevations (BFEs) and floodways (areas within the SFHA that carry more current). FIRMS have been prepared for only larger streams and rivers. The Town of Jamaica has areas of inundation hazard flood risk mapped by FEMA.

Fluvial Erosion Hazard

A significant portion of flood damage in Vermont occurs outside of the FEMA-mapped SFHAs and along smaller upland streams, as well as along road drainage systems that fail to convey the amount of water they are receiving. ANR's River Corridor maps show the area needed to address fluvial erosion hazards, which may be inside of FEMA-mapped areas, but which often extends outside of those areas. River Corridor maps delineate areas where the lateral movement of the river and the associated erosion may be more of the threat than inundation by floodwaters. Elevation or floodproofing alone may not be protective of structures in these areas, as erosion can undermine structures. ANR released statewide River Corridor maps in January 2015. The Town of Jamaica has areas of River Corridor mapped by ANR.

Flood Hazard Regulation

Inundation

For federal flood insurance to be available to property owners though the National Flood Insurance Program (NFIP), a municipality must adopt and administer flood hazard area regulations. A community's flood hazard regulations must apply to at least the Special Flood Hazard Areas identified by FEMA. They regulate new structures and place restrictions on other types of activities, such as fill within the floodplain. They specify land, area and structural requirements to be adhered to within the SFHA.

Erosion

To address Act 16, to protect citizens, infrastructure, and the environment, and to qualify for maximum Emergency Relief and Assistance Fund state match in the event of a disaster, a town must adopt and administer River Corridor protection standards as part of its flood hazard area regulations.

Emergency Relief and Assistance Fund

The Emergency Relief and Assistance Fund (ERAF) provides State funding to match Federal Public Assistance after federally-declared disasters. Eligible public costs are reimbursed by federal taxpayers at 75%. For disasters after October 23, 2014, the State of Vermont will contribute an additional 7.5% toward the costs. For communities that take specific steps to reduce flood damage the State will contribute 12.5% or 17.5% of the total cost. Towns that participate in the NFIP and regulate SFHAs, and meet several other state requirements, can achieve a 12.5% state share of the required 25% state/local match for federal disaster relief

funds. As of 2017, Jamaica qualifies for the 12.5% match. Towns that regulate River Corridors can obtain an additional 5% ERAF match, reducing the town's required local match to 7.5%.

Addressing flood resilience

This plan identifies inundation flood hazards as the Special Flood Hazard Areas shown on the NFIP FIRMs and identifies fluvial erosion hazard areas as those shown on the ANR River Corridor maps. This Plan designates both those identified areas as areas to be protected, including floodplains, River Corridors, and land adjacent to streams, wetlands, and upland forests, to reduce the risk of flood damage to infrastructure and improved property. This plan also incorporates by reference the town's Local Hazard Mitigation Plan approved under 44 C.F.R. § 201.6. Finally, this plan recommends the following policies and strategies to protect the designated areas to mitigate risks to public safety, critical infrastructure, historic structures, and municipal investments.

Flood Resilience Policies:

1. It is the policy of the Town to foster the protection and restoration of River Corridors, floodplains, wetlands, and upland forested areas that attenuate and moderate flooding and fluvial erosion, in order to reduce the risk of flood damage to infrastructure, improved property, people, and the environment.

2. Development activities in identified flood hazard, fluvial erosion, and River Corridor Protection Areas should be avoided. If new development is to be built in such areas, it should not exacerbate flooding and fluvial erosion.

3. The protection and restoration of floodplains and upland forested areas that attenuate and moderate flooding and fluvial erosion should be encouraged.

4. The Town of Jamaica shall engage in flood emergency preparedness and response planning.

Priorities for Action

1.1. The Town will be familiar with up-to-date ANR River Corridor maps that delineate the land area adjacent to streams and rivers that are required to accommodate a stable channel. (Planning Commission, Selectboard, Zoning Board of Adjustment, Floodplain Administrator)

1.2. The Town will be familiar with Flood Insurance Rate Maps (FIRMs) that delineate areas that could be covered or inundated by water during flooding. (Planning Commission, Selectboard, Zoning Board of Adjustment, Floodplain Administrator)

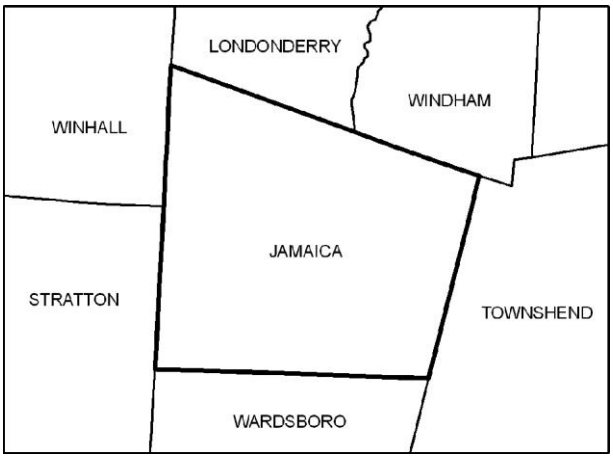
2.1. The Town will regulate any new development in identified flood hazard areas, fluvial erosion hazard areas, and/or River Corridors to ensure that development does not exacerbate flooding and fluvial erosion, and extend these provisions to development activities that might increase the amount and/or rate of runoff and soil erosion from upland areas. (Selectboard, Zoning Board of Adjustment, Floodplain Administrator)

3.1. The Town will update the Flood Hazard Area Regulations which may include regulation of River Corridors, and include provisions for advance notification of and specific limits on

development activities in identified flood hazard areas, fluvial erosion areas, River Corridors and/or upland forested areas based on regulatory templates developed by the ANR Department of Environmental Conservation Rivers Program. (Planning Commission, Selectboard, Zoning Board of Adjustment, Floodplain Administrator)

4.1. The Town will pursue a flood resilience management approach whose essential components are to identify and map flood hazard areas, fluvial erosion hazard areas, and River Corridor Protection Areas based on stream geomorphic assessment studies and maps provided by the Vermont ANR Rivers Program, and designate those areas for protection to reduce the risk of flood damage to infrastructure and private property. (Planning Commission, Selectboard, Zoning Board of Adjustment, Floodplain Administrator)

Additional information is available at http://floodready.vermont.gov/.



XIII. TOWN PLAN COMPATIBILITY

Compatibility Plans of with Neighboring Towns and the Region

Jamaica is located in the northwest quadrant of Windham County in Southern Vermont. It shares borders with the towns of Londonderry, Windham, Wardsboro, Townshend, Stratton, and Winhall, (the latter is in Bennington County). The six surrounding towns and Jamaica participate in the Windham Regional Commission, which provides a forum for addressing regional issues.

Implementation of this Plan will require cooperation and coordination across Jamaica's borders. Roadways, watersheds, schools, and natural resources are shared with our neighboring communities. Throughout the planning process, Jamaica Planning Commission reviewed neighboring plans. The results of these reviews are as follows:

Londonderry

Border: Northwest

Town Plan: Expired 4/2/17; Update at Selectboard hearing stage

Londonderry borders Jamaica along the northwest part of Town. Route 100 is the main traffic corridor and serves as the biggest asset as well as the main area of concern. The easy access to a well-maintained VT Highway can lead to development. Londonderry's border with Jamaica is listed as Rural Residential (R-L), which appears to allow for low-density

residential development, agriculture, forestry, and other compatible land uses that maintain the rural character, scenic landscape, and natural resources. Jamaica has designated this area as rural resource lands. While both towns discouraged strip development there is a potential for this area to be over developed due to Route 100. It is in Jamaica's interest that it remains involved with any land use changes and development in this area. Jamaica recognizes that there are several large contiguous areas of forest that extend from Londonderry into Jamaica, many of which are already conserved.

Windham

Border: Northeast

Town Plan: Adopted 1/5/15

The border between Jamaica and Windham is primarily steep and forested terrain with little access. Almost half of the border is publicly owned land (Jamaica State Park) or privately owned land with a conservation easement. The hamlet of South Windham is accessed via Windham Hill Road in the northeast corner of Jamaica. The Town of Windham's Zoning Regulations and Town Plan policies are compatible with this Plan.

Wardsboro

Border: South

Town Plan: Adopted 6/17/14

Most of Wardsboro's common border with Jamaica consists of farms, fields and forestlands. It is classified mostly as Resource Residential with low density factor; the topographical constraints make development difficult in this area, which should help the compatibility with Jamaica's Rural Resource Areas. There is however, a small area of this border in Wardsboro that is proposed as Rural Residential. In addition, there is a very small area of the border proposed as Village Residential, which is centered on Main Street. These areas should be monitored and the Towns should work together to maintain their respective classifications minimizing the effect to the perspective areas.

Townshend

Border: East

Town Plan: Expired 3/21/16; Update at Selectboard hearing stage

Both Jamaica and Townshend share the vision on their common border. Townshend Town Plan designates the border as Resource Lands – low impact and low density. Jamaica's border is designated as conservation area or rural resource area. Both towns are working cooperatively to mitigate the impacts of traffic on Route 30.

Winhall

Border: West/Northwest

Town Plan: Adopted 11/2/16

Route 100 between Jamaica and Winhall is a main travel corridor for the Stratton Mountain ski resort. The main access road to the ski resort is in the Bondville Village, which borders Jamaica. Winhall owns the Winhall Municipal Forest in Jamaica. The majority of Winhall's border with Jamaica is zoned residential for moderate density; on the Jamaica side, a lower density of development is encouraged. This area should be closely observed for traffic and environmental concerns.

Stratton

Border: West/Northwest

Town Plan: Adopted 10/27/14

At this time, there is not a lot of development along the border between Stratton and Jamaica, which is proposed as Residential. However, Stratton has designated the area that is accessed by Pikes Falls Road as Commercial/Residential and as the designated growth area. As this Commercial/Residential area grows, Jamaica will see increased traffic on Pikes Falls Road as this is the quickest route to that part of Stratton. As noted in this Plan, because of the scenic value, physical constraints, and the rural character of the area Pikes Falls Road serves, upgrading this road is not considered feasible or desirable. Furthermore, there is regionally important black bear travel corridor that has been identified by the Vermont Agency of Natural Resources connecting an important bear habitat on Sage Hill to Stratton. The intensity of uses that Stratton proposes in the Commercial-Residential Districts could impact that ability of the bears to travel between the important bear habitat in each town. The towns of Stratton and Jamaica should work cooperatively to protect the lands with important conservation value.

Windham Regional Commission

Regional Plan: Adopted 2014

The Windham Regional Plan is intended to provide guidelines for the planning and coordination of change and development which will, in accordance with present and future needs and resources, best promote the health, safety, and welfare of the citizens of the region. The proposed land use plans in both the Jamaica Town Plan and the Regional Plan are similar with one difference being that Jamaica recognizes Rawsonville as a Village District while the Regional Plan proposes Rawsonville as an area of High Intensity Mixed Use. Residents around Rawsonville strongly identify with this as a Village. Despite the different name, the Jamaica Town Plan policies and the Windham Regional Plan policies are compatible in that they both encourage a development pattern of compact mixed uses that are designed and scaled to be pedestrian oriented. As proposed, Jamaica does not intend or expect that this Plan will prevent any current or future efforts to implement that Windham Regional Plan.

XIV. IMPLEMENTING THE TOWN PLAN

OVERVIEW

The Jamaica Town Plan is a statement of vision; it is a dynamic document that resets the place in the ongoing process of planning for the future of the Town. Used properly, the Town Plan provides guidance for elected officials and citizens charged with decision making for Jamaica. By making a commitment to the principles and goals laid out in the Town Plan, local government secures an effective and well-defined framework for meeting challenges and achieving long-term goals.

The ongoing work of the Jamaica Planning Commission is another important element in the implementation of the Town Plan. The Plan provides the foundation for the annual work program of the Commission. By recognizing the Town Plan as a living document, the Planning Commission is constantly refining its vision for the future, bringing the goals of the Town Plan into ever clearer focus.

The Town of Jamaica supports decision making at the most local level possible commensurate with the impacts of the decision. Therefore, we encourage implementation of this Plan first by individuals and then, as needed, by successive levels of government.

IMPLEMENTATION STEPS

The following are some, but not necessarily all, of the techniques, strategies and actions available to implement this plan.

- **Planning Commission Work Program**

  It is the responsibility of the Planning Commission to establish a schedule of planning priorities and project development that will further the goals and policies established in this Town Plan.

- **Land Use Regulations**

  Act 250 requires that any development permitted under its jurisdiction be found to be in conformance with the provisions of the applicable Town Plan. Individuals proposing development subject to Act 250 jurisdiction are encouraged to consult with the Jamaica Planning Commission prior to submitting an Act 250 application.

- **Capital Budgeting**

  A capital budget is a program the Town of Jamaica utilizes for ensuring that the Town's expected capital expenditure needs (e.g., major road improvements, school expansions or renovations, vehicle acquisitions, solid waste disposal facility needs, etc.) will be met. By prioritizing a schedule of anticipated capital expenditures and sources of financing, the Town is better prepared to meet facility and service needs as they arise. The Jamaica Planning Commission places a high priority on maintaining the Capital Budget program.

- **Land Acquisition**

  The most certain, and potentially expensive, method for realizing some of the goals of the Town Plan is to purchase or otherwise acquire property, or certain rights to property. For example, by purchasing fee simple interest in land, or by acquiring easements or development rights to land, certain outstanding natural areas in Town can be protected from incompatible development. This technique could be used by the Town or by the Town in association with a land trust, which has the interest and expertise to work with the Town.

  The Town has developed a written policy on land acquisition by the Green Mountain National Forest. This policy provides that lands which are designated in the Town Plan for future, relatively intensive, development should not be acquired and that other lands should only be acquired if they are found by the Town to have "unique or highly significant resource value" or if the owner is willing to make a lump-sum payment to the Town to be invested to offset any reductions in property tax revenues received by the Town. (Copies of this policy are available from the Town Clerk.)

- **Voluntary Actions**
  Donations of land or conservation easements, restrictive covenants placed on land by the landowner, participation in Act 250 reviews by abutting landowners and participation by individuals or groups in the continuing planning process, are all voluntary methods available to citizens to further the goals and objectives of the Town Plan. The Planning Commission encourages the use of these techniques whenever they are consistent with the development objectives set forth in the Plan.

- **Coordination with Neighboring Towns**
  The effects of growth and change do not respect town boundaries and the consequences of actions that originate in one town are often shared with its neighbor. The Town of Jamaica shall take the initiative to work with its neighbors to address issues which cross town borders. The Jamaica Planning Commission shall endeavor to consult with its neighbors on issues of mutual concern, review and comment on the plans of neighboring towns and solicit comment from neighboring towns and affected parties when making decisions concerning development and implementation of the Town Plan.

- **Participate in the Regional Planning Process**
  The Jamaica Planning Commission, through its Town Representatives to the Windham Regional Commission, shall actively participate in the Regional Planning process and in regional projects of importance to the Town.

- **Public Information**
  The Planning Commission shall seek out and provide information, as it comes available, and provide opportunities for public discussion of new issues and concerns as they arise.

IMPLEMENTATION RESPONSIBILITIES

This section summarizes the "Priorities for Action" elements of the Town Plan and suggests who has the responsibility for implementation. (Note: page #s have to be updated.)

ACTION	RESPONSIBILITY	PAGE #
Land Use		
• Evaluate options for the Town's acquisition of public open space land for recreation, conservation, or a Town Forest.	Selectboard and Planning Commission	14
•Identify and appropriately designate historically significant structures.	Jamaica Historical Society	14
• Assess opportunities to establish green spaces in the village areas.	Selectboard and Planning Commission	14
• Review municipal street lighting fixtures to	Selectboard	14

evaluate their effectiveness in directing light towards the street and sidewalk and away from neighboring properties and the night sky.		
Natural Resources - Natural Areas		
• Continue to maintain a Special Sites and Areas Map and update it as additional areas are identified.	Planning Commission and WRC	22
Natural Resources - Water Resources		
• Identify for future planning the wetlands that perform a significant function in providing wildlife habitat, as defined in the Vermont Wetland Rules, and the existing or possible new artificial wetlands, which are important for non-point pollution control.	Planning Commission & Consultants	28
• Continue to administer the provisions of the Flood Hazard Bylaw. Update Jamaica Flood Hazard Regulations as needed to support Windham Regional Commission Flood Hazard Model to maintain eligibility in the National Flood Insurance Program.	Planning Commission	28
• Use road maintenance methods and materials that will maintain or improve water quality, such as those described in the Vermont *Better Roads Manual.*	Road Crew	28
Economic Development		
• Establish a Jamaica Business Council.	Planning Commission	33
• Explore the extension of public transit into Jamaica with stops in East Jamaica, Jamaica Village, and Rawsonville.	Selectboard and Planning Commission	33
• Develop means of outreach to potential non-traditional internet-based enterprises and work at home based workers to locate in town areas served by high bandwidth communications.	Selectboard and Planning Commission	34
• Encourage development of specialty agricultural enterprises serving niche markets in town areas supporting	Selectboard and Planning Commission	30

agriculture.

Potable Water Supply and Wastewater		
• Evaluate the feasibility of a water supply and distribution system and/or a wastewater collection and treatment system in Jamaica Village. Explore sources of grant and other public funding for building a water distribution or wastewater collection system.	Selectboard and Planning Commission	37
• Explore the possibility of creating a public restroom within Jamaica Village.	Selectboard and Planning Commission	37
Energy		
• Monitor municipal energy use and, where feasible, implement energy conservation measures and the use of renewable energy sources	Selectboard	40
• Increase awareness among residents and businesses about incentives for energy conservation through programs such as Efficiency Vermont, which promote energy audits, weatherization, and upgrades to energy efficient appliances to reduce consumption.	Planning Commission	40
• Continue to work with the school district to coordinate school busing schedules to reduce fuel consumption and costs.	JVS School Board and ULGSU School Board Representatives	40
•Develop a "No Idling" ordinance	Selectboard and Planning Commission	40
• Update the Town Plan to plan support the Windham Regional Commission Municipal Energy Data & Technical Assistance Package for ACT 174 Compliance.	Planning Commission	40
•Investigate initial feasibility of a pumped energy system utilizing the Ball Mountain and Townshend Dams.	Planning Commission	40
Community Facilities & Services - Town Services		
• Continue providing an annual Town appropriation to the JVF&R.	Selectboard	43

•Investigate procedures for JVF&R to review subdivision proposals so that they can work with developers to minimize the risks of fires and maximize their ability to combat fires	Planning Commission and JVF&R	43
• Participate in local emergency planning efforts	Planning Commission and JVF&R	44
Community Facilities & Services - Town Facilities		
• Investigate using sole source vendor contracting to provide certain goods and services such as insurance, fuel, and maintenance for Town facilities.	Selectboard	46
Community Facilities & Services - Recreational and Cultural Activities		
• Encourage the development and construction of alternative recreational facilities for children and young adults such as a skateboard park.	Selectboard and Planning Commission	48
Community Facilities & Services - Communications		
• Coordinate with providers of communication services in the siting, construction, alteration, development, decommissioning, and dismantling of new lines, towers, poles, and equipment.	Selectboard and Planning Commission	49
Education		
• As members of the newly created Unified Leland and Gray Union School Board, seek to provide comprehensive education and vocational training opportunities for the unified districts children and young adults. Ensure preservation of the special interests and needs of Jamaica's students.	Jamaica's ULGSU members and Selectboard	54
Housing		
• Work with the Windham Regional Commission and neighboring towns to address the impact of high end development on housing prices for typical working families and area or local employers.	Planning Commission	60
Transportation		
• Continue to work with state and regional officials toward implementation of traffic	Selectboard and Planning	

calming on Route 30.	Commission	65
• Maintain a bridge inventory that lists each bridge and its current condition. Use these inventories to prioritize and plan for needed improvements. Make recommendations for long and short-term improvements and implement projects on a consistent basis.	Planning Commission, Road Commissioner and Highway Department	65
• Review options for adequate and safe parking facilities in Jamaica Village and make recommendations for improvements.	Selectboard and Planning Commission	65

XV. TOWN RESPONSE TO VERMONT'S PLANNING GOALS

Goal 1. To plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside.

The Town Plan recognizes that Jamaica's existing moderate and higher density areas should continue to be where future higher density settlement should occur while areas outside of these districts should be maintained as rural countryside. The moderate and higher density areas are delineated on the Land Use Plan map as Commercial-Residential Areas, Jamaica Village and Rawsonville. Areas outside of these districts may contain a variety of uses, but should be used in a manner that will protect existing natural resource values of the land and their attractiveness to tourists and vacation homeowners valuing remote homesites. Protecting Jamaica's scenic ridgelines is seen as critically important. This goal is backed up by reference throughout the Plan.

Goal 2. To provide a strong and diverse economy that provides satisfying and rewarding job opportunities and that maintains high environmental standards, and to expand economic opportunities in areas with high unemployment or low per capita incomes.

The Plan encourages small business to locate in Jamaica, especially home occupation, home industry and other businesses that could be expected to employ local residents. To further this goal, the Plan has not restricted the location of any particular type of business in any specific area of Town. High bandwidth internet service sufficient to support even the most demanding enterprises is now available in areas corresponding with those designated for moderate had high density development. With this critical infrastructure now in place, the town should exploit its availability to support location of non-traditional millennia workers and enterprises in the town.

Goal 3. To broaden access to educational and vocational training opportunities sufficient to ensure the full realization of the abilities of all Vermonters.

Jamaica has an excellent town elementary school and encourages the development of private and public early education initiatives for the Town's children. With the completion of the 2019 school year in compliance with ACT 46,, the Leland and Gray Union School District will become the Unified Leland and Gray School District governing both the Leland and Gray High School and Jamaica, Townshend, and Newbrook primary schools. The Jamaica school board be dissolved. Jamaica will have two members on the unified school board. This has not changed the above goal, but now Jamaica's members on the unified school board are jointly responsible for both seeing that they are met for all children in the unified district and protecting any interests particular to Jamaica. Reference: Education. A Jamaica School Advisory Board will be established to continue community input to the Jamaica Village School.

Goal 4. To provide for safe, convenient, economic and energy efficient transportation systems that respect the integrity of the natural environment, including public transit options and paths for pedestrians and bicyclers.

The Jamaica Town Plan promotes a safe and well maintained road network, including efficient winter snow removal. It encourages alternative forms of transportation, such as pedestrian and bicycle travel, in all areas of the Town. All road building and maintenance shall respect the scenic and resource value of the area served and be consistent with the Land Use policies of this Plan. The Plan recognizes the challenge faced by rural villages located along State highways and seeks to ensure that its' village districts are protected from the adverse impacts of through traffic. Reference: Transportation.

Goal 5. To identify, protect and preserve important natural and historic features of the Vermont landscape, including significant natural and fragile areas; outstanding water resources, including lakes, rivers, aquifers, shorelands and wetlands; significant scenic roads, waterways and views; important historic structures, sites or districts, archaeological sites and archaeologically sensitive areas.

Jamaica has done an extensive review of its natural areas, resources and features, and recognizes the importance of protecting these sites. The Land Use element of this Plan identifies and discusses the protection of these resources and sites. Specific features are identified on the various Resource and Special Sites Maps included as part of this Plan. Historic structures and sites will require additional study and mapping to continue the work of this Town Plan. Reference: Land Use, Communication Facilities and Services, Water Resources, Forestland, Agriculture, and Natural Areas.

Goal 6. ***To maintain and improve the quality of air, water, wildlife, forests, and other land resources.***

To a great extent, this goal has been addressed under the response to State Goal 5.

Goal 7. ***To make efficient use of energy, provide for the development of renewable energy resources, and reduce emissions of greenhouse gases.***

The Town has reflected this goal in its Town Plan policies and priorities for action in its Energy Section. The town plan will be updated in the near term to support the goals of the Windham Regional Commission Municipal Energy Data & Technical Assistance Package for Act 174 Compliance. To investigate the feasibility of innovative renewable energy initiatives to meet ACT 174 goals. Reference: Energy.

Goal 8. ***To maintain and enhance recreational opportunities for Vermont residents and visitors.***

Jamaica residents, second-home owners and visitors place a high value on recreational opportunities. This goal is addressed in depth in several sections of the Town Plan, including Transportation, Community Services and Facilities and Land Use. The Plan seeks to protect the quality of the natural environment for recreation and encourages informal recreational activities throughout the Town. Jamaica is home to a Class A State Park and is in close proximity to major recreational resorts. Reference: Land Use, Forestland, Natural Areas, Community Facilities and Services, and Transportation.

Goal 9. ***To encourage and strengthen agricultural and forest industries.***

Although these industries are not as important to the local economy as they once were, they are still important to the Town. The Forestland section of the Plan encourages forest industry in areas well suited for growing and harvesting timber and encourages the cooperative management of small forest parcels. Although not rich in farmland, the Agriculture section of the Plan encourages small-scale production and innovative and non-traditional farming operations that develop specialty products for niche markets. Reference: Natural Resources.

Goal 10. ***To provide for the wise and efficient use of Vermont's natural resources and to facilitate the appropriate extraction of earth resources and the proper restoration and preservation of the aesthetic qualities of the area.***

This goal has been addressed under the discussion of Goal 5. Specific policies have been developed to address concerns. Reference: Earth and Mineral Resources.

Goal 11. ***To ensure the availability of safe and affordable housing for all Vermonters.***

Information has been collected to address this problem in Jamaica. The Housing element discusses a variety of approaches to address the availability of safe and affordable housing. A diversity of housing types, costs and locations is encouraged to promote a diverse population. Reference: Housing.

Goal 12. ***To plan for, finance and provide an efficient system of public facilities and services to meet future needs.***

The Town recognizes that the community facilities and services it provides are the heart of Town government. As such, a significant portion of the Town Plan addresses community facilities and services issues. Reference: Community Facilities and Services.

Goal 13. ***To ensure the availability of safe and affordable child care and to integrate child care issues into the planning process, including child care financing, infrastructure, business assistance for child care providers and child care work force development.***

The Town acknowledges that there is a need for child care within easy reach of the Town's working population. Currently there is one registered home childcare facility and one licensed child care facility in the Town of Jamaica. Reference: Community Facilities and Services.

Goal 14. ***To encourage flood resilient communities.***
The Plan addresses this goal in the Flood Resilience chapter.

Appendix

Pumped Energy Storage in the West River Valley

C. B. Robbins

The Jamaica Town Plan calls for encouraging the use of clean energy sources while also protecting the regions natural beauty. The wide scale use of small solar panels on homeowner's rooftops or fields can meet the goal of expanding the use of clean energy with little or no visual or environmental impact to meet both objectives. However, integrating a large number of relatively small solar systems into the power grid remains a vexing problem for the power company because of the variability and unpredictability of energy they can supply the power grid. Ideally, power in excess of the owners needs is fed back into the grid to be used instead of power generated with fossil fuel. In practice, to provide reliable power 24/7 power companies must keep both base load generators and peaking generators that handle load variations on line constantly. All too often, excess electricity from variable solar sources goes unused. Further selling excess energy when you can't predict its availability isn't practical. What is needed to make efficient use of excess energy generated from a large number of solar sources is grid-scale energy storage. In effect, a very big battery system that can store the excess energy fed back onto the grid from many small solar sources for later use. But, battery technology with this capability really does not yet exist.

However where geography exists, there is one system that can provide grid level energy storage; namely pumped energy storage. A pumped energy storage system consists of high and low reservoirs vertically separated by several hundred feet, a pipe connecting the two reservoirs, and a Frazer generator or two-way generator/pump at the lower reservoir pipe end. Excess energy, whenever available during the day, is used to pump water from the lower reservoir to the higher one. And, water is drawn from the upper reservoir through the same pipe to drive the generator at night or when otherwise advantageous to do so. Frazer generators are capable of responding in real time to variations in excess power availability and power demand. Efficiencies of 80% or more are reported in the literature[1] for pumped energy storage systems; that is 80% of the power used to drive the system pump can be returned to the grid at a later time. The only drawback to wide scale adoption of this technology is that they can only be realized in mountainous regions where high and low reservoirs exist in close proximity. (Note: there are other potential drawbacks, e.g., impacts on fisheries, etc.) It is possible that the Ball Mountain Lake and

Townshend Dam might meet these criteria and be used in a pumped energy system, in effect becoming a battery for the West River Valley.

The Eagle Creek Renewable Energy Company[2] already operates hydroelectric generators at the Ball Mountain and Townshend Dams. To add a pumped energy storage capability at Ball Mountain Lake would require a pipeline from the Townshend Dam to the Ball Mountain Dam, the addition of a second, Frazer, generator at the Townshend Dam location, and smart meters on solar arrays to allow real time determination of the energy available for storage. Adding pumped energy storage to the existing hydroelectric facilities has additional advantages. It could provide additional water to drive the Ball Mountain hydroelectric generator, building reserves during the summer when solar energy is most abundant, to be drawn in the late summer and fall when river flow decreases. Also, before sufficient solar systems are on line to use it for pumped energy storage, it can be put to good use as a load leveler. Load leveling involves pumping water uphill to the Ball Mountain Dam at night with cheap purchased electricity and drawing the water from Ball Mountain for hydroelectric power during the day when electricity is expensive.

An impediment to wide scale adoption of solar arrays is their high initial cost. While they may ultimately pay for themselves, many homeowners just can't afford the initial capital outlay. The ability to save and reuse excess energy from many small solar arrays may enable innovative business models that can make solar arrays affordable to the average homeowner. The capability to efficiently use all energy generated by a homeowner's solar array can make business models based on leasing solar systems to a homeowner practical. Under such plans, the business installs and leases the solar arrays to homeowners for $0. In return, the leasing company gains control of all electricity generated. It agrees to sell power up to 100% of the solar array's output to the homeowner at a reduced price. The excess is sold to the power company for either immediate use or storage with pumped energy storage. The capability to store excess solar generated power creates the power market for the leasing company.

A second business model is based on a solar array farm sourcing a community micro grid. Homeowners would purchase individual panels of the farms array. Economies of scale in installation costs would significantly reduce the cost to individual homeowners. The power grid itself is changing and is expected to evolve into a network of micro grids over the next decade. As the cost of solar electricity falls and the improvement in grid control improves, economics and technology will drive the power grid architecture toward a distributed renewable sourced network of micro grids. One can imagine an energy independent West River Valley micro grid sourced by a combination of distributed solar sources and Ball Mountain and Townshend Dam hydroelectric sources. A pumped energy storage system would significantly enhance its independence, perhaps enabling it to provide its excess power to neighboring regional micro grids[3].

There are downsides to pumped energy storage systems, the most prevalent of which is the pipeline itself. Where visible it's bound to be considered an eyesore. The obvious route between dams is the river valley and some or all of the pipeline may lie along the West River trail. Since parts of the trail is state land, the process of obtaining easements for the pipeline could be greatly simplified. Gaining easements across private land can be difficult. The cost and impact to private landowners if the pipeline route lies along private land must be considered. A possible solution to the eyesore problem is to bury it wherever possible. Except for keeping the pipeline route clear of trees that have roots that could damage the pipe, once buried, it will be out of sight and out of mind. If routed along the West River trail, during construction the trail will be impacted. Pipe laying can be staged so the only a relatively small section of trail is closed at any given time. And, the trail can be restored to original condition or even improved if wanted once the pipe is laid. When construction is complete, it is not clear what, if any, environmental concerns would remain.

Preliminary consideration of the feasibility of a pumped energy storage system is necessary to uncover any "show stoppers," conditions that will make pumped energy storage impractical. There may be reasons why, despite the vertical separation of two neighboring dams, accommodating a pumped energy system isn't feasible. Those might include: (1) Ball Mountain Lake may be too small to store enough water to make its use for energy storage practical. (2) Fundamental incompatibility of the Dam's primary mission of flood control with pumped energy storage. One requires maintaining low levels to accommodate storm surges and the other high levels to provide power reserves. (3) Too great a lateral separation between Ball Mountain and Townshend dams. Energy expended pumping water vertically can be recovered with high efficiency. Energy expended to pump water horizontally is lost. Too great a ratio of lateral to vertical separation will reduce the systems efficiency to the point that it is no longer useful as an energy storage system. (4) The construction cost is too great to make adding pumped energy storage a viable business venture. The amount of energy that can be stored cannot be sold at prices that justify the system cost. (5) The impact of construction on the West River trail and or the difficulty of obtaining easements for the pipeline route that may cross private land may be unacceptable to the community.

If this idea is of interest to the Planning Commission, the first step to proceeding further is to determine the presence or absence of considerations that would make the addition of a pumped energy storage capability to Ball Mountain and Townshend Dams unrealistic, i.e., to find any "show stoppers" up front. This will require seeking expert technical advice from the Army Corps of Engineers on the technical feasibility of such a system and concurrently business advice from Eagle Creek Renewable Energy Company and/or Green Mountain Power Company as to its business potential. Other helpful sources of expertise may include the Energy Storage Association[4] and the state's Department of Public Service Clean Energy Board. The Friends of the West River Trail, the Division of Vermont State Parks and others with environment concerns will need to be consulted to determine acceptability of pipeline routes and any conditions on route, restoration and improvements that might be required.

If initial feasibility considerations indicate that adding pumped energy storage to the Ball Mountain and Townshend Dam hydroelectric facilities may be practical, it is recommended that the Planning Commission develop a strategy to initiate a project to do so. Such a strategy should include:

(1) Seeking a consensus from the community, including the Townshend citizens that may be affected by it, to support the project. The last thing we want to do is touch off another Windham style "windmill war." The conflict between concerns for the environment and the Stiles, Willie, and Howe Brooks ridgeline's natural beauty and economic concerns has divided the Windham community in a way we don't want to repeat. It is considered that environmental impacts of installing a pumped energy system will be temporary and once installed the system will pose little danger the environment. But this assumption must be firmly established and the community persuaded before proceeding.

(2) Seeking political and technical support from the state's Clean Energy Board, the Army Corps of Engineers, and other interested parties such as the Energy Storage Association. If state political support can be gained, further support from our congressional representative and senators should be sought. Detailed feasibility studies well beyond our initial feasibility assessment will be necessary to seriously plan and fund a pumped energy storage system. This study will be funded by the Army Corps of Engineers and either performed by the Corps or under contract to them. The support of our representative and Senators will be necessary to get federal budget support for a detailed study.

(3) Obtaining commercial support. Ultimately a commercial concern such as Eagle Creek Renewable Energy, Green Mountain Power, or some third party that can work with both the hydroelectric generation and power distribution companies must be convinced to adopt the project as their own. The firm taking on the project must be convinced that they will realize both a return of their capital investment and long term profitability for building a pumped energy storage system. The firm undertaking this

project must also be convinced they have the community's support. After Iberdola's experience in Windham, it's hard to imagine a company wanting to commit resources without the wholehearted support of the host communities. Success will be realized when an energy company becomes the driving force for the project for commercial reasons.

(4) Gaining community support. Before seeking state and national support for a pumped energy storage system beyond our initial assessment of its feasibility, the community should be informed and their support obtained. This will have to include support from Townshend as well as half of any pipeline route will lie in Townshend. Issues concerning the environment and construction disruption should be thoroughly understood and accepted before proceeding.

(5) The formation of a group of citizens willing to pursue this idea. Such a group should include members from Townshend. Perhaps a joint committee under the auspices of the Jamaica and Townshend Selectboards would be appropriate. It is anticipated that bringing a project of this magnitude to fruition will take years and require the sustained effort of a citizen group dedicated to it.

It is requested that the Planning Commission and its plan update energy committee consider whether we might explore getting a pumped energy storage capability added to the existing Ball Mountain and Townshend Dam hydroelectric facilities. If interested, we should consider how to proceed with an initial feasibility assessment and how to approach other community leadership with the idea. Finally, we should include some language in the energy segment of the town plan update that, without being overly specific, addresses exploring pumped energy storage for the Ball Mountain and Townshend Dam facilities.

1. Wikipedia, Pumped-storage hydroelectricity, https://en.wikipedia.org/wiki/Pumped-storage_hydroelectricity

2. Eagle Creek Renewable Energy, http://www.eaglecreekre.com

3. Robert Hebner, The Power Grid in 1030, IEEE Spectrum, April 2017

4. Energy Storage Association, Pumped Energy Storage, http://energystorage.org/energy-storage/technologies/pumped-hydroelectric-storage