

BRADFORD TOWN PLAN

March 23, 2023

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Written in 2021-2023 by the Bradford Planning Commission with assistance from the many community members, businesses, boards, commissions, and committee members who participated via survey responses, suggestions, and comments at public hearings along with Two Rivers Ottauquechee Regional Commission (Steven Bauer and Kevin Geiger), with funding provided by a Municipal Planning Grant from the Vermont Department of Housing and Community Development. Monique Priestley and Dan Perry were members of the Planning Commission during most of the drafting of the document.

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INTRODUCTION

Bradford has a wealth of historical, cultural, recreational, educational and entertainment venues in a town with a vibrant historic downtown, a bustling industrial park and a diverse retail and commercial economy. As climate change continues to impact our daily lives, Bradford has turned its focus to in-fill development in our village and Lower Plain while maintaining and preserving our rural landscape.

The Bradford community looks to attract and retain both its people and its businesses. Due to the proximity to I-91 as well as its diverse recreation, education and cultural resources, Bradford has a long history as a thriving hub for the area.

Bradford has been able to retain a vibrant downtown even while expanding its commercial activities to the Lower Plain. Encouraging further development of this commercial area while supporting and expanding the vibrant commercial activity along Bradford's Main Street is critically important to the ongoing vitality of the entire Bradford community. By focusing efforts to encourage economic growth and stability in its Central Business Area, Lower Plain and the Industrial Park, the ongoing and expanding vitality of the Town will be achieved. The Planning Commission with the support of the Selectboard has developed this Town Plan to serve as a policy statement for the growth and development of Bradford.

This plan includes an analysis of Bradford's demographics, jobs, economy, schools, roads, hous-

ing, natural resources, and land use. This analysis of current conditions in the context of goals for our community leads to policies and recommendations that can help our community make wise choices and provide direction for the patterns of its future growth.

There are key reasons to have a Town Plan:

- **Guide for local regulations:** State statute requires that all land use regulations (zoning, subdivision, flood) must be consistent with the goals of the local plan. The municipal plan functions as the framework under which these regulations operate.
- **A guide for community investments:** Information in the plan can be used for developing the recommendations contained in a Capital Budget and Program, for establishing a community development program, and for providing direction to the Selectboard for such things as community services, emergency services, recreation, and municipal facility development to name a few. It also serves to guide the decisions made by the Development Review Board when permit applications come before them.
- **Support for grant applications and planning studies:** Many of the state-run grant programs available to Bradford consider whether the Town has stated a need for its grant request. Studies are often called for within a plan, and the funding for such projects can come from state sources as well.

- **Support for the village center designation:** The village center designation is important to the vitality of Bradford's downtown as it offers support for grants as well as assistance to property owners in the designated village center.
- **A guide for future development:** The Area Environmental Commission considers Town Plans during an Act 250 hearing under Criterion 10. The Plan should clearly define what is and is not appropriate in terms of development within the community.

A Town Plan is a dynamic document to be reviewed at least every eight years, amended, re-adopted, or replaced to reflect new conditions, needs and vision of the community. State statute requires that a plan expires after eight years unless readopted or replaced. While the Planning Commission is the public body responsible for preparing and revising a Town Plan, any individual can petition the municipal government to amend the Plan. Statute also requires that an "approved" Town Plan be consistent with statewide planning goals (VSA Title 24, Chapter 117, 4302), be compatible with the Regional Plan (VSA Title 24, Chapter 117, 4350(b)(1)(B)) and other plans in the region and contains all elements of a Plan (VSA Title 24, Chapter 117, 4382). A Town Plan is the blueprint by which zoning is implemented.

Therefore, a town's land use regulations (zoning, subdivision) must conform to the Plan. A Town Plan cannot affect land use in existence prior to the plan's approval. It does not have the power of law designated to a zoning regulation and should

not be confused with that power. The goals, policies and recommended actions in this plan should be applied reasonably and uniformly. No specific goal or policy in this plan should be applied in isolation from other goals and policies within it. Users of this plan must accept that interpretation of the plan involves close review of the facts.

All energy generation and transmission development that are linked to the electrical grid are approved and regulated by the State of Vermont through the Public Service Board under Act 30 V.S.A. Section 248. Town participation in the State's review process and current Town goals and objectives is the best way to ensure that the Town of Bradford's goals and objectives are considered and weighed by the Public Service Board during the decision process.

Goals of this Plan

- To protect the constitutional right of the people to acquire, possess, and protect property.
- To balance individual property rights with the needs of the community.
- To determine current and future land use needs.
- To establish areas desirable and suitable for development.
- To maintain and enhance the vitality of the downtown (including the Village Center designated area).
- To enable efficient use and expenditure of public funds to support local governmental services.
- To serve as a standard for the evaluation and review of proposed developments.

- To determine current and future land use needs for Town-owned properties.
- To encourage the continued growth and prosperity of Bradford's economy.
- To encourage a thriving, equitable, resilient economy that preserves and honors our working landscapes, downtown and the environment.

Using the Plan

This plan is organized into twelve chapters. Most of the chapters include a series of goals, policies and actions intended to implement the vision of the Town of Bradford.

Goals state a purpose and destination, reflecting the shared vision of the Town. They articulate an overarching principle that guides decision-making, providing a framework for the more detailed action statements.

Policies are definite courses of action adopted to attain goals and intended to guide all relevant decision making.

Actions are the next steps needed to move toward the goals. These are concrete activities that can be described in specific terms.

All the action items identified in each chapter are combined for ease of use in the implementation plan which includes a projected time horizon, responsible party, and potential funding sources for each action.

IMPLEMENTATION

IMPLEMENTATION

Putting the Plan into Action

The character of Bradford, its people and landscape have been created over the years through the individual and collective decisions of its citizens and public officials. The efficiency, attractiveness, and well-being of the community is determined, in part, by the ability of the Town to plan for its needs and to find a mechanism to put planning goals into action.

Previous elements of this Plan have been centered on existing conditions, probable trends, and policy development which, when combined, represent a vision for the kind of Town that Bradford desires for the future. One thing is certain: the community will change. Citizens and Town officials together can direct this change, consistent with their desires, using a variety of mechanisms.

The following sections describe the tools and techniques that could be used to implement the Bradford Town Plan.

Adoption of the Plan

Adoption of the Bradford Town Plan by the Selectboard, in accordance with the procedures outlined in the Vermont Planning and Development Act [24 V.S.A., Chapter 117], is the first step in putting this Plan into action. Through its adoption, the Town accepts the principles and policies as set forth in this Plan as in the public

interest and as a guide for the future growth and development decisions affecting Bradford.

Ongoing Planning

Planning for change is a continual process for Bradford and will require the involvement of the Planning Commission and the public to ensure that the goals and policies of the Plan are integrated into the decisions affecting land use, taxation, and public investments in Bradford.

The quality of a Town Plan is reflected in the amount of public involvement in its creation. Regular community meetings, held by the Planning Commission, which discuss critical issues relevant to the Town Plan will ensure that the document truly reflects the vision of the residents of Bradford.

The Bradford Town Plan is a dynamic document reflecting the community's visions and values. By statute [24 V.S.A., Section 4387] the plan must be revisited at least every eight years to be kept relevant. The Planning Commission is responsible for the maintenance and amendment of the plan. Within the next eight years following adoption of the plan, the Planning Commission will need to evaluate the plan in light of new conditions and needs. Adoption of an updated plan will require notice to the Townspeople and action by the Selectboard.

At any time, following adoption of the plan, the Selectboard may request the Regional Commission to approve the Plan or amendments to a plan. Before approving a plan, the Regional

Commission shall find that the plan meets four basic tests [24 V.S.A., Section 4350(b)].

Approval of the plan provides an improved legal standing for Bradford to influence and integrate its planning policies with State agency planning affecting land use.

Implementation Tools

Vermont law enables Bradford to implement the adopted Bradford Town Plan through a variety of ways. Regulation of land use and development through rules adopted by the voters is one possible method. Because these regulations are susceptible to legal challenge and must clearly benefit the public, discretion must be used. Well recognized and utilized means include, but are not limited to, zoning bylaws and subdivision regulations.

Much of the work required for implementing the Plan will be the responsibility of the Planning Commission. Throughout this document there are recommendations that the Planning Commission act or at least investigate the potential impacts of action. However, other boards, such as the Conservation Commission, Selectboard and Water and Sewer Commission as well as TRORC may also have a role to play in the implementation of this plan. The following text outlines the tools that should be used to implement the recommendations of this plan.

Zoning Bylaws

Zoning bylaws are a commonly used method for guiding development at the local level. Zoning may regulate:

- Uses of land (including density of use)
- The placement of buildings on lots,
- The relationship of buildings to open space, and
- The provision of parking, landscaping, and open space.

The Town of Bradford has had zoning regulations for many years. However, changes in the patterns of land use, the economy and demographics all influence the way land use regulations should be implemented. What may have been appropriate 20 years ago may no longer be the best choice for Bradford's citizens. In several sections of this Town Plan, there are recommendations for the Planning Commission to implement changes or additions to the zoning that would allow for the creation of new zoning areas, the protection of natural resources and adjustments in density, lot coverage and size of existing zoning Areas. State statute requires that zoning regulations be in "conformance" [24 V.S.A. §4411(a)] with the plan. Therefore, the Planning Commission should be diligent in its efforts to revise the Zoning Bylaws to meet the goals, policies, and recommendations of this Town Plan.

Subdivision Regulations

Bradford recently adopted subdivision regulations. These regulations are administered by the recently

created Development Review Board. Such regulations govern the division of parcels of land and the creation of roads and other public improvements. Subdivision regulations help to ensure that land development reflects land capability, and that critical open spaces and resources are protected from poor design or layout. Subdivision regulations are developed by the Planning Commission.

Flood Hazard Bylaws

Under Vermont law [24 V.S.A., §4411], the Town of Bradford regulates the use of land in a defined flood hazard area adjacent to streams and ponds. The town adopted Flood Hazard Bylaws in 2014 ensure that design and construction activities within the limits of the one hundred Year Flood Plain are designed to minimize potential for flood damage and to maintain use of agricultural land in flood-prone areas. As noted in the Flood Resilience section of this Plan, property owners are eligible for federal flood insurance on buildings and structures at relatively low federally subsidized premium rates. However, such insurance cannot be obtained for properties in Bradford unless the Town has in effect a Flood Hazard Bylaw.

Capital Budget

A capital budget and program are a financing approach that benefits the Town greatly in the selection, prioritization and costing of capital projects. Bradford is in the process of developing a Capital Budget Program. Under the capital budget, a project is selected (e.g., bridge refurbishment), a funding source determined (e.g., general taxes,

and general obligation bonds) and a priority year given for each activity (e.g., construction in 2028). When used in conjunction with the Town Plan and local bylaws, it can be a powerful mechanism for limiting the rate of growth in accordance with the fiscal capacity of taxpayers and other funding sources.

In addition, it is noted that under Vermont's Act 250 law, in granting a Land Use Permit for a major development or subdivision, the Area Environmental Commission must first find that the project is in conformance with the Town's capital budget. [See 10 V.S.A. Section 6086(a)(10).] Accordingly, this mechanism gives the Town an indirect method of implementing its policies and priorities as set forth in the Town Plan.

While Bradford has an informal system of capital programming, the Planning Commission with the support of the Selectboard is formally developing a Capital Budget and Program for adoption.

Act 250

Since 1970, Vermont has had in place a statewide review system for major developments and subdivisions of land. Exactly what constitutes a "development" or "subdivision" is subject to a rather large and involved set of definitions. However, generally, commercial, and industrial projects on more than ten acres of land; construction of ten or more units of housing; subdivision of land into six or more lots; construction of a telecommunication tower over twenty feet in height; and develop-

ment over 2,500 feet in elevation are subject to Act 250 review.

Prior to these activities being commenced, the Area Environmental Commission must first grant a permit. In determining whether to grant a permit, the Commission must evaluate the project in relation to ten specific review criteria.

These criteria relate to the environmental, economic, and social impacts of the proposed project on the community and region. Parties to Act 250 proceedings include Bradford, through the Planning Commission and Selectboard, the State, and Two Rivers Ottauquechee Regional Commission (TRORC). One criterion that needs to be addressed is whether the project is in conformance with the Bradford Town Plan. If a project were determined not to be in conformance with the plan, the Area Environmental Commission would have a basis to deny a permit. Act 250 reviews can take into consideration protection of those types of resources considered important to the well-being of the community. Accordingly, it is in the interest of the Town to evaluate Act 250 projects affecting Bradford and to offer testimony, as appropriate.

Coordination of Private Actions

Citizens and private enterprises have a vested interest in the well-being of Bradford. The actions of the private sector, such as the construction of homes and businesses, land conservation, and the use of land for recreation and agriculture, should relate positively to the goals and policies set forth in this Plan.

It is in the interest of Bradford, through the Planning Commission and Selectboard, to develop a cooperative relationship with private investment activities that may have a significant impact on the community values and policies set forth in the Plan. By working together in a cooperative venture early in the process of planning for a project, an adversarial relationship can be avoided. Contacts that should be maintained include at least the following:

- Green Mountain Economic Development Corporation
- Vermont Land Trust and Upper Valley Land Trust
- Twin State Housing Trust
- Owners of significant properties of high resource or development value, and
- Major employers in Bradford.

Conservation Activities

Conservation programs are an effective means of securing protection of valuable farm forestland and significant natural resources. Techniques available involve voluntary direct work among nonprofit conservation organizations and affected landowners such as donation of conservation easements, bargain sales of land, and limited development schemes.

The land trust movement has grown immensely during the past twenty years, particularly in Vermont. Land trusts offer viable means of bringing together the needs of property owners with the community interests. The Vermont Land Trust,

Upper Valley Land Trust and the Nature Conservancy are particularly well-recognized organizations. Several organizations are also involved in water quality protection. It is the intent of this Town Plan to implement its conservation policies through coordination and involvement of these organizations and others similarly dedicated to public purposes.

Bradford has an active Conservation Commission that administers the Town's Conservation Fund. Continued investment in this fund by taxpayers will allow the Town to ensure that land will be conserved into the future.

The actions identified in each chapter are summarized below with an indication of when the action is currently anticipated to occur, the parties responsible for that action, and potential funding sources for that action. The Town anticipates that priorities may evolve over the 8-year planning period and that some of the actions, once underway or completed, are likely to generate a need for follow-up actions not currently identified in the Plan. Additionally, not all the actions listed may be fully completed within the targeted time horizon. However, the Town of Bradford intends to make as much progress as possible toward the successful implementation of each action.

The Implementation Plan is in Appendix 1

PEOPLE AND ECONOMIC DEVELOPMENT

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Goals:

- 1.To encourage a strong and diverse local economy that provides a diverse economic base which provides jobs and sustains the local economy.
- 2.To support existing and new businesses.
- 3.To support workforce development.
- 4.To encourage a strong and diverse local economy that provides satisfying and rewarding employment opportunities for residents while maintaining the community's rural character.
- 5.To retain and enhance Bradford as a welcoming, vibrant economic hub for residents and neighboring communities.
- 6.To encourage the creation of affordable child-care facilities that meet the needs of Bradford residents.
- 7.To encourage the creation of affordable elderly housing solutions that meet the needs of Bradford residents.
- 8.To be a welcoming and safe place for all.
- 9.To support the local Creative Economy.
- 10.To make outdoor recreation a strong part of the year-round local economy (i.e., "recreation economy").

11.To support safely engaging in outdoor recreational activities such as hunting, fishing, hiking, mountain biking and canoeing/kayaking.

12.To support all forms of recreational activity including Bear Ridge Speedway, snowmobiling, golfing, tennis, skateboarding, horseback riding and skiing.

13.To encourage recreational and creative related businesses.

14.To develop long term planning for municipal recreation and supporting the creative economy.

15.To develop ways to utilize existing public and private facilities (such as the Bradford Golf Course for cross country skiing) for year-round activities.

16.To become a desired destination for recreation and creative endeavors.

17.To support local groups that enhance recreation and the arts.

Policies:

1.It is the policy of the Town to support existing businesses and foster quality development/redevelopment that strengthens the economy, respects the environment, and complements the community's larger goals.

2.It is the policy of the Town to encourage diverse and sustainable businesses in Bradford, which create jobs and contribute to the small-town quality of life.

3.It is the policy of the Town to provide residents with high quality employment opportunities close to home and provide for reasonable zoning standards and infrastructure enabling remote work, home occupations, and home businesses to be developed or to continue.

4.It is the policy of the Town to continue to participate in the Village Designation program while investigating additional designations and tax districts to enable local businesses to take advantage of the program's benefits.

5.It is the policy of the Town to support the development of local enterprises that create markets for locally produced goods and services.

6.It is the policy of the Town to encourage new business development in appropriate locations where services such as roads, water/sewer, fire protection, and power supply are available or planned.

7.It is the policy of the Town to encourage commercial development in the Central Business and Lower Plain Areas.

8.It is the policy of the Town to maintain the pedestrian-friendly village and economically vibrant downtown as centers of community life.

9.It is the policy of the Town to support continued economic vitality of Bradford’s Downtown.

10.It is the policy of the Town to support cost-effective infrastructure improvements to Bradford’s historic downtown area that will encourage economic development and benefit existing businesses.

11.It is the policy of the Town to support efforts to enable residents to work closer to home through improvement of telecommunication infrastructure and other green technologies.

12.It is the policy of the Town to foster good working relationships with economic development organizations, so we ensure having a “seat at the table”.

13.It is the policy of the Town to support the private development of additional childcare facilities to meet the current and future needs of Bradford residents.

14.It is the policy of the Town to support and expand upon youth and family-oriented activities.

15.It is the policy of the Town to support the development of assisted living and other facilities

and services dedicated to supporting all those in need.

16.It is the policy of the Town to support the investment in creative spaces and infrastructure.

17.It is the policy of the Town to support the expansion of the Creative Economy.

18.It is the policy of the town to support the Vermont Creative Network and other networking and partnerships in support of the creative economy.

19.It is the policy of the Town to eliminate disparities across all Town Departments.

20.It is the policy of the Town to promote inclusion and engagement of all community members.

21.It is the policy of the Town to eliminate disparities in the Town.

Recommended Actions

1.To be an active participant in regional economic development planning efforts.

2.To review applications for industrial development with careful attention to environmental and fiscal impacts.

3.To investigate establishing an Economic Development Committee to work with other Town boards to drive Bradford’s economic development goals.

4.To efficiently leverage public funds by identifying and applying for state and federal grant programs that enable economic development activity.

5.To form stronger relationships with organizations involved with economic development, locally, regionally, and statewide.

6.To maintain and improve public infrastructure (water, sewer, roads, flood control, etc.), including by applying for all applicable state and federal grants and by working closely with regional planning groups.

7.To support the agricultural, forestry, and recreation economy as desirable businesses and consider these lands as natural, scenic, recreational, and tourism resources. Care for environmental assets increases Bradford’s desirability as a place to do business and to live.

8.To encourage and support the responsible development of information technology and communication infrastructure necessary for economic growth.

9.To encourage and support commercial building owners to actively recruit new businesses to fill vacant spaces.

10.To periodically review zoning regulations to ensure that home businesses and home occupations are encouraged and permitted.

11.To educate the public on regulations, the permit process, and allowable uses of property.

12.To actively participate in regional efforts to provide all our residents with access to modern telecommunications infrastructure, including broadband Internet access, wireless communications, and community workspaces.

13.To apply to renew the Village Center designation and maintain compliance with requirements of the program.

14.To encourage the development of appropriately scaled commercial uses in the designated Village Center, Central Business, and Lower Plain and Residential Service Areas.

15.To inform existing and new businesses about the benefits provided by the Village Center Designation program.

16.To engage business, cultural, and recreational interests in promoting environmentally friendly tourism.

17.To have the ZA and DRB review applications for new development with careful attention to availability of resources and access.

18.To support actions and projects that reduce needs for private motor vehicle use, expand EV usage, facilitate/expanded public transportation and shared vehicle usage, and increase other modes of transportations such as pedestrian and bicycles.

19.To support the efforts to enhance the attractiveness and welcoming nature of Bradford.

20.To encourage organized agricultural, arts and cultural events.

21.To revisit obtaining Downtown Designation.

22.To utilize the benefits of the Village Designation Program to continue projects such as improving sidewalks and streetscapes within the Designated Village.

23.To investigate obtaining Neighborhood Designated and Growth Center Designations to support a diverse economic base while continuing to keep our historic downtown vibrant.

24.To investigate the expansion of the industrial zone.

25.To investigate establishing an economic development group and funding an economic development position.

26.To investigate the establishment of TIF zones.

27.To support local private sector efforts to assist childcare providers seeking business advice and financial investment.

28.To support and expand on recreational offerings for all ages.

29.To investigate seeking funding for (including grant opportunities) for an economic impact study of the Creative Economy covering Bradford and the adjacent towns.

30.To consider allocating a portion of the ARPA funds to empower the local creative sector in ways which help ensure a strong, resilient, and equitable economy in Bradford.

31.To investigate conducting a study focused on the potential of the Bradford Creative community as a next step to the broader Windsor/Orange study done by the Vermont Arts Council.

32.To review all policies to ensure that they reflect policy to eliminate disparities in both hiring and in the work of the town.

33.To become educated on how to become a welcoming and safe place by seeking out and becoming informed by the State Office of Racial Equity, Vermont League of Cities and Towns' efforts and the state's program, IDEAL (Inclusivity, diversity, equity, action, leadership).

34.To consider adoption of a statement committing to equity work as a first step in a continuing process in this effort.

35.To consider the formation of an Inclusivity Committee to take a leadership role in this endeavor.

36.To maintain contact with Green Mountain Economic Development Corporation, Owners of significant properties of high re-source or development value and major employers in Bradford.

Population Patterns

The 2020 Census data is inconsistent with what we know about our Town's population. However, to date it is the best information we have available. Typically, statistics and projections can shed light on the overall development patterns of rural towns. Rapid population increases can create a demand for

new and expanded municipal services and can strain the financial ability of a town to provide public services economically. Decreases in population can have an impact on the cost of town services, lead to higher taxes and affect the culture of a community as a whole.

According to the 2020 U.S. Census, Bradford’s population remained unchanged over the decade. In 2010, the population numbered 2,797 and in 2020 the population declined slightly to 2,790 though due to Covid it is believed to be artificially low.

Age of Population

One of the most common concerns voiced in the 2007 Bradford Town Plan Survey was a lack of youth in Bradford. Residents feel that as young people graduate from high school, they are inclined to leave town and have been unlikely to return. While Bradford’s overall population has not changed, according to 2020 Census Data, between 2000 and 2020, Bradford has experienced a 23% increase in its population of young adults aged 21 to 34.

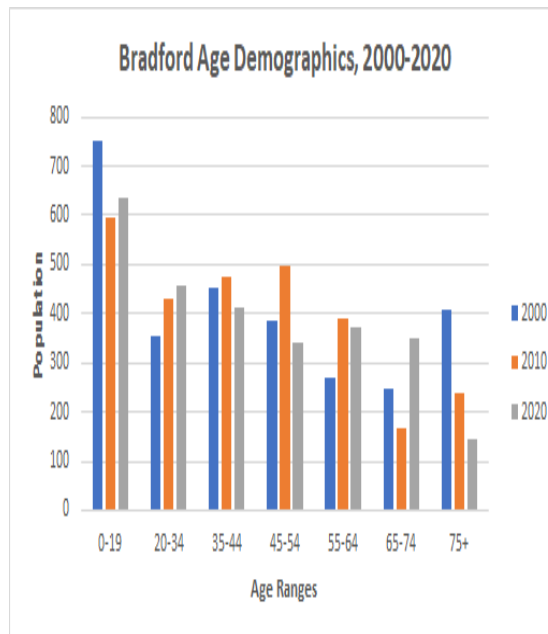
Young working residents are the key to new arrivals, new jobs, retaining old jobs, quality of life, services in rural communities, and leadership. In short, to have a thriving community, Bradford needs to retain young adults while attracting new residents.

While the overall population of Bradford residents aged 0-19 has decreased by 16% since 2000, that number has trended upward with an increase of

6% over the last decade. This modest increase in the population of children correlates with the rebound of residents aged 20-44

In the 2022 Town Plan Survey (hereafter referred to as 2022 Survey) respondents were asked how they would like to see Bradford’s population grow over the next 20 years. While there were a fair number of respondents who would prefer that the population remain stable, most respondents were supportive of growth in population. Many mentioned the need to improve the downtown both physically and in the types of businesses. Some supported a significant increase of 30-40%. There was mention of encouraging the community to be inclusive and support racial and economic diversity.

Over two thirds of respondents felt it was important to encourage Bradford’s youth to stay in



the area along with comments recognizing that high school graduates might initially move away but that there should be an effort to encourage their return. Suggestions on how this could be achieved centered around having good jobs and housing and improving the education that is provided. There was also mention of supporting youth based and family centered activities.

Childcare

Vermont has two classifications of regulated childcare: Registered Family Child Care Home (childcare program approved only in the provider’s residence, which is limited to a small number of children based on specific criteria) and Licensed Program (childcare program providing care to children in any approved location). A Licensed program must be inspected by the Department of Public Safety Inspectors and must obtain a Water and Wastewater Disposal Permit from the Agency of Environmental Conservation. A Licensed program is considered a public building under Vermont Law. Licensed programs include early childhood programs, school-age care, family homes and non-recurring care programs.

Currently there are four active licensed childcare programs and one registered family childcare home. **My Second Home** (Saladino) has twelve slots (2 for toddler and ten for preschool. **Watch Them Grow** (Oxbow High School) is licensed for thirty-eight but currently due to a lack of three staff, has thirty-one children (8 infants, 1 toddlers

and fifteen preschoolers). **Bradford Elementary School** has fifteen preschoolers (the state site indicates they could have 20). **VCP Children's Center** is licensed for forty-one but currently also due to a lack of staff is only able to have twenty-six children. **Emily Bryer** is the only registered home Childcare Center, and her license indicates 6 (2 infant, two toddler and two preschools).

Most residents currently must work from home, arrange for care with friends or relatives or take their children to childcare facilities outside of Bradford. There appears to be few options for after school care for children in kindergarten through sixth grade. Bradford Elementary School does not currently offer an after-school program thought OUUSD is contemplating enabling BES students to participate in Newbury Elementary School's program.

Elderly

As previously noted, while the 2020 census appears to have provided inconsistent data, the population of those over sixty-five has grown. This is consistent with what we know about Vermont and the country.

As some of those over the age of sixty-five become less comfortable with the tasks involved in managing their own homes, they seek some sort of elderly housing. Bradford unfortunately has seen a decline in the number of residential care facilities with only three currently available. (For further details, see Elderly Housing in the next chapter

However, these facilities do not have sufficient capacity for Bradford's aging population. There are other services available to the elderly who remain in their homes including Meals On Wheels, in home care services and an active senior center.

Many older residents choose to either live with their adult children in the Bradford area or relocate to an area where there is availability for assisted and/or nursing care or move closer to their adult children who have relocated out of the area.

Economic Development

According to the 2022 Survey, 69% of respondents do their weekly shopping in Bradford. Over 50% of respondents use the Town's grocery store (Hannaford), gas stations and healthcare facilities. Comments from residents indicated that The Space on Main coworking space, Farmway, Hannaford and the many restaurants were a draw.

Of those residents who shared their household income, 25% had more than \$100,000. Though in Bradford, the median income is lower than the rest of the state, it should be noted that it is diverse economically.

The extension of the municipal sewer to the Lower Plain in the last decade along with improvement to the water lines has enabled the Town to have a grocery store that residents of surrounding towns now frequent along with Bradford's residents. It has also attracted business development with the expansion of Farmway and the addition of a new retail operation, Tractor Supply. Of note, the 2022

Survey indicated that over 77% felt that commercial and industrial development should be focused where both Town water and sewer are available.

In the past, industrial development has occurred in areas without municipal sewer resulting in brownfields on several properties in and around the Industrial Park. There is also a good possibility that the site where the former Bradford Veneer Plant is located is a brownfield. The Town seeks to minimize any future pollution while still fostering growth by focusing support where municipal water and sewer are available.

In the 2022 Survey, 59% felt the Town should provide more small business support.

According to the 2022 Survey, over 77% supported continued development of the Lower Plain Area. Over 85% of respondents favored continued slow growth of the Town.

As with the Build Out and Capacity Study of 2018 (see Appendix) the respondents for the 2022 Survey favored development in the form of 2-3 story buildings of mixed residential and commercial/retail use (72%) versus strip malls (21%) and/or small box stores (30%).

Comments were mixed on some recent developments on the Lower Plain. Though the Town has implemented updated Zoning Bylaws in 2019, the Design Review Standards for this area would need some changes to ensure compliance with this consistently expressed desire of the community.

Creative Economy

Creativity and innovation are the heart of the Vermont brand, attracting tourists and new residents alike, creating jobs, and advancing economic growth. The Vermont Arts Council has set up the Vermont Creative Network, which has divided the State into six different regional zones. A major statewide research study in 2019 on Vermont's creative sector found that the 3CVT Zone, of which Bradford is a part, has the highest creative sector employment statewide and the highest growth rate in creative employment statewide. Employment in the creative industries is about 10.8% of the 3CVT Zone's total employment.

The creative industries as identified in the creative economy report (see Appendix) included visual arts and crafts, media and digital arts, design and fashion, performance arts, literary arts, museums and cultural heritage, and artisanal foods.

As noted in the 2021 Vermont Council on Rural Development Visit report, Moving Bradford Forward (see appendix), there is a high potential for greater community vitality and economic stability to be gained through more focused Town investment in Bradford's artists and artisans as creative economy resources. Also as noted repeatedly in that report, Bradford is a natural economic and cultural hub for the surrounding towns, factors which play into the region's creative economy and have a largely untapped growth potential.

The 2022 Survey results showed strong support (72%) for more concerts and festivals.

Recreation Economy

Recreational activities undertaken for pleasure that occur outdoors as well as sales generated by these activities is increasing exponentially in Vermont and Bradford residents have made it clear their desire for outdoor recreation to be enhanced as an intrinsic part of the Town's livability and economy. The contribution of Vermont's outdoor recreation to the state's gross domestic product jumped from 3.7 percent in 2020 to 4.1 percent in 2021, maintaining Vermont's rank of third highest in the country.

In a 2022 survey conducted by the Parks and Recreation Commission close to 2/3rds of respondents favored the Town seeking grant funding/donations for trail building, skate park, river access park, expanded riverside walking trails, expanding elements to existing parks and creation of an ADA-compliant loop trail.

In the 2022 Survey over 75% of respondents enjoyed the use of Wrights Mountain (the Town Forest), 58% Elizabeth's Park, 48% Boch Park and 55% Artisan Markets and Farms Stands. Respondents identified as their most favored activities gardening (88%) and hiking/biking/swimming (77%)

When respondents were asked in the 2022 Survey what activities they would like to see expanded in Bradford, they said a trail along the Connecticut/Waits River (73%), and more walking/hiking loops (69%).

In addition, 57% felt that there should be more youth activities. In part this links back to the

growth of the community. As youth age and become part of the work force, 68% felt it was important to encourage youth to stay in Bradford. However the comments focused on the need for there to be employment and housing in order to accomplish this.

Taxes and the Cost to Operate the Town

The 2022 Survey found only 22% felt taxes were unreasonable. In fact, 55% felt additional resources should be devoted to Economic Development followed by 46% who felt additional funds for Grant Management would be beneficial.

When asked how they would like to see monies spent, 53% felt more funds should be devoted to improving sidewalks, 64% to providing more resources to Parks and Rec, 54% to Energy Conservation and 50% to increased attention on Economic Development. The only area where a reduced expenditure had any significant support were police but only 24% felt this way.

Village Center Designation

Bradford strives to have its local economy grow at a pace that benefits the community but does not put a strain on municipal services. To encourage new growth and to improve the vitality of the village center downtown, Bradford has been part of the Vermont Village Center Designation Program. Businesses within the area identified by the Vermont Downtown Program

as a Designated Village Centers are eligible for various tax credits, and the municipality is given priority for specific state and federal grant programs, including access to funds exclusively for Designated Village Centers. Several businesses have utilized the tax credits available through the program including renovations at 174 Main Street (The Space on Main) and the Bradford Public Library and the Town has been able to take advantage of its benefits. Because of the priority consideration for grants and specific funding, the Town was able to access over \$40,000 in funds for sidewalk improvements in 2021.as an example.

In the near term, the Town intends to apply for additional funding to continue improvements to the sidewalk system.

In the 2022 Survey, respondents were asked how Bradford's image could be improved so it would be a more attractive destination for visitors and new residents. Overwhelmingly, the comments focused on beautification of the Central Business Area as well as the attraction of retail businesses and restaurants.

HOUSING

Housing

Housing is a key element in the character of a town. The quality, availability, variety, and affordability of a town's housing has a considerable influence on the rate and direction of economic growth and development.

The objective of this chapter is to encourage planning that creates:

- Safe, energy-efficient, and affordable housing for a diverse population of residents.
- A density and distribution of housing throughout the Town that protects the working landscape and reduces transportation energy use.
- Affordable and available workforce housing. (1/4)

Goals

1.To encourage the retention of existing housing and construction of new housing that meets the population growth.

2.To encourage the preservation of historic structures in ways that appropriately serve the need for housing.

3.To encourage the development of affordable senior and ADA compliant housing within the Town.

4.To encourage housing projects that strengthen neighborhoods by adding green space, pro-

moting pedestrian traffic, and improving transportation options.

5.To encourage innovative planning, design, and construction of residential housing such as accessory dwelling units (ADUs) and tiny homes. which minimizes the cost, energy consumption and environmental impacts of housing while maintaining the character of the community.

6.To encourage affordable and workforce housing.

7.To promote sufficient safe, healthy, energy-efficient, and accessible housing that present and future Bradford residents can afford.

8.To encourage innovative planning, design, location, and construction of residential housing that minimizes the cost, energy consumption, and environmental impacts of housing.

9.To encourage and support year-round housing over seasonal and short-term rentals.

10.To encourage the adaptive reuse of historic structures in ways that serve housing needs.

11.To support and encourage housing in the Village Center, Lower Plain and Upper Plain areas that utilizes public sewer and water where available and enables living within walking distance of goods, services, and jobs.

12.To support property owners who face income constraints and physical disabilities with assistance for upkeep and maintenance.

Policies

1.It is the policy of the Town to support the development of multi-family housing within or adjacent to the Downtown, including accessory dwelling units.

2.It is the policy of the Town to ensure that the timing and rate at which new housing units are created does not exceed the community's ability to provide adequate public facilities (e.g., schools and municipal services).

3.It is the policy of the Town to encourage the location of future housing to complement existing or planned employment patterns, travel times, and energy requirements.

4.It is the policy of the Town that the location of housing, related amenities, and land uses should be planned with due regard to traditional settlement patterns, the physical limitations of the site, and its proximity to current or planned public and private services such as roads and commercial/service centers.

5.It is the policy of the Town that safe bicycle parking facilities be provided in new residential or commercial developments.

6.It is the policy of the Town to support energy efficiency in housing construction, siting, and location.

7.It is the policy of the Town to encourage EV charging stations particularly at new housing and commercial developments.

8. It is the policy of the Town to allow for growth of housing for all income levels, age groups, and ability levels, at a rate within the community's ability to provide services in a fiscally sound manner and consistent with the other goals and policies expressed in this Plan.

9. It is the policy of the Town to promote mixed-income housing by encouraging the development of accessory dwelling units, multifamily housing, and manufactured housing (including mobile homes) in locations like where single-family housing is allowed.

10. It is the policy of the Town to encourage multi-family housing within or adjacent to existing Village Center and Lower Plain and Upper Plain areas where municipal services are available.

11. It is the policy of the Town to give priority to the preservation and improvement of housing already in existence.

12. It is the policy of the Town to limit the conversion of housing stock into short term rentals.

13. It is the policy of the Town to support the development of assisted living and other facilities and services dedicated to supporting all those in need.

Recommended Actions

1. Consider assessing impact fees to defray the cost of increases in municipal services caused by development.

2. Review the Town of Bradford Zoning Bylaws with an eye to addressing the following concerns about housing:

a. New housing should be sited to provide pedestrian access to nearby parks, existing sidewalk networks, and recreation areas.

b. Housing projects should minimize highly visible parking areas and retain as much permeable surface as possible.

c. Housing projects should provide access to shops, services, and jobs by as many transportation methods as possible (public transit, bicycle, pedestrian, and automobile).

d. Zoning should be modified to encourage EV Charging stations at multi-family housing and commercial developments.

e. Zoning should be modified for ADUs for greater flexibility while maintaining the character of the area.

f. Zoning should be modified to address the conversion of housing stock into short term rentals.

g. Zoning should be modified to deal with location of refuse (trash, recycling, compost) suitable for tenants and the community.

3. Work with state housing agencies, nonprofit organizations, and lending institutions to ensure the availability of loan or grant funds for Bradford residents to acquire or improve their primary homes.

4. Work with the Bradford Area Housing Committee and TRORC to evaluate Bradford area's role in meeting the region's housing needs by assessing its capacity for growth.

5. Encourage compliance with the state's Residential Building Energy Standards (RBES) for new construction by educating residents about those standards and the need to file appropriate compliance certification (RBES Certificate or Owner/Builder Disclosure Statement) with the Town Clerk.

6. Work with Efficiency Vermont and others to improve energy efficiency in existing homes to reduce long-term costs and energy consumption.

7. Encourage residents and business owners to apply for historic preservation grants.

8. Investigate the benefits of obtaining Growth Center, Neighborhood designation and investigate the housing needs of the community to develop the appropriate housing along with associated commercial and retail development.

9. Continue to maintain strong relationships with various state, regional, local agencies, nonprofits, and other groups to foster attracting new housing development and the ongoing maintenance of existing units.

10. Modify zoning and subdivision bylaws to encourage cluster development so that farms and forests are not fragmented.

11. Encourage rehabilitation of underutilized buildings for housing on the upper floors and commercial on the lower floor in the Central Business Area, Residential Service Area, and the Lower Plain Area.

12. Take advantage of and seek out energy efficiency and weatherization programs to improve our housing particularly in older properties.

Number of Housing Units

According to the 2020 U.S. Census, there were 1,356 housing units in Bradford, with a vacancy rate of 11.1%. Since 2000, the amount of housing units has increased 11%. During that span, a total of approximately 147 new housing units were built. County-wide, it is estimated that Orange County needs to construct approximately 2,113 units to meet its housing demand by 2030. Bradford alone needs an estimated 226 units to meet that projected demand.

According to the 2019 American Community Survey 5-Year Estimates, 29% of Bradford's 1200 occupied housing units are renter-occupied. Over three quarters of those renters spend at least 30% (or more) of their household income on rent. This number of rental properties seems quite high and underscores a need for the Town to do its own housing census and needs assessment.

Types of Housing

The U.S. Census defines a "housing unit" to include conventional houses, apartments, mobile homes, and rooms for occupancy. According to the 2000 Census, Bradford (including the former village of Bradford) has a total of 1217 housing units. Like most of the units in towns throughout Vermont, Bradford's housing stock are predominantly single-family homes, with multi-family homes being a distant second.

Based on the data available, unlike many of the surrounding towns, Bradford has a high rate of rental housing (29%) and a low rate of second homeowners (7%). In Orange County second homes account for 13.8% housing units and in Vermont for 14.6%.

There are positives and negatives to having too many or too few second homes in a town. In a town that has many homes that are not occupied year-round, it can have unforeseen impacts on town services. For example, Bradford's fire department depends on residents to staff its fire department, and a lack of full-time residents can make it difficult to have sufficient volunteers.

Affordable Housing

Affordable housing is defined as housing that costs less than 30% of the county median household income. According to the 2019 American Community Survey 5-Year estimates, "affordable housing" in Orange County is hous-

ing that costs less than \$1523 per month. For homeowners, housing has additional costs including mortgage loan interest payments and taxes. For renters, housing costs include rent and utilities.

With the state minimum wage standing at \$12.55 in 2022, an individual earning minimum wage can expect to earn \$26,104 per year when working a standard 40-hour work week. However VT Futures project found that a young family of three needs at least \$67,000 to meet basic needs in Vermont. While Bradford housing is more affordable than some areas of the state, this illustrates the reality that Bradford, has an affordable housing unit shortage.

To ensure that housing does not become entirely unaffordable, it is important for Bradford to maintain a diversity of housing stock. This requires a reasonable mix of single family, multi-family, units for residents with varying income levels.

A shift has occurred from previous surveys in that respondents in the 2022 Survey wanted to encourage additional housing away from the rural parts of Town and more to infilling in the village and even into the Lower Plain.

While the Lower Plain appears to have been originally conceived as entirely a commercial development area as evidenced by the only stop light in Orange Country and the proposed or actual jug handles for turns on Route 5 and 25, housing has always existed in this area.

Respondents have expressed a strong preference towards continuing the area as mixed use. It is reflected in our current zoning and with improved development review standards, will hopefully move to reflecting more of a traditional village design with both housing and businesses.

In general, while there were still respondents indicating a desire for larger stores such as Kohl's to locate on the Lower Plain, this was not the majority. There was a desire for more restaurants, organic produce, a more responsive hardware store and a variety of other businesses which would fit well into a small village design.

It is well known that Vermont and New Hampshire have a shortage of housing as evidenced in such studies as the "Keys to the Valley."

One way to expand housing is thought to be Accessory Dwelling Units. Respondents in general were not particularly interested in this but those that were indicated that the primary impediment was in funding.

As to how the Town could help to increase housing, the 2022 Survey indicated that 53% supported having the Town work with developers and 47% supported offering tax relief to support those with rehabbing or developing housing.

Elderly Housing

According to the American Community Survey (ACS) for 2021, 31% of Bradford residents were

60 years or older. Of homeowners in Bradford, fewer than 27% are sixty-five or older. Thirteen percent of renters in Bradford are sixty-five or older.

As some of the elderly become less comfortable with the tasks involved in managing their own homes, they often turn to some sort of elderly housing. If health is an issue and some form of constant care is required, an elderly person may need to enter a nursing home or a residential care facility.

In 2004, the closing of the Brookside Nursing Home in Bradford left 107 elderly persons and adults with disabilities without a facility to provide the care they needed. Enhanced Living Inc. (ELI), a private nonprofit, was formed to provide senior housing facilities in Bradford following the loss of Brookside Nursing Home. Working with state officials, private consultants, and community volunteers, over the past five years marketing and feasibility studies were conducted for ELI, pro-forma budgets developed, and a service provider identified.

George and Hazel Pratt made a generous donation of several acres of land on Plateau Acres to house a facility anticipated to contain up to thirty-six beds of assisted living. Among ELI's goals were to build a sustainable, affordable facility incorporating elements of Greenhouse Senior Living Design and utilizing green construction principles to the extent possible.

Margaret Pratt Community Assisted Living Facility

The result was the Margaret Pratt Community Assisted Living Facility on Plateau Acres. There are 32 Assisted Living residents with monthly fees ranging from \$4695 to \$9995 and 16 Memory Care residents with monthly fees from \$7495 to \$10,395.

While some form of housing for the elderly is essential, services available to the elderly are also very important. Programs like meals on wheels, in-home care services and an active senior center are appealing to older residents. Further their existence will provide them with more reasons to choose Bradford as their home.

Other Care Facilities

Blue Spruce Home for the Retired

Blue Spruce Home for the Retired has four private rooms and two shared rooms.

Valley View

Valley View, formerly Oasis is a small private care facility..

Upper Valley Services

Upper Valley Services is an Orange County based nonprofit providing support for those with developmental disabilities and brain injuries. One of its offices is in Bradford with a staff of 14 people. This office serves Bradford and nine surrounding Vermont communities.

The organization provides career services and in-home and shared living support.

Averte

Averte, now a part of Trivium Life Services is a nonprofit with a local management staff of 13. It has 4 licensed homes in Bradford and 41 licensed beds. Its mission is to improve behavioral health and long-term support services by providing a home to people with serious mental illnesses who are unable to be successful on their own.

Valley Vista

Valley Vista is a 99-bed in-patient addiction treatment program with two locations, Bradford and Vergennes. The Bradford location is focused on men and the Vergennes on women in treatment.

Veterans Inc Vermont

Veterans Inc is a rapid response program for transitional housing for up to ten men facing homelessness. They can stay up to two years and mentored to find employment and become independent.

EDUCATION

EDUCATION

Goals

- 1.To provide a safe and secure learning environment where quality educational opportunities are provided for all.
- 2.To promote the best opportunity to educate our students at the most equitable cost to the Town's taxpayers.
- 3.To encourage the offering of college-level and/or technical educational opportunities in Bradford.
- 4.To encourage the development of training programs for solar and heat pump installation as well as for other renewable energy services.

Policies

- 1.It is the policy of the Town to require land development likely to result in a substantial increase in population of school children to be staged to avoid placing an undue financial burden on the Town's ability to provide educational services.
- 2.It is the policy of the Town to provide sufficient and appropriate physical space to meet current and projected student enrollments.
- 3.It is the policy of the Town that new educational facilities should be built to current energy efficiency standards. Existing buildings should be retrofitted to improve energy efficiency to the greatest extent practical.

4. It is the policy of the Town to support programs for afterschool especially for those under thirteen.

Recommended Actions

- 1.investigate obtaining Neighborhood Designation Growth Center designation to increase the amount of housing and sustain student enrollment.
- 2.Investigate providing access to post-secondary education and job training.
- 3.Support community wide access to high-speed internet and cell coverage.
- 4.Support or expand youth and family-oriented activities and resources.
- 5.Work with neighboring towns in supporting the area schools.

Merger

A major change occurred in 2019 when a forced merger under ACT 46 occurred with the creation of Oxbow Unified Union School District (OUUSD) on July 1, 2019. Three former districts were merged into one with oversight of three distinct school campuses in Bradford and Newbury. While the merger under Act 46 was contested by some who argued among other things that community involvement in the individual schools would diminish and attempts were made to undo the merger, the merger eventually became permanent.

Orange East Supervisory Union which oversees OUUSD, Waits River Valley School, Blue Mountain School and Thetford Elementary School relocated

from the second floor of the Bradford Minimart to the former Copeland Furniture store in the Bradford Central Business Area.

Enrollment in the OUUSD schools has been consistent though a dip was experienced due to an increase in home schooling (COVID). The expected enrollment for the 22/23 school year was 673. There is a significant excess capacity particularly at the high school level.

Since the merger, Newbury Elementary School and Bradford Elementary School have been working cooperatively with the objective of a more uniformly prepared student body entering Oxbow High School. The OUUSD Board has worked on a Strategic Plan along with establishing a Budget/Finance Committee and moving towards forming other committees to improve communication and to oversee facilities management.

A significant change in leadership has occurred with changes in Principals at all three schools as well as a new Superintendent and Assistant Superintendent at OESU. The initial bumpy start to the merger has evened out and there is optimism that the education our students are and will be receiving is steadily improving.

Bradford Elementary School

The Bradford Elementary School is located on nine acres of land on the west side of Fairground Road and consists of a one-story building of 28,000 square feet. In 1956 the cafeteria was converted into a classroom, and in 1964 three more class-

rooms were added. A mobile classroom was purchased in 1978 for temporary space, and a major addition was completed in 1985. In 1991 and 1993, additional mobile classrooms with 1,792 square feet each, were added to accommodate increased enrollments. In 2003, Bradford voters approved a \$4.7 million bond to renovate the existing school and add approximately 15,000 square feet. The addition included additional classroom space, special education space, a music room, an art room, a large gymnasium with a stage, additional storage space, a cafeteria, and on-site parking for one hundred vehicles. The total facility is now approximately 44,000 square feet. The existing elementary school facilities should be adequate for the foreseeable future.

The OUUSD still owns a portion of land and the so-called Ag Shop, but Memorial Field and the Field House (golf course club house) are now owned by the Town, and are all located between the Bradford Academy building and the Connecticut River.

Oxbow High School and River Bend Career and Technical Center

Oxbow High School is a comprehensive high school with an area vocational center, River Bend Career and Technical Center attached to it. The combined facility was designed to accommodate tuition students and vocational-technical students from surrounding towns. The existing facilities, are capable of serving seven hundred students which should be adequate for the foreseeable future. However, with growing

employment opportunities in Hanover, Lebanon, and possibly Woodsville, and limited housing available especially in the Hanover/Lebanon area, growth of the Oxbow population may increase even without major growth in the Bradford population. To keep operating costs at a reasonable level for local taxpayers, the school must maintain adequate space and a quality curriculum to attract a substantial number of tuition paying students. The nearly 60-acre site provides athletic facilities and ample space for any necessary future construction.

Higher Education

At present, Bradford has limited opportunities for residents to acquire education beyond high school. There are some continuing education classes offered through River Bend Career and Technical Center and the Oxbow High School. However, there are no post-secondary facilities within the Town. While Bradford and the surrounding area do not have a sufficient population to make a large post-secondary school institution viable, it is possible that a small community college could be successful in Town. The nearest locations for the types of education offered through a college such as the Community College of Vermont or Granite State College, are in Hartford and St. Johnsbury, which are just a 30-minute drive. In some cases, students may not be able to take needed courses at the nearby locations, thus requiring an even longer commute.

In the 2007 Town Plan Survey, residents were asked if there should be post-secondary educational opportunity available in Bradford. The respondents indicated support, with almost 49% in favor, 28% against and 23% undecided.

The Mentoring Project of the Upper Valley

The mission of the organization is to “encourage self-confidence and academic growth among children and adolescents by creating mutually beneficial relationships with responsible adult volunteers” The overarching goal is to mentor and support those relationships through high school graduation via opportunities for wholesome activities, including community service projects and experiences that promote cohesiveness and a sense of community.

Central Vermont Adult Basic Education

Central Vermont Adult Basic Education, based in Barre, has a location in Bradford. Their program offers instruction in learning basic skills (reading, writing, math, computer literacy) English as a Second Language, programs for a High School diploma, GED, and college and career readiness.

UTILITIES AND FACILITIES

UTILITIES AND FACILITIES

Goals

- 1.To preserve, promote and enhance the cultural and recreational values of the Town to encourage the use of these resources by the local population and visitors to Bradford.
- 2.To encourage diverse and environmentally appropriate recreational opportunities.
- 3.To preserve and maintain the Municipal facilities to meet today's needs.

Policies

- 1.It is the policy of the Town to conserve open and undeveloped land, while simultaneously promoting responsible economic development and affordable housing. Productive farmland and forests are particularly important for their contribution to Bradford's economy and environmental quality, and development should not significantly diminish the value and availability of outdoor recreation.
- 2.It is the policy of the Town that public buildings and newly constructed public facilities should be designed to the latest energy efficiency standards.
- 3.It is the policy of the Town to support all efforts to provide Bradford residents with expanded options for high-speed internet access provided those options do not have negative effects on the rural character of the Town.

4.It is the policy of the Town to continue to develop and maintain active sustainable forestry management plans on woodland parcels owned by the Town and the OUUSD.

5.It is the policy of the Town to maintain the historic Bradford Academy so it can continue to be a vital resource for the community.

Recommended Actions

- 1.Conduct a build out analysis of the area covered by water and sewer service to determine the capacity of the existing infrastructure.
- 2.Adopt a procedure for allocating the reserve capacity (based on the build out analysis) to enable a steady growth rate for all uses and to assure the availability of service during the design period.
- 3.Encourage the Central Vermont Solid Waste Management Area to provide more opportunities for the safe disposal of household hazardous wastes, such as compact fluorescent light bulbs, mercury-containing products such as thermostats, bad gasoline, solvents, pesticides, etc.
- 4.Adopt a Capital Budget and Program to plan for anticipated infrastructure maintenance and improvement.
- 5.Work with the Low St. John Forest Committee to improve recreational use of the forest.

6.Continue to coordinate efforts to enhance recreational opportunities on Wright's Mountain.

7.Explore ways to expand recreational offerings to support healthy lifestyles.

8.Work to develop an approach to ensure conservation of resources.

9.Work with the Water and Sewer Commission to develop a fee structure that is supportive of Housing and Economic Development.

10.Develop and implement a maintenance plan for its buildings including the Bradford Academy to ensure they can continue to meet the needs of the community.

Municipal Facilities

The Bradford Academy

The Bradford Municipal Offices moved to the Bradford Academy/Woods School Building, at 172 North Main Street, in 1974 when offices were configured, and a vault added. The Woods School Building, designed by Montpelier architect George Guernsey, was constructed in 1893, and a gym, auditorium, and classrooms were added in 1935. The Bradford Selectboard manages the building under a 99-year lease with the Bradford Academy & Graded School Area; the lease began in 1974 and expires in 2073.

In 1998, a renovation fund and a building committee were created to support the renovations

required by the Vermont Department of Labor and Industry. Townspeople voted twice to spend tax dollars on building renovations, and the Town received a Vermont Community Development grant for \$516,500 to help comply with building codes and the Americans with Disabilities Act (ADA). Community groups have raised funds to replace the auditorium stage curtains and lighting as well as to restore the 295 seats remaining after an elevator installation. A back-up power generator was installed in the building in February of 2002.

In 2011 Bradford voters also authorized the expenditure of funds to make repairs to the roof over the auditorium, improve foundation drainage, and to make energy efficiency improvements to the building.

The Academy building now houses the offices of the Selectboard, the Water and Sewer Commission, Town Clerk, Treasurer, Administrative Assistant to the Selectboard, Zoning Administrator, Listers, and the Police Department. The public spaces (auditorium, gymnasium, and conference rooms) are available for community use, and are commonly used by Town boards such as the Planning Commission, Conservation Commission, Parks & Recreation Commission, and Selectboard for their regularly scheduled meetings. Former classrooms are leased to tenants as offices and studios. The Bradford Historical Society operates a small but impressive historical museum on the third floor.

The auditorium is traditionally used for Town Meeting. The auditorium is also leased out recently to Old Church Theater while their building is being renovated. Various groups have held concerts, shown movies, and held lectures in the auditorium.

The gymnasium is available for open basketball as well as a practice location for Bradford Elementary and Oxbow Union High School teams. Currently the town is in the process of purchasing a protective tarp for the gym floor to enable additional uses such as dances, large meetings, and dance practices.

The building is of tremendous importance to the community both as an historic building and as a gathering place for the community.

Some portions of the slate roof are original, dating back to 1893. Many slate shingles have fallen off the roof, and many more are loose. The Bradford Selectboard had sections of slate roof stabilized in the spring/summer of 2015. Additional work will probably be needed over the next 10 years. The addition to the original structure appeared to shift and should be investigated by a structural engineer.

The 10,000-gallon heating oil tank should be routinely monitored as it was installed in the 1950's. It should be determined whether the Academy will continue to use fuel oil. The Town should investigate improvements to heating, ventilation, and other energy efficiencies and

take advantage of lucrative grants that have become available.

Bradford Fire Station

Built in 1997, the Fire Department had the ribbon cutting in the Spring of 1998. It has four bays. The heating system was recently replaced, and no major renovations are planned in the immediate future. A recent energy audit recommended that the heating system be supplemented with a heat pump which could reduce the amount of propane the station consumes. The station has a large meeting room available to other Town groups. Currently there are two engines and a tanker. Soon there will be a need for an additional engine. Volunteer staffing has become increasingly challenging as many work out of Town now and there is stringent training.

Town Highway Garage

Built in 1991; it remains in good structural condition though recently leaks have developed in the roof and will need to be addressed. Salt shed constructed in 2015. There are two 10-wheel dump trucks, a newer grader, a loader, and a pickup with a dump bed.

The Highway Department has recently instituted a policy of replacing equipment with battery powered devices including chainsaws. No major projects are planned.

Bradford Municipal Water System

Bradford is fortunate to have a high-quality water system. Administered by the Bradford Water and Sewer Commission, the system has a 500,000-gallon, entirely concrete underground reservoir, which was installed in 2000 adjacent to the old reservoir, a 1,000,000-gallon open reservoir which is not in service, and another 500,000-gallon concrete tank constructed in 2012. The new reservoir was designed with direct 12-inch pipeline connections to fill the reservoir directly and to enhance the supply to the Lower Plain area. The supply for the new reservoir is two gravel packed wells. These two wells can supply a total of 800-900 gallons per minute. Bradford's system is both chlorinated and fluoridated and, except in time of emergency, is not subject to surface or air contamination; it complies with the Safe Drinking Water Act. All users have water meters so that an equitable system of charging is made possible.

In 2012 Bradford undertook a major water system upgrade. This involved the construction of a new 500,000-gallon storage tank on Farr Lane, upgrade of the Fairground Road pumping station, and replacement of 15,000 lineal feet of water mains. Some of the mains that were replaced were close to one hundred years old.

The Lower Plain area is supplied by 8-inch and 6-inch mains to the southern Town line. All properties in the Town of Bradford on U.S. Route 5 are served by the water system. An 8-

inch main serves the Pierson Industrial Park. An 8-inch main also extends from the junctions of Route 25 and Saddleback Road, over the bridge crossing the Waits River near the Veneer Mill and eventually connects into another 8-inch main at South Main Street. An 8-inch main runs to Oxbow High School, and up Fairground Road to the northbound rest area of Interstate 91, with a pumping station on Fairground Road and a 5,000-gallon reservoir in the rest area. (See Public Utilities Map.) As development continues in the industrial and commercial areas of the Lower Plain, it will be necessary to upgrade and extend some water lines there to provide adequate water and fire protection.

As a matter of policy, both the Water and Sewer Commission and the Planning Commission think regulated land use is the key to protecting the water quality of the Waits River and to maintain the high quality of the Town water supply. To protect the primary aquifer recharge area for the water supply, the Water and Sewer Commission purchased the lower meadow surrounding the Town wells. It is critical that groundwater drawn by these wells, and then recharged, does not become contaminated by the discharge or seepage of chemical or biological wastes. One future goal is to find a second source of water to be used for back-up and supplemental water supply.

Bradford Sewerage Facilities

In October 1978, the Bradford sewage treatment plant started operation on a 5.4-acre site located off Depot Street. In addition to the plant construction, new sewer mains and laterals were installed at this time where they were necessary to upgrade existing sewer lines. The Public Utilities Map illustrates the sewer service area and is included with the maps in the Appendices.

The sewage treatment plant was designed to treat 137,000 gallons of raw sewage per day to the secondary level. In 2014, the facility treated an average of 65,000 gallons per day or roughly 47% of its designed capacity. The plant's uncommitted reserve capacity is 72,000 gallons per day. There are 293 users presently on the system. Forty-three users have been added to the system since 1998.

A 5-year project to update the sewage treatment plant was completed in 2007. The open lagoon was replaced by a 200,000-gallon cement storage tank. The treatment plant had significant upgrades to all operating systems and to the building. The total cost of the upgrade was \$1,193,961. Funding for the upgrade included a grant from Rural Development for \$633,900, a loan from Rural Development for \$422,600, and a grant from the State of Vermont for \$137,461. These upgrades should keep the plant operating efficiently.

In 2011, voters approved the bond necessary to finance expansion of the Town's sewer system

to the lower plain and the industrial park. The \$2.8 million sewer expansion project was financed by a 55/45% loan/grant package from USDA Rural Development. Bradford's Lower Plain, from the junction of Carson Lane and Route 5, down almost to Lake Morey Road; and Rte. 25, from the Napa auto parts store down to Industrial Drive, as well as the industrial park itself, are now all served by Bradford's municipal sewer system. The project was completed in the fall of 2012.

In the next 5-10 years, the Town should investigate the need and opportunity for expansion of sewer capacity as the Town continues to grow.

Solid Waste Facilities

The Town is a member of the Central Vermont Solid Waste Management District (CVSWMD) that plans for solid waste disposal for its member towns. The Town has contracted with Casella Waste System to operate the transfer station to manage trash, recycling, and composting. In 2019, the Town improved the transfer station in partnership with Casella. Casella operates the transfer station on Wednesday and Saturday from 8am to 4pm.

There is a fee for trash and general recycling. Currently, metal recycling and food waste may be disposed of for free.

Several times a year including at least once in Bradford CVSWMD has a household waste collection day.

The Town does not provide collection services to its residents or businesses, but there are at least three private services available. Subject to CVSWMD rules, these providers are required to collect recyclables.

The state has created solid waste management Areas to reduce the waste stream. CVSWMD is implementing programs under the name of "Zero Waste." These include diversion of food scraps and other organics for composting, diversion of recyclable materials, encouraging the re-use of materials instead of disposal, and urging manufacturers to reduce packaging materials and switch to re-usable or recyclable materials.

The Bradford Conservation Commission received small grants for site preparation and technical support from ten different sources. In-kind support in the form of volunteer hours and equipment has come from High Fields Institute, CVSWMD, and the Bradford Conservation Commission. There is an ongoing food waste program with the restaurants and school cafeterias with collection currently by Sandberg in Corinth.

State Owned Facilities

State owned facilities in Bradford include the National Guard Armory located on Fairground Road, the State Police Outpost located on Route 25, the Vermont Agency of Transportation garage located on Fairground Road, a Park and Ride lot on the corner of Route 25 and Creamery Road, and the Rest Area on Interstate 91.

Recreational Lands

When residents were asked to rate Town services in the 2007 Town Plan Survey, they gave the Town's recreational facilities a passing grade (31% indicated "good", 28% indicated "fair"), but felt there was room for improvement. The need for improved recreation facilities and opportunities was voiced strongly in the survey's "open answer" section where residents suggested that Bradford should have such amenities as walking or biking paths, improved tennis courts, a swimming pool, and a larger skating rink. In 2007, the Town established the Parks and Recreation Commission whose purpose is to consult with and advise the Administrative Assistant and Selectboard in all matters affecting recreation programs, parks or facilities including maintenance, policies, and finances. The Commission is also to assist in the development of long-range planning for recreation, park needs and funding needs.

In 2014 the Town established a Recreation Director position which has enabled the Town to coordinate recreational activities in the community. There are also several independent organizations focused on youth activities (Bradford Youth Sports, Bradford Youth Football, school activities, scouts, etc.).

Bradford has many recreational facilities within its borders, although they are not all owned by the Town.

Town Owned Recreational Lands

Memorial Field

Memorial Field, previously owned by Bradford Academy and Graded School Area (BAGSD) was acquired by the Town as part of the Bradford/Newbury merger into Oxbow Unified Union School District (OUUSD) in 2019. Memorial Field is located east of Bradford's downtown in the floodplain of the Waits River. Formerly utilized by the Bradford Academy, it contains ball fields, a tennis court and the Bugbee boat launch (see below).

Memorial Field along with other lands some of which are owned by OUUSD and some by the Bradford Golf Association are under consideration by the Parks and Rec and Conservation Commission for the development of trails which would be easily accessed from the Central Business Area and the Village Area as well as by the community and visitors.

The Parks and Rec and Conservation Commission are also investigating the opportunity to enhance the useability of the ball fields which is complicated due to the Memorial Field being prone to flooding.

Bugbee Boat Launch

The Bugbee Boat Launch is leased by the Town to the State Fish and Wildlife Department. The Bugbee Boat Launch allows boat access to the Waits and Connecticut Rivers. There is parking

for up to ten vehicles as well as a small area for camping. The Campsite is managed by the Upper Valley Land Trust and is part of the Connecticut River Canoe Trail.

Wright's Mountain/Devil's Den Town Forest

Wrights Mountain-Devil's Den Town Forest is managed by the Conservation Commission. Since 1994, the Town of Bradford has acquired 517 acres on Wrights Mountain. Through the work of the Bradford Conservation Commission, with the support of the Upper Valley Land Trust, Vermont Housing & Conservation Board, Friends of Wrights Mountain, and other organizations and individuals, this effort has provided to the community an outstanding recreational and natural area. Nine miles of well-groomed and marked hiking trails have been developed and maintained, with more trails planned.

Andrew and Ida Boch Memorial Park

The Andrew and Ida Boch Memorial Park at Bradford Falls is managed by the Parks and Recreational Commission. This scenic park, adjacent to the Bradford Public Library, overlooks the Waits River falls at the south end of the village.

Elizabeth's Park

Elizabeth's Park is managed by the Parks and Recreation Commission. The construction of Elizabeth's Park was a large community effort: 500

individuals worked over a weekend in September of 1988 to finish the park project. Many residents participated in the Park's initial design. In March of 2007, the townspeople voted to accept the donation of Elizabeth's Park from private donors.

Children's Play Structure

The most prominent component of Elizabeth's Park is the large wooden play structure designed with towers, walkways, slides, and mazes.

The structure is in passable condition, though much of the structure is due for repair and/or renovation. The Parks & Recreation Commission working with the Selectboard to develop a plan for these needed renovations.

Dog Park

A dog park opened on September 24, 2022. The park was built through extensive fundraising by the Parks and Rec Committee along with a very dedicated handful of volunteers.

Skating Pavilion

A skating pavilion roof was constructed in 2021 and now enjoys year-round use with picnic tables under the roof where birthday parties and other gatherings occur in warmer weather.

In addition, various groups including the Conservation Commission and the non-profit, Bradford Food and Forest have planted raspberries, fruit trees and a pollinator garden. Local businesses

such as J and M Landscaping have donated numerous plantings over the year as well.

The Parks and Recreation Committee is in the process of developing a master plan for the continued and expanded use of the park.

Denny Park

Denny Park is managed by the Parks and Recreation Commission. It is a small park on North Main Street with picnic tables and a gazebo used for summer music concerts. Hod and Rosemary Palmer along with Ann Denny donated the land for the park to the Town in the mid 1990's to preserve the view across the floodplain at the confluence of the Waits and Connecticut Rivers as well as to create additional parking. It is named in honor of Mrs. Denny's husband. There are restrictions preventing the obstruction of the view, so the Gazebo was placed at the north end. In the very near future, Norwich Technologies will be installing EV Charging stations through a state grant in this parking lot.

Orange Unified Union School District Owned Recreational Lands

BAGSD Playground

The Bradford Elementary School maintains a playground, which is open to the public. A group of community members have raised money to upgrade the playground by adding a play structure. With the help of a grant from the

Wellborn Ecology Fund, the school has been working to add additional features to its schoolyard designed to enhance the curriculum and enable outdoor education. The first phase of these additions included geometrically shaped butterfly garden, improvements to an existing woodland nature trail, an outdoor literacy classroom made from raised beds, establishment of an oak "life cycle" grove, and other plantings. The second phase of additions includes an outdoor amphitheater, plantings to attract birds and wildlife, and a living fence separating the playing fields from the school driveway.

Low-St. John Forest

Low-St. John Forest (owned by OUUSD) is located on Goshen Road, the Low-St. John Forest consists of roughly eighty acres of woodland with trails and picnic grounds. The forest is managed sustainably for timber and currently has a ten-year management plan. In late summer of 2007, the lower ten acres were sprayed to control poison ivy and invasive plants such as barberry, honeysuckle, and autumn olive. The forest was selectively logged in the winters of 2007 and 2008. The Low-St. John Forest is used by the elementary school in all seasons to enhance its science education curriculum. It is also widely used by community members for outdoor recreation activities. In 2020, an outdoor classroom was constructed using timber harvested from the forest. Creating an im-

proved parking lot and a permanent rustic out-house, are projects that have been discussed by the Low-St. John Forest Committee to increase the forest's potential for education and recreation. A recent study investigated providing pedestrian access from the village to the Low Forest.

Meadow Land

There is some land abutting Memorial Field and the Bradford Golf Course that is owned by OUUSD. There has been discussion with OUUSD, the Town and the golf club about the Town acquiring the land to create recreational trails.

Additional Recreational and Community Facilities (private)

Bradford Golf Club

The Bradford Golf Club is located east of the downtown area adjacent to the Connecticut River. Opened in 1924, the 9-hole, par thirty-two golf course is a for profit corporation that is open to the public. The corporation leases the clubhouse from the BAGSD on a 10-year lease basis without charge. They currently have 70-80 members. Greens Fees make up a sizable portion of play. On average 35-40 rounds of golf are played per day in season with roughly 4,800 rounds per season.

Bear Ridge Speedway

Entering its 56th year, Bear Ridge Speedway is a ¼ mile dirt track where races are held on Saturday nights from May until October. It is alcohol-free entertainment geared for all ages. Many residents compete in the various races held throughout the summer.

Bradford Fair

The Bradford Fair, formerly the Connecticut Valley Fair has been operating since 1947. Until recently the fair was located on Memorial Field behind the Bradford Academy. Several years ago, it moved to the Lower Plain off Carson Lane.

It is an agricultural fair with tractor pulls, livestock exhibits and other fun entertainment. In addition, the Fair organization holds other events at the Fairground including for Halloween and the Christmas Holiday.

Several of the buildings at the Fairground were relocated from Memorial Field.

Orange East Senior Center

Located in a building owned by LELAND Properties LLC, Orange East Senior Center operates Meals on Wheels and provides Senior Meals at the property. They also provide Bingo and other Senior activities.

Old Church Theater

The Old Church Theater LLC recently acquired the historic building at the back of the Congregational Church property. The building has been undergoing extensive renovation over the last few years. Currently because the building is under renovation, the Old Church Theater has been holding performances their performances at the Bradford Academy. The Old Church Theater has presented over 28 years of summer productions geared for family entertainment. The actors are residents from various backgrounds, and some have gone on to make a career in the theater world. The theater is open to anyone wishing to act, direct, work backstage, help with set design, ticket sales and more.

Hub Teen Center

The Hub Teen Center, originally located in the basement of the Swenson Insurance building on the corner of Main and Barton Street, is now located in that same building but on street level on Main Street. It conducts a variety of activities for youth in seventh through twelfth grade.

The Space on Main

The Space on Main is a nonprofit community workspace (coworking space) that offers opportunities to the community that are focused on the creative economy, small business and entrepreneurship support, community/civic engagement,

and technology/STEM education. The Space On Main has membership options, rooms that can be rented by the public, as well as a wide variety of programming for all ages.

Bradford Historical Society

The Bradford Historical Society, organized in 1964, is located on the third floor of the Bradford Academy Building where there are displays, meeting rooms and storage areas. Their mission is “Preserve the Past, Embrace the Future” of Bradford. They provide historical seminars, tours and do research upon request..

Libraries

Bradford Elementary School Library

The Bradford Elementary School library encourages K-6th grade students, staff, and community to use its collection of materials numbering around 7,000 items, including books, videos, audio-visuals, and periodicals. If materials outside this collection are needed by the school, staff, or community, the school also has access to the Vermont Automated-Library System (VALS).

Oxbow High School Library

The Oxbow High School library provides unified media services: print, audio-visual, and computer, as well as access to VALS. Available resources include: fourteen computers with Internet connections, a variety of research databases and five computers providing catalog services. The library's collection includes roughly 14,000 volumes, including the periodical collection. A major non-print collection is available. A growing collection of available resources support audio/visual digital technology. The library, like the school, meets ADA requirements and is available to the public during regular hours and by appointment. Along with the resources listed above, the local Vermont History collection draws the public to visit the library.

Bradford Public Library

The Bradford Public Library located at the south end of the village near the intersection of Routes 5 and 25B, the three-story brick building, designed by Lambert Packard, was built in 1895. The building is listed on the national Register of Historic Places. In September 1796, the Bradford Social Library Society was granted a charter making it the first chartered library in Vermont. The present library building was a gift of John L. Woods, and on July 4, 1895, the Woods Library Building was dedicated. The Bradford Public Library is owned by a not-for-profit corporation, with a nine-member self-perpetuating board of trustees, with three

additional trustees appointed by the Selectboard for three-year terms.

The building has one reading room, a children's room, and a young adult room. The third floor is presently only used for storage but has space for potential future use. The library offers seven computers, two laptops, wireless internet access, and two printers available for public use. The library's collection contains 10,000 volumes. The library is connected to the VALS, which gives it access to the libraries of all Vermont colleges, public libraries, the Vermont Legislature, and the Vermont Student Assistance Corporation (VSAC).

The Bradford Public Library is an architectural gem and is one of the most significant buildings in Bradford's downtown area. Until recently, the building was not handicapped accessible, but a handicapped ramp now leads into the children's room in the lower level and a lift can bring patrons up to the main floor.

While repairs and maintenance have been done, some sections of the building still need additional repair and renovation. The slate roof has leaked badly, which has caused problems. In 2015, it was repaired with support from grants and the Town. Drainage around the building's foundation is a problem, as are outdated mechanical systems. The library is currently involved in a major fundraising campaign to finance the remaining much needed renovations.

Major renovations began in 2018 to make the building accessible to all. It was finally completed

in 2020 despite COVID-19. A new lift connects the main floor and the lower (children's) level. The main level has a private meeting room and refurbished reception/checkout area. An accessible bathroom with a changing table was installed in the lower level and the main floor bathroom was upgraded. The stairway connecting the two levels has been improved for ease of use and safety, new flooring and carpeting have been added, along with several new storage cabinets for the children's craft area, as well as new bookcases for more books.

The library is currently investigating improving air handling quality on the main floor. Additional ongoing maintenance plan for this historic building is critically important.

Parking and patron access is a concern. With limited parking adjacent to the library, other options are being investigated including coordinating with Tri-Valley Transit and possible greater utilization of the parking area behind the building commonly referred to as the Richardson Building.

The library has 1221 accounts including families and individuals). Over one thousand additions were made in 2021 bringing the in-house collection to just under 15,000 items. The library is an integral part of the community and as part of this effort, the library's Wi-Fi is available even when the library is closed. Often as you drive by, a patron will be seen sitting at one of the picnic tables working on a tablet.

Communication Facilities

Most of the telephone-related services in Bradford are still offered via the traditional telephone lines and poles (landline). The primary phone providers are Consolidated (formerly FairPoint and Verizon), which covers most of the Town, and Topsham Telephone Company, which covers a portion of the western area of Town.

Cellular Communications

There is one cell tower located in Bradford on a hilltop off Rowell Brook Road for Verizon Wireless. Cell phone service in Bradford also comes from towers located just south of the Bradford Town Line in Fairlee, north of Town in Newbury, or across the Connecticut River in New Hampshire. Based on responses to the 2007 Town Plan Survey, residents feel cell coverage could use improvement and even expressed a willingness to permit cell towers in Town provided they were properly sited.

High-speed Internet

There are presently four ways to access the internet in Bradford: landline, DSL, cable, and satellite.

Landline access is the most available to residents, but speeds over a telephone modem are awfully slow and given the ever-increasing need for bandwidth in day-to-day use of the internet, they are not practical for more than checking email. The

faster and more stable options available to residents are via cable modem and DSL.

Cable offers consistent bandwidths as it is substantially faster than dial-up. Cable coverage in Town is limited to those areas receiving expanded cable access through Comcast and Spectrum and represents only a fraction of internet users in Bradford.

Digital Subscriber Line (DSL) is very similar to cable in speed. It is less subject to decreases in speed caused by heavy internet traffic because a certain amount of bandwidth is dedicated for each user. DSL is provided to those within the service area of Topsham Telephone, or within three-line miles of the FairPoint switching station in downtown Bradford.

Satellite Internet is provided by companies such as Dish Network, DIRECTV Wild Blue and Starlink and is an option for residents who are unable to access the internet via cable or DSL provided they have a clear view of the southern sky from their locations. Although bandwidth over satellite is on average three times faster than a dial-up connection, it is more expensive than other methods of access and it can be affected by heavy weather such as torrential rains and blizzards.

It is likely that as many as two-thirds of the households in Bradford have access to the internet only via landline or satellite modem. When surveyed, nearly 80% of respondents indicated that they would like to see the availability of high-speed internet access increased. Because of the difficul-

ties in convincing cable and DSL providers to extend their coverage areas, other towns in the Upper Valley have considered alternatives to those listed above. In some cases, wireless internet providers have placed towers in towns that provide wireless broadband access to those within line-of-sight.

In recent months, Bradford has become a member of EC Fiber which plans to provide service to all our residents through Fiber optic cables. These offer the fastest connection speed available. It is anticipated to take several years to reach all Bradford residents.

HEALTH AND EMERGENCY SERVICES

HEALTH AND EMERGENCY SERVICES

Bradford’s vision for health, wellness and safety is that all citizens in the community have access to high quality, affordable, physical and mental healthcare through local providers; that employers and individuals support healthy lifestyles and environments; that the well-being of children is a central focus; that prevention, personal wellness and freedom from pain are strong areas of focus from birth to death; that domestic violence and substance abuse are unacceptable in our families and community; that all citizens have adequate health and wellness support to remain in their homes and remain integrated in their community; and that all residents have access to prompt and effective services in the event of an emergency.

Goals

- 1.High quality medical care should be available to all Bradford residents.
- 2.Well-equipped and well-trained emergency services personnel (police, fire, and EMS) should serve all Bradford residents.
- 3The Town should promote health and wellness.

Policies

- 1.It is the policy of the Town to support efforts to provide residents with access to high quality physical and mental healthcare through local providers.
- 2.It is the policy of the Town to support programs that expand medical coverage or improve medical services in Bradford.
- 3.It is the policy of the Town to maintain, enhance and expand recreational opportunities in Bradford.

Recommended Actions

- 1.Explore whether the Fast Squad should officially become part of the Town government.
- 2.Ensure all emergency response personnel are trained in the NIMS system.
- 3.Investigate ways to share costs with other neighboring towns for essential services.

Healthcare Facilities

Healthcare facilities are essential in the prevention, treatment, and management of illness, and in the preservation of mental and physical well-being through the services they offer. Rural locations such as Bradford are served by small facilities that can assist residents with general

healthcare needs but are not suited for more complex acute care services that require specialized services and equipment.

The lower population density of Vermont’s rural countryside, and the larger area over which the population is distributed, can make providing adequate healthcare more difficult, particularly care for the elderly who may not be able to drive themselves to major healthcare facilities.

Likewise in rural areas, emergency care for severe trauma or major acute illnesses such as stroke and heart attack may take longer response time compared to more populated locations, risking potential loss of life.

However, Bradford has private health providers, including physicians, chiropractors, dentists, optometrists, pediatric services, two full-service pharmacies, health clinic, therapeutic care, and a state licensed alcohol and chemical dependency treatment center. Major healthcare facilities in Bradford include Little Rivers Healthcare, Clara Martin Center (for Mental Health) and Upper Valley Pediatrics.

Bradford Fire Department

The Bradford Fire Department currently has 20 members and serves Bradford and is part of the mutual aid network. It also responds to all automobile-related rescue calls. In 2022, the Bradford Fire Department responded to 206 calls, a 58%

increase from the previous year. This included structural fires, chimney fires, motor vehicle accidents and mutual aid calls. The Fire Department receives policy advice and oversight from the Bradford Public Safety Commission. The Commission is also the point of contact for any complaints regarding the Fire Department.

Fire Department-Staff

Twenty-volunteer firefighters staff the Bradford Fire Department. The department needs additional volunteers to serve as firefighters, to help raise money, and to help care for the equipment, but like many volunteer fire departments in Vermont, finding new volunteers is increasingly difficult. This is a widespread problem statewide. The effects of an aging population, many residents working outside the Town limits, and the many State and Federal requirements for training have taken a toll on the pool of interested volunteers. In the future, there may need to be a combination of paid and volunteer members.

Fire Station

The Bradford Fire Station is located on 135 Carson Lane, just south of Bradford's downtown. The station was built in 1998 by the Town and contains six bays for fire and rescue vehicles, an office for the fire chief, and a large meeting room equipped with a kitchen. The building itself is in good condition, needing only routine maintenance such as painting. In February 2014, the heating system serving the fire station's truck bays was found to be badly deteriorated and was emitting dangerous amounts

of carbon monoxide. The heating system was replaced in March 2014. Storage, however, is at a premium in the fire station, and soon there may be a need to add some sort of structure for equipment storage.

Fire Department Vehicles

The Town of Bradford owns four fire trucks:

- 1994 E-One engine
- 2008 E-One Pumper/Rescue truck
- Two thousand tanker (lacks pump)
- 1993 Chevrolet 3500 pickup truck, equipped and operated as a "forestry truck" A Trailer used to refill air cylinders and serve as a command vehicle.
- Vehicle that was formerly an ambulance
- Engine two

The 1994 E-One truck is reaching the end of its useful life. The truck is having increasingly frequent mechanical problems and replacement parts are sometimes difficult to obtain. This truck will need to be replaced soon.

The forestry truck is also reaching the end of its useful life and will need to be replaced soon. This four-wheel drive vehicle is used to reach emergency scenes in sections of Bradford and on roads where larger apparatus would have a difficult time. Although Bradford has few forest fires, the forestry truck is used often where there is a fire or other emergency on a muddy unpaved road or wherever a larger truck could not easily reach.

The Fire Department is working closely with the Public Safety Commission to identify what the next steps for replacing these two very important trucks should be.

There has been discussion about obtaining a "Quint" which includes an aerial apparatus as well as a basic engine truck.

The Town currently belongs to two mutual aid groups, "Hanover" which includes towns to the south of us and Piermont and "Twin State" which includes towns to the North and East of us. It is from these mutual aid groups that the Town has an aerial truck (located in Hanover and Woodsville). However because it takes some time for this apparatus to reach Bradford, its benefit is greatly diminished.

Fire Department Structure and Funding

The Bradford Fire Department is a municipal department. The Selectboard appoints chiefs and officers in consultation with the members of the Department. The Department budget is part of the annual municipal budget.

Police Protection Services

Currently Bradford has a full-time police Chief, a full-time police officer. And a part time secretary. There are currently no part-time police officers. The Police Department receives policy advice and oversight from the Bradford Public Safety Commission. The Commission is also the point of contact

for any complaints regarding the Police Department.

In 2022, the Department responded to 621 incidents, made fifty-six criminal arrests, and executed fourteen search warrants. They also made 101 traffic stops.

State Police from St Johnsbury barracks provide supplemental police coverage for Bradford..

Police Equipment

The Police have two vehicles: 2013 cruiser and 2022 cruiser.

The 2016 will need to be replaced in the next several years.

Currently the VSP provides free dispatching services, but it is likely soon that Bradford will need to contract for dispatching for our Police Department.

Emergency Medical Services

Bradford FAST Squad

The Bradford Fast Squad answers medical calls initially. The Fast Squad has six members trained in handling medical emergencies. The purpose of the Fast Squad is to provide immediate response to emergencies while Upper Valley Ambulance is en-route to the scene.

EMTs in Bradford respond to calls using personal vehicles. (If the Fire Department also responds

they usually use the rescue truck and are trained in vehicle extrication skills.) The FAST squad is an independent organization and not a Town department, but the Fast squad receives almost all its funding through the annual municipal budget. The number of volunteers is 8 (two paramedics, one Advanced Emergency Medical Technicians, three EMTs, one Emergency Medical Responder and one member who has completed their Emergency Medical Responder Course and should be certified soon. In 2021, the call volume increased from 454 in 2020 to 484 calls. Attracting volunteers is becoming harder.

The Automated External Defibrillators (AEDs) need to be routinely upgraded and/or replaced. Currently two AEDs need replacement and four should be upgraded. A new office computer is also needed.

Upper Valley Ambulance

Upper Valley Ambulance (UVA), in Fairlee, provides emergency medical transportation.

UVA provides primary 911 ambulance coverage to nine communities, including Bradford, Corinth, Fairlee, Strafford, Thetford, Vershire, and West Fairlee in Vermont, and Orford and Piermont in New Hampshire. In addition to emergency services, UVA provides non-emergency ambulance transportation to hospitals, nursing homes and residences.

At its Fairlee facility, UVA offers training in basic CPR and first aid as well as formal EMT training for all fast squads and fire departments in the surrounding area.

The Town of Bradford pays an annual per capita fee to UVA for its services. Residents who feel that their insurance may not cover the cost of medical transportation can become members of UVA. A household membership is available which provides unlimited necessary medical transport without additional cost above any insurance benefit payment.

Bradford Resilience

In response to COVID-19 a group of concerned citizens came together to form Bradford Resilience, which soon became an official commission of the Town of Bradford in 2020 to ensure coordination between organizations responsible for food access, health access, emergency services, schools, Town government and more.

The purpose of the commission is to bring together representatives from all sectors of the community think tank, particularly in times of crisis; to support, mobilize, and coordinate volunteers, and to make recommendations to, cooperate with, and communicate with Town officials, commissions, groups, organizations, and appropriate agencies of regional and state government.

Municipal Emergency Management

The Town of Bradford has an Emergency Management Director (EMD) who oversees the Town's responses to all types of emergency situations. The Bradford Emergency Management Coordinator assists the EMD. The Emergency Management Director and Coordinator are trained in the National Incident Management System (NIMS), and emergency situations and future capital investments are managed in accordance with NIMS protocols.

Bradford Food Shelf

Located in the basement of the Bradford Academy Building and run by the Inter-Church Council, this food pantry is open to all those in need of food assistance. It primarily serves the residents of Bradford, Corinth, Fairlee, Newbury, and Topsham.

ENERGY

ENERGY

In accordance with statewide initiatives to reduce greenhouse gas emissions and transition to an equitable energy system, Bradford should pursue the best practices in design, siting, and construction techniques with a goal of achieving net-zero before 2050. Bradford should also pursue strategies that: (1) support the decarbonization of the transportation sector; (2) significantly reduce the amount of thermal energy required; and (3) encourage that new construction to meet efficient energy standards.

Goals

- 1.To increase energy efficiency.
- 2.To decrease the use of Green House Gas resources.
- 3.To reduce energy consumption in all Town and school buildings.
- 4.To reduce greenhouse gas emissions, acid rain precursor, and other environmental toxins.
5. To encourage patterns of land use and development that use energy most efficiently, and that do not increase the use of non-renewable energy.
- 6.To promote the construction of energy efficient homes and buildings to lessen or postpone the need for sources of costly additional energy.

7.To increase the use of public transportation in coordination with other modes of transport.

8.To increase the use of non-fossil fueled powered transportation as well as bike and pedestrian modes of transportation.

9. To participate in regional and statewide strategies and approval processes which reduce the requirement for non-renewable energy.

10.To increase awareness and use of energy conservation practices.

General Energy Policies

1.It is the policy of the Town to reduce energy consumption in all municipal activities, including buildings, transportation, and Town services.

2.It is the policy of the Town to evaluate the installation of a municipal/downtown renewable heating/energy system.

3.It is the policy of the Town to oppose plans to locate industrial scale generation and transmission facilities in Bradford that exceed five acres in size.

4. It is the policy of the Town to oppose industrial scale generation and transmission facilities that would be located where water and sewer infrastructure already in place.

4.It is the policy of the Town to participate in the Public Service Board (Section 248) review of new and upgraded generation and transmission facilities as necessary to ensure that adopted

community standards are given consideration in proposed energy facility development.

5. It is the policy of the Town that commercial energy generation facilities comply with Bradford's zoning and subdivision bylaws.

6.It is the policy of the Town to have the maximum tower height for net-metered or similar off-grid wind energy facilities to not exceed fifty feet in total height.

7.It is the policy of the Town that power generating facilities and accessory structures must meet the minimum setback requirements for the zoning area in which they are located.

8.It is the policy of the Town to encourage ground installations to be in locations that minimize their visibility such as a side or rear yard and be screened from view of public rights of way and adjoining properties.

9.It is the policy of the Town that ground mounted solar and wind energy facilities shall not be located within the 100-year flood hazard area or fluvial erosion hazard area or within fifty feet distance from the top of bank of any watercourse.

Electric Energy Policies

1.It is the policy of the Town that prior to the granting of easements for the construction of additional or upgraded transmission or distribution lines or related facilities, utilities shall demonstrate that such public investments are

justified to improve efficiency and to promote energy conservation for the consumer and for the Town.

2.It is the policy of the Town that expansion and efficiency improvements to the Waits River Dam hydro-power generators and transmission facilities are encouraged where such investments clearly benefit the residents of the Town and the region.

3.It is the policy of the Town that hydro-power development should not diminish water quality, habitat, or recreational opportunities. "Run-of-the-river" projects are preferred to projects, which require impoundments with low or minimum flows.

4.It is the policy of the Town that small scale wind-power generation facilities are to be encouraged. Design plans must consider placement of such facilities in locations where reasonable measures have been employed to mitigate adverse impacts to health, public safety, and the environment.

5.It is the policy of the Town that large scale wood using projects, such as power generators and wood pellet production, must demonstrate that the project's demand for wood will occur in a sustainable manner.

6.It is the policy of the Town to encourage the recovery of methane from solid-waste and agriculture sites for use as an energy source wherever feasible.

7.It is the policy of the Town to encourage and support the use of solar power.

8.It is the policy of the Town to encourage and support the conservation of the use of electricity.

Transportation Policies

1.It is the policy of the Town to endorse transportation practices that promote energy efficiency, which include cycling, walking, non-fossil-fuel powered transport, public transportation, and ride-share programs to reduce the region's dependency on single vehicle trips.

2.It is the policy of the Town that any private land use development shall include transportation infrastructure and services that promote public transportation and/or provide the necessary right-of-way to allow public investment in those facilities.

3.It is the policy of the Town that all transportation systems incorporate design and location principles to complement the recommendations set forth in the Land Use Element of this Plan.

4.It is the policy of the Town to encourage the maintenance, continued operation and expansion of the Connecticut Valley railway line to include passenger service.

5.It is the policy of the Town to encourage employers to support the use of public transit, carpooling, non-fossil-fuel powered transit as well as bikes and walking by their employees.

6.It is the policy of the Town to encourage development patterns resulting in more energy efficient transportation patterns.

7.It is the policy of the Town to encourage Bradford Elementary, Oxbow High School and Riverbend Technology be encouraged to include energy efficiency and conservation in their plans and daily operations.

8.It is the policy of the Town that social and civic services, housing, employment, and retail growth should take place in the village center or within walking distance of the village center and in the LPC Area.

9.It is the policy of the Town to support the expansion of business-related telecommunications.

10.It is the policy of the Town to encourage a program to assist landlords to achieve energy efficiencies.

11.It is the policy of the Town to encourage the establishment of incentives for developers to accommodate public transit in their plans.

Recommended Actions

1.investigate converting public buildings in Bradford to economically feasible renewable energy heating systems.

2.consider revising the guidelines for its Revolving Loan Fund to allow low interest capital to homeowners, landlords, nonprofit organizations, and businesses to assist in making cost

effective investments in energy efficiency and renewable energy.

3. Continue to support efforts to expand the Efficiency Vermont and related energy efficiency programs.

4. Encourage Bradford Elementary School and Oxbow High School to include walking, cycling and other transportation alternatives.

5. Investigate programs to encourage a reduction in CO2 emissions by the Town of Bradford.

6. Pursue grants to promote energy efficiency and energy projects

7. Investigate updating Zoning Bylaw to require RBES and CBES to obtain a Certificate of Occupancy.

Background

Sound local planning can play a positive and effective role in guiding energy use by promoting appropriate land use patterns, participating in energy development decisions, facilitating alternative transportation options, and encouraging energy conservation strategies. Sustainable energy use can help to maintain a healthy environment and build a foundation for economic health and stability. The energy security of Bradford depends on being able to provide consistent and sustainable energy services such as heat for our homes, affordable transporta-

tion, and light and energy for our homes and work.

Greenhouse gas reduction must be the basic principle of a long-term energy plan. Bradford cannot rely on carbon-emitting energy sources indefinitely, as these are unsustainable and drive climate change.

Settlement and land use policies affect energy use. A dispersed and inefficient use of land and energy resources can have a significant impact on Bradford's economic future and its ability to meet the state's climate goals. Land use policies and provisions adopted by Bradford should encourage the use of public transportation and carpooling, thus reducing the consumption of energy and the need for additional parking facilities.

Bradford residents have expressed concern over the impact of industrial scale energy developments, particularly industrial-scale power generation and transmission facilities are inappropriate in the Town.

This includes, but is not limited to, industrial-scale wind turbines and their associated transmission facilities. Development of industrial wind turbines generally occurs at higher elevations, often along ridgelines. In Bradford, these areas are among the Town's most sensitive ecological areas, most wild and unfragmented lands, and are highly visible from conservation lands, scenic roads, and dwellings. Such large-

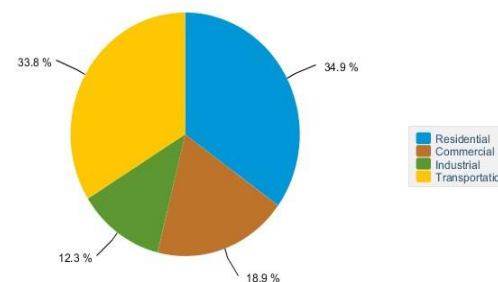
scale energy transmission facilities are inconsistent with the Town's vision and goals.

Energy Demands

The Northeast's per capita residential-energy consumption is like the rest of the United States. In Vermont, almost 80% of residential energy is dedicated to space heating and domestic hot water. Approximately 34% of Vermont's total energy usage goes toward transportation.

Of the energy dedicated to transportation, over half is used to fuel private cars (as opposed to being used for public transit, road maintenance, or another public purpose). This fact reinforces the need for clear policies that reflect the transportation implications of land use decisions in this community

Vermont Energy Consumption by End-Use Sector, 2019



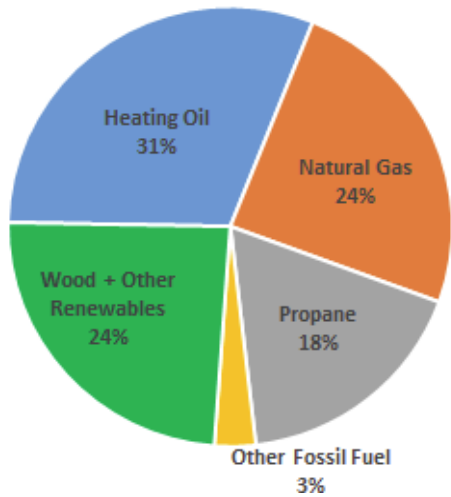
Source: Energy Information Administration, State Energy Data System

According to 2012 data collected by Efficiency Vermont, the Town of Bradford is 15th out of thirty towns in terms of average annual electri-

cal energy use levels in the Two Rivers-Ottawaquechee Region. In 2012, this data (limited only to residential energy use) determined that Bradford the average household used 6590 kWh of electrical energy, which is almost equivalent to the average household electricity usage of all the towns in the Two Rivers-Ottawaquechee Region.

Current Energy Sources

Renewable and Fossil Fuel Heating in 2019



Fossil Fuels

Fossil fuels produce nearly 67% of all energy consumed in Vermont. Vermont consumes less energy

than any other state, but it produces less than one-third of the total energy it needs.

About 50% of the oil consumed in the U.S. is imported. Although Bradford has several large oil and propane distribution companies, a disruption of interstate and international fuel deliveries would pose a severe problem to Bradford residents and businesses.

Bradford, like most other towns in Vermont, relies primarily on fossil fuels for heating and transportation. Fossil fuels account for 50% of all energy consumed in Vermont, much of which is used in transportation and heating.

Fifty percent of homes in Bradford heat with oil, which means a substantial portion of Bradford’s homeowners are subject to the instabilities of a reliance on oil. Vermont’s economic system is so closely tied to the availability of fossil fuels that even modest price increases can lead to inflation, a slowdown in economic growth, and destabilized economy. This can have unanticipated adverse impacts at the municipal and residential level in all communities, including Bradford. For example, increasing fuel prices make it more expensive for a town government to provide traditional public services and maintain existing facilities. Additionally, rising fuel prices can also make it difficult for

residents to feed their family as the price and availability of food is usually influenced by fuel prices.).

The combustion of fossil fuels has been determined to be the largest contributor of atmospheric “greenhouse gases” (primarily carbon dioxide), which accumulate within the earth’s atmosphere to create a “greenhouse effect,” warming the atmosphere and threatening to create coastal flooding, unpredictable climate shifts, and alteration of the viability of the earth’s most significant urban and agricultural centers.

Renewable Energy

Since Vermont Yankee closed in 2014, nearly 100% of Vermont’s in-state electricity net generation has come from renewable resources, the largest share for any state. Bradford currently has a total renewable energy production capacity of approximately 6,333 MWH (2022 TRORC Report Card)

Thermal and process energy use in residential, commercial, and industrial buildings accounts for nearly 50% of Vermont’s total site energy consumption, and 34% of the State’s greenhouse gas emissions.

Renewable Energy Resources

The 2022 Draft Vermont Comprehensive Energy Plan recommends that Vermont meet 25% of its energy needs from renewable sources by 2025, 45% by 2035, and 90% by 2050. Bradford needs to annually generate between 14,903-18,393 MWh of new renewable energy to reach its 2025 goal. The term “renewable energy” refers to the production of electricity and fuels from energy sources that are naturally and continually replenished, such as wind, solar power, geo-

thermal (using the earth's heat to create power), hydropower, and various forms of biomass (trees, crops, manure, etc.).

Although initial setup costs for renewable energy generation systems can be high, these systems can save users money over the long term. They reduce the consumption of carbon-based fuels which helps to protect our environment and reduce our reliance on centralized energy. In Vermont, some of these energy sources are more readily available than others, and some are more cost-effective for the individual energy producer.

Residential scale renewable energy generation systems are generally regulated through the State of Vermont, requiring a Certificate of Public Good from the Department of Public Service. State statute forbids the creation of land use regulations that prohibit renewable energy generation.

The Town is concerned about plans for major development within Bradford and in neighboring towns. These types of developments could threaten the environment and quality of life that Bradford residents value. The Town would like to have the option to be represented at the Public Service Board as an interested and/or average person in all future plans before the Public Service Board.

Energy Scarcities and Costs

There are no scarcities of energy foreseen in the 8-year life of this plan. Our electrical providers

have plenty of power supply resources either under contract or available to purchase currently. Total energy demand is likely to shrink modestly in the near term as population is not expected to grow much and efficiency is constantly improving. There should be ample amounts of heating and transportation fuels for the life of this plan, but the Town must encourage a shift away from fossil fuels to meet the goals outlined in this plan. Wood is a plentiful local source of heating fuel, and many more cords could be sustainably harvested than are being cut now. Plenty of sun is available..

That is not to say that plentiful energy will be cheap. Fossil fuels have varied widely in price over the last several years, and the overall trend is for dwindling supplies with resulting increase in costs. Also, whether it is carbon pricing or other methods, fossil fuels will have to increase in cost to disincentivize their use. The cost of energy is not an issue for some families, but it is still an issue for many and will be less of an issue for all if targets for better insulating buildings, switching to EVs and using heat pumps and advanced wood heat systems are met. An EV has much less maintenance costs, as they have no engine or exhaust system, and the cost of electricity to power a car comes out to the equivalent of about \$1.50 per gallon much less than current gasoline prices.

For many, the cost barriers are not the daily or monthly energy costs but implementing these changes to the existing buildings and vehicles.

There are rebates and programs available that are income-based. Even those that have too much income to qualify, will find that over time these investments pay off, but they would require getting financing or having considerable savings on hand.

Types of Renewable Energy found in Vermont

Solar energy. This type of energy has the potential to provide clean, dependable, and safe energy, even in Vermont's climate. Most areas in Vermont have the potential for some solar energy production, at least at the residential scale.

There are several large net-metered solar arrays in Bradford (>15kW). The largest array has a capacity of approximately 500kW and is operated by Green Mountain Power. There are also over forty small (i.e., capacities of under 15kW) net-metered solar arrays that have been installed in the Town (Energy Action Network 2022)¹

Passive Heating and Lighting. Good building and site design are essential to taking advantage of the sun's energy through passive methods. One particularly simple passive solar

¹ Small net-metered solar installations list can be obtained from Energy Action Network's Community Energy Dashboard:

<https://www.vtenergydashboard.org/energy-atlas>

technology is “solar tempering” of buildings. Solar tempered buildings orient their long axis toward true south and contain an unobstructed, south-facing window area equal to 7% or more of total floor area. Coupled with proper insulation, solar tempering can offset heat costs by 40%. This passive technology requires no additional initial investment. To maximize the passive solar benefits, the building envelope, and the windows themselves need to be well insulated and in the case of windows, coverings are highly beneficial at night and on cloudy days.

Water Heating. Solar water heating is the most usual form of residential-scale solar use in Vermont. Solar hot water (SHW) systems generally consist of a collector, a liquid medium, and a holding tank. These systems rely on the sun's energy to heat the liquid medium, which in turn heats water, supplementing or supplying the hot water needs of the home. Solar hot water offers the fastest payback on investment of any type of solar.

Electricity Generation. Decreasing costs of equipment have made solar electric generation systems more prevalent in Vermont and across the U.S. Photovoltaic, or PV panels can be seen on roofs and arrays around Vermont. The sun's energy creates an electrical charge in the silicon-based solar cells in the PV panel, creating electricity that powers homes, businesses, or whole communities. Residential or commercial PV panels are typically tied into a house or building's electrical supply in an arrangement called

net metering, which feeds any excess power generated back to the local utilities.

Solar arrays do not need to be located on high ground and are therefore less visually prominent. In addition, these facilities can be in already developed areas, requiring fewer access roads, requiring less infrastructure, and reducing adverse impacts on wild lands.

Wind Energy. Like solar, wind energy is an intermittent resource, and its generation fluctuates in response to environmental conditions. The amount of energy produced by a specific wind tower can depend greatly on location, height of the tower, and proximity to other obstructions. Nevertheless, most modern wind turbines (when properly sited) can generate electricity 95% of the time. There are multiple levels of potential wind energy generation, ranging from Class 1 (10-11 mph) to Class 7 (19-25 mph).

Biomass & Biogas Energy Generation. This is another form of renewable energy. The term ‘biomasses refer to biologically based materials such as algae, food or vegetable wastes, grass, wood, and methane. Biomass can be converted into an energy source to fuel vehicles (e.g., biodiesel), heat homes, or even generate electricity.

According to the 2022 Comprehensive Energy Plan (statewide plan) approximately 21-22% of total heating demand in Vermont is currently met by wood heat, with cord wood alone supplying almost 18% of all heating. On a \$/BTU basis, cord

wood, wood chips, and wood pellets are cost competitive with current propane and heating oil prices and are much more stably priced. As the forest product industry shrinks, wood harvesting and processing will make it difficult to provide wood fuel locally.

There are no biomass energy generation facilities in Bradford. Community-scale biomass has the potential to offer cost-effective heating in small, clustered areas. Some towns have implemented combined heat and power systems that run on biomass to heat multiple municipal buildings. This does not seem to be practical in Bradford, given the current technology.

Biofuels, Biofuels and particularly biodiesel, is becoming an increasingly popular option for municipalities attempting to cut costs and reduce the environmental impacts associated with vehicle emissions. The Town could revisit the possibility of using biofuels in their road crew fleet.

According to the Vermont Biofuels Association, biodiesel is a clean-burning alternative fuel, produced from domestic, renewable resources, such as soybeans, sunflowers, canola, waste cooking oil, or animal fats. Biodiesel contains no petroleum, but it can be blended at any level with petroleum diesel to create a biodiesel blend, which can be used in colder weather. It can be used in compression-ignition (diesel) engines or oil-fired boilers or furnaces with little or no modifications.

Growing biomass to use in biofuels may be a viable way to encourage farming or forestry in Bradford as well; however, balance should be sought for land used for energy demands vs. human and animal consumption.

Hydropower. On a small-scale hydropower was once quite common in many locations in Vermont, including Bradford, to grind grain, run mills and even supply electricity to homes. But, with the onset of centralized power, most of these small-scale power generation facilities have been replaced by massive hydro facilities, such as those owned by Hydro Quebec. There is one operational hydropower facility in Bradford which annual produces 5256 MWh of electricity (Municipal Summary Worksheet 2017 and Bradford Energy report card). The Vermont Energy Atlas also identifies potential hydro site on Roaring Brook (located on the Blodgett property) that could have 10-49KW of undeveloped potential.

Landfill Methane. This is also a source of power though currently there is no such facility in Bradford. Decay of organic materials in landfills and wastewater byproducts produce significant amounts of methane, a potent greenhouse gas and potential energy source. Use of methane may provide an alternative to conventional energy production sources. Capture technologies have experienced tremendous growth in recent years rendering methane a valuable energy source, as developed by the Washington Electric Cooperative.

Permitting Considerations

Energy generation in Vermont is subject to a number of different permitting requirements, most of which are limited to state level permitting. State statute protects residential renewable energy generation systems from regulations that will completely prohibit their development.

Section 248

Distributed power generation facilities, such as hydropower dams, fossil fuel plants, and wind power or solar systems owned by utilities, are subject to review and approval by the Vermont Public Service Board (30 VSA §248). Under this law, prior to the construction of a generation facility, the Board must issue a Certificate of Public Good. **A Section 248 review addresses environmental, economic, and social impacts associated with a particular project, like Act 250. In making its determination, the Board must give consideration to the recommendations of municipal and regional planning commissions and their respective plans.** Accordingly, it is appropriate that this Town Plan address these land uses and provide guidance to Town officials, regulators, and utilities.

Energy Generation—Commercial Facilities

For all commercial energy generation facilities, the following policies shall apply:

Preferred Locations

The Town supports the placement of new generation and transmission facilities that reinforce Bradford's traditional patterns of growth, with compact village centers surrounded by a rural countryside, including farm and forest land. The Town also supports renewable energy generation on top of existing buildings, on landfills, on brownfields outside of the village center, on reclaimed quarries or gravel pits, on Superfund sites, or on sites that were previously covered by structures or impervious cover. The Town, by joint letter of the Planning Commission and Selectboard, may designate a site as preferred if it is not visible in the growing season from town or state highways, is not actively agriculture, and is not part of a priority or high priority forest block or habitat connector.

When designating preferred sites, the Town shall also consider the site impacts to include access roads, site clearing, onsite power lines, substations, lighting, and off-site power lines, as well as noise/sound considerations. When energy-generation facilities are going through the permitting process, the development of these elements shall be constructed in a way to minimize negative impacts to the following:

- Viewsheds and scenic areas as laid out in this Town Plan.
- Visibility from Town and state highways.

- Current and potential agricultural activities.

Ground-mounted installations shall use screening to reduce the visual impacts of energy generation, transmission, and distribution as seen from public roads and neighboring properties in accordance with the following:

Without interfering with the project's function, make the maximum use possible of pre-existing vegetation, structures, and topographical features that screen the project on site.

Install screening that distracts the viewer from the project or breaks up the view of the project.

Energy generation facilities that generate more than 500 kW of energy shall, wherever feasible, be combined with continued agricultural use of the land or habitat management, such that soil health and fertility is maintained.

Energy-generation facilities that produce more than 500 kW of energy shall have a management and decommissioning plan that will ensure the land will be returned to its prior condition when it is no longer being actively used.

Prohibited Locations

Because of their distinctive natural, historic, or scenic value, energy facility development shall be excluded from the following areas:

- Floodways shown on FEMA Flood Insurance Rate Maps.
- Fluvial erosion hazard areas shown on Fluvial Erosion Hazard Area maps.
- Wetlands as indicated on Vermont State Wetlands Inventory maps or identified through site analysis; and
- Rare, threatened, or endangered species habitat or communities.
- The Bradford Town Forest

Prime Areas

Prime areas are identified on the Town Plan maps. Prime areas exclude unsuitable areas and locations with constraints, and must be in an area with safe, reliable access to the grid (as determined by the local power provider).

The State of Vermont defines constrained areas as those that "have the potential for renewable energy generation but include known or possible constraints that may make these locations less desirable on a site-by-site basis. These areas are neither preferred nor unsuitable for nonpermanent renewable energy projects. Development in these areas will require more detailed mapping at the site level as well as an evaluation of the impacts on the resources present.

These areas include:

- Historic districts, landmarks, sites, and structures listed, or eligible for listing, on state or national historic registers.

- State or federally designated scenic byways, and municipally designated scenic roads and viewsheds
- Special flood hazard areas identified by National Flood Insurance Program maps (except as required for hydroelectric facilities)
- Public and private drinking water supplies, including mapped source protection areas.
- Primary agricultural soils mapped by the U.S. Natural Resources Conservation Service
- Agricultural Soils (VT Agriculturally Important Soil Units)
- Protected Lands, including State Fee Lands and Private Conservation Lands
- Deer Wintering Areas (as Identified by the Agency of Natural Resources (ANR))
- Act 250 Agricultural Soil Mitigation areas, as identified by ANR.
- ANR's Vermont Conservation Design Highest Priority Forest Block Datasets
- Priority Forest Blocks: Connectivity, Interior and Physical Land Division (as identified by ANR)
- Vernal Pools (as identified by ANR or through site analysis)

- State-significant Natural Communities and Rare, Threatened, and Endangered Species
- Locations that were forested within 3 years prior to the application of the proposed development.
- Locations identified as riparian buffers.
- Hydric Soils (as identified by ANR)
- River Corridor Areas as identified by the Vermont Department of Environmental Conservation
- Class 2 Wetlands as indicated on Vermont State Wetlands Inventory maps or identified through site analysis.
- Primary agricultural soils mapped by the U.S. Natural Resources Conservation Service
- Agricultural Soils (VT Agriculturally Important Soil Units)

Natural Resource Protection:

New generation and transmission facilities must be sited to avoid the fragmentation of, and undue adverse impacts to, the Town’s working landscape, including large tracts of undeveloped forestland and core forest habitat areas, open farmland, and primary agricultural soils mapped by the U.S. Natural Resource Conservation Service.

Protection of Wildlife

Designers must gather information about natural and wildlife habitats that exist in the project area and take measures to avoid any undue adverse impact on the resource.

Consideration shall be given to the effects of the project on natural communities, wildlife residing in the area and their migratory routes; the impacts of human activities at or near habitat areas; and any loss of vegetative cover or food sources for critical habitats.

Energy Efficiency

Energy conservation and efficiency are key elements to sustainable energy use and reduction of GHG emissions. Bradford should promote energy conservation and efficiency and sustainable living in our households, schools, and community buildings and operations where we educate, empower, and challenge our community to inspire change and drive innovation.

While it is essential for homeowners to conserve energy and manage their fuel costs, the upfront capital costs can be an initial barrier to the implementation of thermal efficiency improvements. The Town should encourage partnerships that provide funding, or low interest-rate financing to lower-income residents, people with disabilities, and families to improve the efficiency of their homes.

Under 30 V.S.A. §51, new residential construction in Bradford, like all towns in Vermont, is subject to the Vermont Residential Building Energy Standards (RBES). This statute requires new contractor-built homes and large additions be certified as compliant and recorded in the Town’s land records. However, towns have a limited ability to enforce these standards. Commercial development is also subject to similar standards, called Commercial Building Energy Standards (CBES).

Examples of efficiency and conservation measures that Bradford and residents can take in their buildings and houses include:

- Have an energy audit done to identify the greatest ways to save energy.
- Implement the air-sealing and insulation recommendations of the energy audit.
- Do not heat unused areas of your home.
- Insulate with high R-value (or heat flow resistance) material,
- Use high efficiency windows.
- Install energy efficient appliances like refrigerators, freezers, front loading washing machines, electric or heat pump clothes driers and heating systems without blowers.
- Use high efficiency lighting.
- Use electric or heat pump or solar water heaters.
- Site buildings to make use of existing wind blocks and natural cooling pat-

terns derived from the landscape's topography.

- Site buildings with maximum southern exposure to capture passive solar energy.

Building Energy

New residential development in the State of Vermont must comply with Vermont Residential Building Energy Standards (RBES). Commercial development is subject to similar code regulations. Some examples of the types of development the RBES applies to include detached one- and two-family dwellings, multi-family, and other residential buildings three stories or fewer in height, additions, alterations, renovations and repairs and factory-built modular homes (not including mobile homes).

To comply with the RBES, a built home must meet all the Basic Requirements and the Performance Requirements for one of several possible compliance methods. If the home meets the technical requirements of the RBES, a Vermont Residential Building Energy Standards Certificate must be completed, filed with the Town Clerk, and posted in the home. If a home required by law to meet the RBES does not comply, a homeowner may seek damages in court against the builder.

Municipal Role in Energy Efficiency

Although communities are unlikely to have an impact on energy consumption at the global level,

they do have an impact at the local level, given their demand for and use of energy.

Town leadership can set an example for the residents by ensuring and improving energy efficiency.

Energy Committee

Bradford has an active energy committee whose mission is to promote actions that reduce greenhouse gas emissions and energy costs for the Town, its residents, and its businesses.

Working with state, local, and regional stakeholders and resources, the EC will initiate and facilitate programs that promote energy conservation, increased energy efficiency and the generation and use of clean energy. It was formed for the purpose of establishing and implementing the Town's energy goals. The work that is being done in partnership with TRORC includes conducting energy audits on municipal buildings, tracking energy use for these buildings, and providing outreach to homeowners on energy efficiency and renewable energy generation. Most importantly, an active EC can help the Town and residents save money while saving energy. The Energy Committee has been working with the Intermunicipal Energy Coordinator at TRORC since 2021.

Auditing Municipally Owned Buildings

Many towns in Vermont own buildings that are old and inefficient in many respects. For instance, old-

er buildings often have insufficient insulation, wasteful heating and cooling systems, and out-of-date lighting. These kinds of infrastructure problems result in higher energy use with the resulting cost passed onto taxpayers. Bradford has implemented energy conservation methods that have resulted in reduced fuel consumption and the Town is continually to look for opportunities to conserve.

Capital Budget Planning

Given the potential expense of energy efficiency improvements, it is essential to wisely budget Town funding to cover these costs. State statute enables communities to create a Capital Budget and Program for the purposes of planning and investing in long-range capital planning.

When planning for routine major facility investments, such as roof replacements or foundation repairs, it is important to consider making energy efficiency improvements simultaneously. The cost to replace or renovate a community facility will only be slightly higher if energy efficiency improvements are done at the same time, rather than on their own.

Efficiency Memorandum of Understanding

In addition to reducing the energy use related to facilities, Bradford can continue to implement policies that lower energy use by Town staff or en-

courage greater energy efficiency. Examples include:

Energy Efficient Purchasing Policy – Bradford’s Memorandum of Understanding requires the Town to consider energy efficiency when purchasing or planning for other Town investments. For example, purchasing Energy Star-rated equipment is a well-documented way to increase energy efficiency. Devices carrying the Energy Star logo, such as computer products and peripherals, kitchen appliances, buildings, and other products, generally use 20%–30% less energy than required by federal standards.

Staff Policies - Towns can also implement policies that are designed to reduce wasteful energy practices. Through policy making, local governments can set a clear example for townspeople and encourage sustainable behavior that will ultimately result in both energy and financial savings.

Energy and Land Use Policy

The Vermont Municipal and Regional Planning and Development Act (24 V.S.A. Chapter 117) does not allow communities to impose land use regulations that prohibit or has the effect of prohibiting the installation of solar collectors or other renewable energy devices. However, the statute authorizes towns to adopt regulatory bylaws (such as zoning and subdivision ordinances) to implement the energy provisions contained in their Town Plan.

Zoning and subdivision bylaws should be designed to control the type and density of development. It is important to acknowledge the connection between land use, transportation, and energy when creating zoning and subdivision bylaws to ensure they encourage energy efficiency and conservation.

Encouraging high-density and diverse uses in and around existing built-up areas will lead to more compact settlement patterns, thereby minimizing travel requirements. At the same time, zoning and subdivision bylaws must be flexible enough to recognize and allow for the emergence of technological advancements which encourage decreased energy consumption, and the increased use of renewable energy.

Zoning and subdivision bylaws may contain provisions for planned unit developments (PUDs). PUDs are a grouping of mixed use or residential structures, pre-planned and developed on a single parcel of land. The setback frontage and density requirements of a zoning area may be varied to allow creative and energy efficient design (i.e., east-west orientation of roads to encourage southern exposure of structures, solar access protection, use of landforms or vegetation for wind breaks, and attached structures), and to encourage the construction of energy efficient buildings.

Subdivision regulations are one of the most effective tools for encouraging energy efficiency and conservation. Subdivision regulations involve Town review (through the Development Review

Board) in the design process. Because subdivision regulations govern the creation of new building lots, as well as the provision of access and other facilities and services to those lots, a community can impose requirements that a developer site their building to maximize solar gain. Likewise, subdivision regulations can require that landscaping be utilized to reduce thermal loss.

Energy and Transportation Policy

According to the 2022 Vermont Comprehensive Energy Plan, the transportation sector accounts for approximately 39% of total energy demand and approximately 60% of all fossil fuels used in Vermont.

The rural character and decentralized settlement patterns of Bradford create difficult circumstances in which to minimize the consumption of traditional fuels in the transportation sector. Nevertheless, strategies can be employed at the Bradford Town level.

Because any gains in efficiency may be at least partially offset by increases in population, it is in the Town’s interest to continue to plan for and promote alternative and public transportation options such as rail, bus, vanpooling, ridesharing, walking, and bicycling. These options will not only decrease energy consumption, but will also reduce the infrastructure expenditures that are associated with automobile travel. Bradford is fortunate to have access to existing rail lines and some bus service.

Another strategy to reduce the demand for transportation is to develop settlement patterns that require less travel. Concentrated settlement makes it more feasible to provide public transit, park and ride facilities, ride-share programs and similar incentives that reduce dependency on the automobile. Because transportation is such a substantial portion of local energy use, it is in the interest of the community to encourage any new developments that are proposed in Bradford to be located adjacent to existing roads. Dense residential developments should be located within or adjacent to existing village centers or within designated growth areas.

Commercial development that requires trucking and freight handling should only be located on roads which can effectively manage the size of vehicle needed.

The I-91 Park and Ride lot should be monitored as necessary to accommodate increased use of carpooling and bus transportation to accommodate all who seek to use it. Additional commuter transit including rail needs to be developed. The concentration of employment opportunities, housing, municipal and social services, the expansion of telecommunication capacity, and the increased use of local informational handouts will help to achieve this objective.

The expansion of the Park and Ride should enable further increase in its use. Bradford should continue to research and determine how to reduce municipal use of fossil fuels for its operations, includ-

ing the Highway, Police, Fire, Emergency Services and Water and Sewer Departments, to produce a net energy savings. With the adoption of the Memo of Understanding, departments are encouraged to prioritize energy efficiency in new purchases, including its vehicle fleet.

NATURAL RESOURCES

NATURAL RESOURCES

Bradford's Town Center lies at the confluence of the Waits and the Connecticut Rivers. Together with surrounding steep terrain, US Interstate 91 defines the western limit of the Town Center, and the Connecticut River its eastern limit. Traditionally Bradford's economy was based in agriculture and forestry, and it served as a local center of mercantile business for smaller towns nearby.

Forests, farms, and open land define Bradford's rural character. While the Bradford community wishes to allow appropriate development, it also seeks to maintain its rural character. A landscape including open farmland and working forests attracts visitors and contributes to our tourism industry. A healthy environment enhances our quality of life. Access to natural areas for recreational use promotes physical and emotional well-being. Protection of Bradford's natural resources is vital to the Town's cultural heritage, economic stability, and quality of life.

While it is the intention of the citizens of Bradford to preserve the scenic beauty and quality of wildlife habitat in all areas of the Town, lands that the Town places exceptional value upon for scenic, wildlife, and recreational importance include:

- The ridgelines
- High elevation areas, particularly Wrights Mountain.

- Ponds, rivers, and streams as well as smaller tributaries, wetlands, vernal pools and bear and deer habitat.
- Scenic roads including I91, Route 5, Route 25, South Road, Fairground Road and Goshen Road Historic Area and historic sites outside the designated Historic Area including Goshen Church

Bradford values its ridgelines and other high elevation areas and recognizes the significant importance of these areas to both residents and migratory wildlife. Therefore, commercial, and industrial development at elevations greater than 1700 feet or on ridgelines should be strictly avoided. The Town discourages land development including the construction of roads and extension of utilities at these elevations except for activities related to non-commercial recreation and forest management.

These natural resources provide economic, recreational, and aesthetic benefits to both residents and visitors. Development that would compromise these benefits is inappropriate and inconsistent with the Town's vision and goals.

General Goals

- 1.To ensure Bradford has access to a healthy and productive natural environment.
- 2.To ensure Bradford residents have access to land conserved by the Town.

3.To preserve, promote, and enhance the cultural and recreational values of Bradford and encourage their use by residents and visitors.

4. To maintain non-fragmented contiguous habitat blocks of upland forests, to provide quality wildlife habitat and to provide the ecological services of flood control, erosion prevention and water purification.

General Policies

- 1.It is the policy of the Town to support the Conservation Commission and the Conservation Fund.
- 2.It is the policy of the Town to encourage diverse recreational opportunities.
- 3.It is the policy of the Town to encourage efforts to conserve open, undeveloped land, wetlands, and agricultural lands.
- 4.It is the policy of the Town to encourage incorporating the results of the Town-wide Natural Resource Inventory (Upland Natural Communities and Wildlife Habitat – see Appendices) in land use planning.

Recommended Action

Update the Natural Resource Inventory periodically.

Water Resources Goals

- 1.To maintain and enhance the quality and quantity of drinking water resources.

2.To allow only sustainable use of groundwater resources by new developments.

3.To protect the public right to adequate water quality and quantity.

4.To consider surface water and groundwater impacts and effects when reviewing proposed or existing uses of land.

5.To maintain or improve surface water quality and quantity.

Water Resources Policies

1.It is the policy of the Town to review, monitor and carefully control any land use activities that may potentially threaten groundwater quality to prevent undue loss of groundwater quality.

2.It is the policy of the Town to place high priority on the maintenance and enhancement of water resources for recreation, fisheries, wildlife habitats and quality aesthetics. Water resource policy and practices should protect these uses.

3.It is the policy of the Town to ensure that withdrawal of surface and groundwater by one user should not interfere with the reasonable withdrawal of water by other users. Water is for use by the public and no single user has the right to diminish the quality or quantity for others.

4.It is the policy of the Town to prohibit high-risk uses within the municipal water source (wellhead protection area).

Water Resources Recommended Actions

1.Work with the Water and Sewer Commission to encourage water conservation.

2.Support water quality monitoring and watershed planning for the Connecticut and Waits Rivers.

3.Partner with the Water and Sewer Commission in conducting a mapping study of groundwater resources in the Town..

4.Ensure long-term protection of water resources, the Water and Sewer Commission should continue to develop a detailed protection strategy for the wellhead protection area.

Wetlands and Vernal Pools Goals

To promote land use development practices that will avoid or mitigate adverse impacts on significant wetlands.

Wetlands and Vernal Pools Policies

1.It is the policy of the Town that development or intensive land uses shall not be in significant wetlands or within buffer zones to significant wetlands.

2.It is the policy of the Town that developments adjacent to wetlands should not unduly disturb wetland areas or their function. Mitigating measures to protect the function of a wetland are acceptable.

Wetlands and Vernal Pools Recommended Actions

1.Foster wetland protection, Bradford should continue to refine its zoning and subdivision regulations that contain provisions for the protection of wetlands. The Conservation Commission should work closely with the Planning Commission to develop these regulations.

2.Make readily available to the citizens of Town the wetlands inventory and the Natural Resources Inventory Reports and related maps.

3.Ensure the protection of wetlands the Town should effectively enforce existing bylaws and ordinances.

4.Notify the appropriate state officials of state wetlands and vernal pools violations.

5.Identify, map and establish protective zoning regulations for vernal pools.

Ponds Goals

To encourage the proper construction of ponds, and where feasible, improve firefighting capability and provide recreational opportunities.

Ponds Policies

It is the policy of the Town to maintain and improve at least the current level of zoning controls over the location and building of ponds to

ensure that they are developed and maintained in a manner that will not create a public hazard.

Ponds Recommended Actions

1. Evaluate whether ponds are being properly permitted and regulations properly enforced, and if necessary, steps should be taken to correct situation.
2. Partner with the Emergency Management Director to consider adjusting the conditions under which a permit is required for the building of a pond to include smaller ponds in Town.
3. Consider making ponds holding less than 50,000 cubic feet of water a conditionally permitted use or establish a registry in the Zoning Bylaw. With permits on file, the Town would have a record of where they have been constructed.

Riparian Buffer Goals

To Maintain and enhance riparian buffers.

Riparian Buffer Policies

1. It is the policy of the Town to continue to require riparian buffers for all development adjacent to rivers and streams through the Bradford Zoning Bylaws and their enforcement.
2. It is the policy of the Town to require that riparian buffers be maintained. If banks are unstable or waters more active, the width of the

buffer should be determined by stream morphology.

3. It is the policy of the Town that cutting of trees and other vegetation within a riparian buffer for views, vegetation management, recreational access, and silvicultural purposes should be limited and should ensure that trees regenerate, stumps remain with root zones intact, and a duff layer and tree canopy are maintained.

4. It is the policy of the Town to require that streamside, including riprapped areas, should be vegetated with native shrubs, trees, and grasses. For stream bank stabilization, revegetation should cover as much of the stream bank as possible. Riprap and similar retaining structures should be used only to cover the lower portion of the bank, and only when bio-engineering techniques may not adequately prevent significant loss of land and/or property.

5. It is the policy of the Town that Human access points to the Connecticut and Waits Rivers and their tributaries should be managed to prevent soil erosion, loss of vegetative cover, and unnecessary disruption of riparian habitats. Foot access paths should not be unnecessarily wide, or steep (no greater than 15% slope).

Riparian Buffer Recommended Actions

1. Provide information to every new riverfront landowner to explain the special challenges of owning and managing riverfront land, including

the benefits of riparian buffers and the requirements of state shore land protection laws.

2. Partner with the Zoning Administrator to distribute materials developed by the Conservation Commission to waterfront landowners who apply for a zoning permit.

3. Provide materials developed by the Conservation Commission when new deeds are recorded for waterfront properties.

Plant Communities Goals

1. To minimize the spread of invasive plant species and insect-infected trees in Bradford.
2. To slow the spread of Emerald Ash Borer

Plant Communities Policies

It is the policy of the Town to adhere to procedures recommended in the 2018 Roadside Ash Tree Survey (see Appendices).

Plant Communities Recommended Actions

1. Ensure road crews take care when ditch cleaning to minimize the spread of invasive species such as Japanese Knotweed, Wild Chervil, Wild Parsnip and Purple Loosestrife.
2. Investigate alternative means of controlling invasive species other than the use of herbicides.

3. Develop and/or distribute materials to educate landowners about invasive plant species identification and control.

4. Adequately fund the Roadside Ash Tree Removal Fund to remove trees prior to them becoming a hazard.

Forestry Goals

1. To encourage the conservation and wise management of forests within the Town.

2. To encourage the wise management of public trees in the village with the guidance of the Tree Warden and Conservation Commission.

3. To encourage forest lands to maintain and improve forest blocks and habitat connectors.

Forestry Policies

1. It is the policy of the Town to encourage foresters and loggers to adhere to best management practices for maintaining water quality and minimizing soil erosion on logging jobs.

2. It is the policy of the Town to encourage owners of forest land to enroll in the current use program which will aid in getting the maximum value from their forest, while enhancing wildlife habitat.

3. It is the policy of the Town to support landowners working to reduce the fragmentation of important forest blocks and habitat connectors (e.g., through enrollment in the Current Use Program, conservation efforts or other actions a landowner can undertake.)

4. It is the policy of the Town that wherever practical, development shall be designed and sited in a manner to preserve contiguous areas of active or potential wildlife habitat or in corridors connecting habitats.

5. It is the policy of the Town to strongly discourage fragmentation of forest blocks for roads and other development.

6. It is the policy of the Town that development of interior forest blocks should be located on the edge of such blocks to reduce impacts of fragmentation.

Forestry Recommended Actions

1. Consider designating "conservation areas" within the Zoning Bylaw to ensure that large tracts of forest located on steep slopes have minimal development.

2. Implement the recommendations in the 2006 Tree Inventory and plant and maintain trees within the village.

3. Provide the Town Clerk with copies of the State's Best Management Practices and information about the Current Use Program and make available to the public.

4. Ensure that zoning and subdivision bylaw deter forest fragmentation. Consider expanding the Low Density Residential to include additional forest blocks.

5. Maintain contact with Vermont Land Trust, Upper Valley Land Trust, owners of significant properties in areas identified as forest blocks.

Agriculture Goals

1. To encourage the growth of agriculture while protecting the working landscape, human health, animal health, plant health, consumers, and the environment.

2. To encourage the growth, marketing, and consumption of local foods.

3. To promote self-sufficiency and sustainability through agriculture.

4. To encourage the conservation and wise use and management of the Town's agricultural resources.

5. To support the creation and maintenance of a physical, social, regulatory, and fiscal environment that encourages entrepreneurship in agricultural activities including those that add value to the region's agricultural products.

6. To support programs that educate citizens on the principles of sustainability.

7. To discourage fragmentation of agricultural and forested lands.

Agriculture Policies

1. It is the policy of the Town to support agriculture and the production of locally grown food if it

is conducted at a scale consistent with historical agricultural practices in Bradford.

2.It is the policy of the Town to work with the Vermont Agency of Agriculture Food and Markets and other agencies and groups to develop viable farming opportunities in Town.

3.It is the policy of the Town to encourage the continuation of Current Use Taxation, tax stabilization and other forms of economic reimbursement to keep agricultural lands undeveloped.

4.It is the policy of the Town to support the use of public or private funds for the purchase of development rights or fee purchase of agricultural land for conservation purposes by willing landowners.

5.It is the policy of the Town that when agricultural lands are developed for non-agricultural purposes, the preservation of other prime agricultural lands shall be a priority before mitigation is considered elsewhere.

6.It is the policy of the Town to encourage that residential and other non-agricultural uses or structures be sited on the soils least productive for agricultural use.

7.It is the policy of the Town to encourage clustering of dwelling units and accessory buildings or structures and proposed lots for development or sale so that they conserve the maximum feasible amount of farm, pasture or woodland and discourage fragmentation of agricultural and forested lands.

8.It is the policy of the Town to support local marketing and value added agricultural and forest products.

9.It is the policy of the Town to encourage, where appropriate, use of carbon credits and other sustainability schemes to support local agricultural activities.

Agriculture-Recommended Action

Review and improve zoning and subdivision by-laws to reduce fragmentation by enabling clustering of dwelling units and accessory buildings.

Wildlife Resources Goals

1.To maintain or enhance the natural diversity and balance of wildlife, including natural predators and migratory routes of fish and wildlife..

2.To re-establish stable populations of endangered or threatened wildlife in appropriate habitat areas.

3.To allow ecologically sound intensities of hunting and trapping.

Wildlife Resources-Policies

1.It is the policy of the Town to encourage long-term protection of major habitats through conservation easements, land purchases, leases, and other incentives.

2.It is the policy of the Town to discourage uses that would degrade deer wintering areas.

3.It is the policy of the Town to discourage fragmentation of wildlife habitat. Development other than isolated houses and camps shall be situated to preserve continuous areas of wildlife habitat and create and maintain links between such areas.

4.It is the policy of the Town to give preference to development that utilizes existing roads and field lines.

Wildlife Resources Recommended Action

1.Encourage owners of necessary habitat for threatened or endangered species to contact the Vermont Department of Fish and Wildlife for assistance in developing management plans for these sites.

2.Identify wildlife corridors in Bradford for the purposes of revising the Town's Zoning Bylaw to protect wildlife habitat.

3.Establish beaver confusers/diverters to protect the river beavers along the Connecticut River and Waits River and at any place the beavers locate where they may be of harm to the community.

4.Continue to update the deer wintering overlay area in the Town's Zoning Bylaw.

5.Encourage planting for migratory bird populations and investigate offering incentives to farmers for maintaining crops for this purpose.

Mineral Resources Goals

To support extraction and processing of mineral resources only where such activities benefit the public and are appropriately managed.

Mineral Resources Policies

- 1.It is the policy of the Town that existing and proposed mineral extraction and processing facilities shall be planned, constructed, and managed so as not to adversely impact existing or planned uses within the vicinity of the project site.
- 2.It is the policy of the Town to not interfere significantly with the function and safety of existing road systems serving the project site.
- 3.It is the policy of the Town to minimize any adverse effects on water quality, fish and wildlife habitats, view sheds and adjacent land uses.
- 4.It is the policy of the Town to ensure reclamation and revegetation of sites following extraction.
- 5.It is the policy of the Town to minimize noise and concussive impacts of extraction and mineral processing on adjacent uses including residential areas.

Mineral Resources-Recommended Action

Review and improve zoning bylaws so that mineral resource goals and policies are followed.

Scenic and Historic Resources Goals

- 1.To preserve the historic assets of the Bradford Village Historic area.
- 2.To preserve outstanding scenic areas.

Scenic and Historic Resources Policies

- 1.It is the policy of the Town to preserve scenic areas.
- 2.It is the policy of the Town to encourage land development planned to minimize the unnecessary loss of historic or archeological resources determined to be of local, state, or federal significance.
- 3.It is the policy of the Town when land adjacent to areas of historic significance is developed, to encourage a design that fits the character of the area.
- 4.It is the policy of the Town to encourage preservation and the adaptive reuse of historic buildings complementary to the distinguishing characteristics of the structure or neighborhood.
- 5.It is the policy of the Town to avoid undue impacts on significant historic or archeological resources when conducting public improvements such as road rebuilding and utility construction.
- 6.It is the policy of the Town to preserve the view of the downtown from the crest of Bliss Hill.

Scenic and Historic Resources Recommended Actions

- 1.Investigate the feasibility of designating exceptionally scenic Town roads as Scenic Highways under Vermont's Scenic Highway Law.
- 2.Develop an inventory of all important historic, archeological, scenic, and cultural resources in Town in partnership with the Bradford Historical Society. While it is recognized that a portion of the village is part of the National Register of Historic Places and is a Historic District Overlay in current zoning, there are other sites warranting evaluation. Following completion of the inventory, implementation measures to conserve exceptional resources should be explored.
- 3.Consider establishing design control measures within the Zoning Bylaw to ensure that the Route 5 and 25B corridors entering the Historic Downtown maintain their historic character.

Soils and Topography Policies

- 1.It is the policy of the Town to discourage development on slopes exceeding 15%.
- 2.It is the policy of the Town to employ strict erosion control plans when development is considered in areas more than 10% slope.
- 3.It is the policy of the Town to require that installation of sub-surface sewage disposal systems follow state and local regulations

4. It is the policy of the Town to encourage forestry and conservation uses above other uses in upland areas, given their severe limitations for development.

Conservation Commission

Bradford's policies toward land use can have direct effects on natural and cultural resources. Uncontrolled development can upset the balance of nature. It is therefore essential for planners to consider how development will affect natural resources and to protect them whenever possible. To help guide this effort, the Town of Bradford has a Conservation Commission which has been active at least since 1994 under 24 V.S.A Chapter 118. One primary task of the Commission is to administer the Bradford Conservation Fund which was established in 2002. The purpose of the Conservation Fund is:

- To maintain Bradford's rural character, aesthetics, and scenic values.
- To educate the public on the value of conserving our natural resources and rural heritage.
- To stimulate the local economy through promotion and protection of our natural resources.
- To promote public access to woodlands, wetlands, and open spaces.
- To promote a working landscape by promoting local farm and forest products.

- To minimize conversion of Bradford's best farm and forestland to nonagricultural and non-forestry uses.
- To enhance wildlife habitat, water quality and recreational resources in Bradford.
- To preserve open spaces.

The Conservation Commission released the report in 2014 of the Bradford Natural Resources Inventory, entitled "Upland Natural Communities and Wildlife Habitat" (See Appendix). The recommendations have guided land use decisions in the Town, as follows:

- Large Contiguous Habitat Units (CHUs) provide critical habitat for large, wide-ranging wildlife.
- Forest fragmentation in the larger CHUs should be discouraged.
- Roads, housing, and most other human activities should be restricted to the periphery of these units.
- Roads built for timber harvesting should be allowed to regenerate when logging activities are completed in an area.

Bears require extensive remote areas to meet their yearly habitat requirements. Large areas without roads must be preserved to maintain sustainable populations.

Mapped beech and oak stands and forested wetlands utilized by bear should be protected from development activities with buffers ¼ mile in extent.

Deer winter habitats are critical to the survival and maintenance of deer populations in the Bradford region. Deer winter habitats identified in this study should be protected from human activities by a three hundred foot buffer.

Functioning travel corridors allow for the movement of wildlife across the landscape. Recommendations include taking steps to conserve the most important travel corridors by creating isolation buffers around them to maintain wildlife movement patterns. Limit development to the outside edge of corridors and encourage screening and other actions to limit negative effects of development in or near corridors. Improve vegetative buffer conditions along rivers and streams to provide protected movement opportunities for wildlife.

Water Resources Background

Water resources include aquifers (groundwater) and surface waters. Sustainable yields of quality water are necessary to the life and livelihood of citizens of Bradford. The continued availability of clean, high-quality drinking water is a concern for everyone.

Public Water System

The Town of Bradford owns and operates a municipal water supply and distribution system. Residents and businesses outside the service area depend on private wells and springs for their water supply. The Town also owns old wellheads on the

Upper Plain near the railroad tracks, but these are for emergency service only.

The protection of groundwater supplying the Town is critical, as this is its sole source of drinking water. Because the Town's wells are near interstate 91, accidental spills and discharges of petroleum products and other toxic and hazardous materials are a serious concern. Protection of the wellhead area and its related aquifer from contamination is critical.

The engineers who oversaw the 2012 water project discovered that the Town's well field is overlain by a thick clay layer, which should preclude downward migration of hazardous contaminants. Nonetheless, protection of the Town's water source should remain a high priority. The Water & Sewer Commission is searching for another (secondary/backup) source for municipal water.

Wetlands, Vernal Pools, and Forested Bear Wetlands Background

Wetlands and vernal pools are ecologically fragile areas important to the quality and quantity of water resources.

The Vermont Water Resources Board estimates that less than 5% of the surface area of Vermont is covered by wetlands. Despite the seemingly inconsequential land area they cover, wetlands and vernal pools serve a wide variety of functions beneficial to our health, safety and welfare including

the retention of stormwater runoff, the improvement of surface water quality, the filtration of sediments and pollutants, the provision of habitats for plants, fish and other wildlife, and contribution to the beauty of the rural landscape.

In 1986, Vermont adopted legislation for the protection and management of wetlands [10 V.S.A., Chapter 37]. Determination of whether a wetland merits protection is based on an evaluation of the extent to which it serves the general functions outlined above.

By statute, if land development will have a negative impact on a protected wetland, development cannot begin unless the Vermont Agency of Natural Resources first grants a Conditional Use Determination (CUD). If granted, these CUDs often attach conditions to mitigate negative developmental impacts on wetlands.

The most significant wetlands in Bradford have been mapped and are included as part of the National Wetlands Inventory (NWI) prepared by the U.S. Fish and Wildlife Service. However, many smaller wetlands are not included in the NWI.

In 2005, the Conservation Commission conducted a local wetlands inventory. The inventory identified the largest wetlands to be those located along the Connecticut River and its confluence with the Waits River. These wetlands, plus those determined in the NWI have been delineated, and are included in this Plan.

In Bradford, final approvals cannot be granted for projects involving wetlands unless the Agency of

Natural Resources has first had an opportunity to evaluate the effect of the project on the wetland [24 V.S.A., Section 4409]. Future investigations of wetlands within

Bradford may identify additional areas needing protection.

Vernal pools are temporary pools of water formed in the spring from melt water collected in low depressions in the landscape. Most dry out in the hottest months of summer, and refill in the autumn. Because they are free of fish, they provide shelter for the larvae of insects, frogs, and salamanders. Adults often return to the same pools in which they were born when they are ready lay their eggs.

Vernal pools offer many of the same benefits as wetlands, but they are more difficult to locate. Most seasonal pools are not identified on the Vermont Significant Wetland Inventory maps and therefore are not initially protected by state and federal regulations. Vernal pools provide important amphibian habitat, and because of this function they are protected under the Vermont Water Quality Standards (Vermont Water Resources Board, adopted June 10, 1999).

Significant Wetland Resources

The 2005 wetlands inventory highlighted several significant wetland resources and provided recommendations for management of the areas. See Map 6 – VT Significant Wetland Inventory.

Marshes at the Mouth of the Waits River – At the confluence of the Waits River with the Connecticut River are seven wetlands. Taken together, these form the largest wetland complex in the Town of Bradford, nearly sixty-five acres. Given the nature of these wetlands and their position in the landscape, they significantly lessen the effects of spring floods by diffusing and retaining floodwater. They also filter nutrients and contaminants from nearby agricultural fields and the golf course. These wetlands should continue to be protected by enforcing riparian buffer regulations and discouraging the development of properties in the floodplain that might harm them.

Vernal Pool at the North portion of Low St. John Forest – Vernal pools function as significant habitat for a substantial number of plant and animal species. The conservation of vernal pools and their surrounding habitat is important for the species that rely on them.

Successful conservation of vernal pools extends beyond the pool's edge into the surrounding forest, for the life cycles of the animals inhabiting vernal pools require undisturbed forest habitat.

The 2015 Bradford Natural Resources Inventory includes a map of potential bear wetlands in Bradford and defines them as follows: "Black bear utilize a wide variety of wetlands during the spring and summer months. Forested, shrubby, beaver-flow wetlands, and forested seeps are sought out for the flush of early vegetation that often grows in these environments. In the early spring, wet-

lands with ground-water discharge promote an early growth of leafy green vegetation at a time when the trees are still barren of nutritious buds and new leaves. Black bears (as well as deer and turkeys among other animals) will utilize this food source and search out plant roots, grasses, sedges, and ants in these environments.

Throughout the Bradford area forested seeps are probably the most heavily utilized wetlands by bear. In many locations these seep wetlands are in remote areas relatively close to bear denning areas far away from humans. As such, they warrant special protection for their wildlife value.

Ponds

There are many small ponds in Bradford that are important for agriculture and fire protection. While ponds offer many aesthetic benefits, they must be constructed properly to prevent hazard to residents and the Town's infrastructure. During a substantial rain event, a poorly designed or maintained dam can overflow or collapse, creating a dangerous flood hazard.

At present, under Bradford's zoning regulations, dams, ponds, impoundments, and similar structures capable of impounding more than 50,000 cubic feet of water can only be constructed, or otherwise altered after an approval by the Development Review Board and a Zoning Permit has been issued.

The Bradford Emergency Coordinator has indicated that the ponds most likely to pose a flood

threat are those with dams that can be breached. Dug ponds, which have no dam, are less likely to fail. The present regulations are consistent with state statute, but the 50,000 cubic feet of water permit threshold is larger than most private ponds in Bradford. Because of the potential hazards represented by private ponds, it is essential that regulations continue to be enforced and consideration given to decreasing the threshold for permitting should be discussed.

Riparian Buffers

Riparian buffers are strips of bankside vegetation along waterways that provide a transition zone between water and land use. Construction or development along shorelines, or removal or disruption of vegetation within these areas can create increased water pollution, higher water temperatures, destabilization of banks, higher soil erosion rates and loss of fish or wildlife habitats.

Plant Communities

In Bradford, there are a broad range of plant communities that exist in older forests, early successional forests, open fields, and valley floors. The diversity of plant communities indicates a healthy, thriving ecosystem. Plant communities are strongly affected by their environment.

They respond to changes in soil structure and chemistry, water availability, and climate. Unmanaged development can damage plant communities, which in turn will affect animal populations and may injure the overall ecosystem. Good management practices, such as maintaining buffer areas, protecting against silting, and locating development outside of sensitive habitats are some ways to keep plant communities healthy.

Invasive species, those that spread from human settings into the wild, are a growing problem in Vermont. Once established in the wild, invasive species may displace native species, throwing ecosystems out of alignment. For instance, Norway maples planted as landscape trees reproduce prolifically and can suppress the natural regeneration of native trees such as sugar maple. Federal and State governments have guidelines for managing invasive species, and there are resources available to interested parties through the University of Vermont and private organizations.

Between 2002 and 2004, the Conservation Commission had conducted a loosestrife eradication program. Additionally, volunteers joined together to attempt to eradicate Japanese Knotweed in Boch Park.

A Roadside Ash Tree Inventory (Appendix) was completed in 2021 and should be used as guide for removal of these trees prior to infestation.

Forestry

Large, continuous areas of forest help sustain wildlife. About 80% of Bradford is forested. For some people, forestry is a source of income, and for many others, forests are an endless source of recreation and natural beauty. Bradford should manage its forest assets sustainably; both for the health of the forest itself, and to ensure that Bradford's forests will thrive for the near future.

Besides their unique habitat functions, large forest blocks also enable forestry to continue as a vital part of the local economy and energy supply. Additionally, forests sequester carbon from carbon dioxide in the air, performing a needed service.

Forests owned by the Town of Bradford cover 517 acres. Private residents have conserved over one thousand acres of forested land. Currently 4,360 acres of forested land in Bradford have been enrolled in Vermont's Current Use Program.

Trees outside of the forested landscape are also important. The Bradford Conservation Commission completed a street tree inventory that identified potential hazard trees needing removal and created a management plan for the Town's public trees.

Forest Blocks

Forest blocks are areas of contiguous forest and other natural communities and habitats, such as wetlands, ponds, and cliffs, which are unfragmented by roads, development, or agriculture.

With intense development pressures headed this way, it is vital that Bradford's intact forest blocks are protected from fragmentation.

Interior Forest Blocks provide many ecological and biological functions critical for protecting native plants and animal species. Preserving large forest blocks supports natural ecological processes such as predator-prey interactions; helping to maintain air and water quality and flood resilience; supporting the biological needs of many plant and animal species, particularly those that are wide-ranging animals by allowing access to important feeding habitat, reproduction, and genetic exchange. In the next century, large, topographically diverse forest blocks will allow many species of plants and animals to shift to suitable habitat within a forest block or between forest blocks in response to climate change without having to cross developed areas to other forest blocks.

When forest land is broken up into smaller parcels from parcellation and subdivision, the result is typically an increase in the number of parcels with housing and infrastructure such as roads, septic and utility lines. When this development occurs, it "fragments" the landscape and can negatively affect plant and animal species, wildlife habitat, water quality, recreational access and the ability of forests to sequester and store carbon from the atmosphere. It can also affect the contiguous ownership and management of forest parcels, and thus the viability of large tracts of forestland to contribute to Vermont's rural economy and working landscape.

The Bio Finder Map in the appendix identifies the key forest blocks in Bradford. The Low Density Residential Area with the larger minimum acreage and other restrictions is in two of the key forest blocks.

As a next step the Planning Commission in cooperation with the Conservation Commission plans to review this information to determine if additional Low Density Residential Areas should be identified and how the Zoning and Subdivision Bylaws can be improved to protect these ecologically critical areas while enabling ecologically appropriate development.

Agriculture

For the past several decades, the perception has been that Vermont is losing its farms. In fact, this is not the case. Vermont has been losing *dairy* farms at a rapid rate (although cow numbers have remained constant); however, other types of farming have replaced those farms. Three quarters of Vermont farms are diversified farms.

Though federal law recognizes the importance of farmland and farmland protection, local planning and zoning regulations must also address conflicts arising between expanding development and successful farming.

The working landscape gives Vermont its beauty, provides open space for wildlife habitat, and connects people to the land. To continue to receive the benefits farming has to offer, a

community must encourage farming. In the 2007 Town Plan survey, respondents voiced a fervent desire to protect agriculture in Bradford.

Agriculture and Land Use Regulation

Development on active farmland immediately eliminates future agricultural productivity on the developed tract and affects related benefits of the working landscape. Restoring the agricultural viability of a residential subdivision is impractical because of the enormous expense.

Conservation Easements

Conservation easements are a common method used to preserve the working landscape. 1,164 acres of farmland in Bradford are conserved along with 1,000 acres of forest land.

Wildlife Resources

Bradford's fields, forests, wetlands, and waterways are home to a diverse and healthy wildlife population that includes bear, bobcat, moose, deer, otter, geese, ducks, turkeys, and mink. Some areas in Bradford provide critical wildlife habitat, including wetlands, deer wintering areas, bear mast stands, and edge habitats (for instance, the edge between a forest and a field). Planning for development or logging in and around these critical habitats should consider the needs of wildlife. Managing for a particular species is less desirable than managing for the entire ecosystem supporting it. Wildlife

provides citizens of Bradford with direct and indirect livelihoods from hunting, fishing, trapping, and tourism.

Wintering areas are an important habitat requirement for deer during the winter when snow depth threatens their survival. Typically, these areas are found in mature softwood stands, at low elevations or along stream beds where snow is not as deep and there is good cover. Southerly facing slopes may be utilized even in areas of limited softwood cover. Bradford's 2015 Natural Resources Inventory Report contains maps of the active deer yards and deer wintering areas that would need protection from development.

Most important when considering development and its impact on wildlife is the concept of habitat fragmentation. "Forest fragmentation affects water quality and quantity, fish and wildlife populations, and the biological health and diversity of the forest itself. When many small habitat losses occur over time, the combined effect may be as dramatic as one large loss. Forest fragmentation can disrupt animal travel corridors, increase flooding, promote the invasion of exotic vegetation, expose forest interiors, and create conflicts between people and wildlife.

Habitat loss reduces the number of many wildlife species and eliminates others (1)

To mitigate the effects of human population growth and land consumption, many scientists and conservationists recommend establishment of protected corridors connecting patches of im-

portant wildlife habitat. These corridors allow migration between different forest blocks and help restore otherwise fractured ecosystems.

Mineral Resources

Maintenance of adequate quantities of gravel, sand, crushed rock, and other materials is necessary for the development industry as well as state and local highways. Despite this, public and private interests are often in conflict over use of the resource. It is in the interest of Bradford's community to use these resources so that such uses do not significantly inhibit or conflict with other existing or planned land uses, are not in conflict with other stated goals in this Plan, and do not adversely affect neighboring properties or natural resources.

Scenic and Historic Resources

The Town of Bradford is blessed with a combination of fascinating history and outstanding scenic beauty. These assets have enormous social and economic benefits. The dominant scenic landscape features are the Connecticut River Valley, the Waits River Valley, the views of the White Mountains, and the views from Wright's Mountain.

Bradford contains many fine examples of 19th century architecture. The United States Department of the Interior accepted the Bradford Village Historic Area for listing in the National

Register of Historic Places in 1975. A keen interest in the restoration of many of Bradford's attractive old buildings took place during the 1976 bicentennial celebration and continues to this day.

Soils and Topography

Soil characteristics and topography are primary factors influencing or limiting land development. Shallow soils, wet or poorly drained soils, or unstable soils, are critical factors in determining the type of land use that is most appropriate for an area. Steep slopes are more difficult to engineer for buildings, highways, and water disposal systems, and oftentimes are not cost effective; they can require extensive measures to overcome their environmental limitations. Upland areas generally have poor soils for development and are very steep; they are better suited for forestry and wildlife purposes. Upland areas are generally remote from public services and good public roads because the severe limitations do not warrant those investments.

FLOOD RESILIENCE

FLOOD RESILIENCE

Goals

- 1.To maintain large tracts of non-fragmented upland forest to slow, absorb, and clean rainwater and storm water runoff before it reaches land and streams below.
- 2.To ensure no net loss of flood storage capacity.
- 3.To enable Bradford to recover from flooding quickly and in a manner that improves flood resilience.
- 4.To use sound planning practices to address flood risks and to protect citizens, property, economy, and natural resources.
- 5.To enhance and maintain use of flood hazard areas and floodways as open space, passive recreation, or agricultural land that do not have adverse impact on flood retention or habitat.
- 6.To protect municipal infrastructure and buildings from potential of flood damage.
- 7.To encourage limited activities in riparian buffers to reduce risk of flooding and fluvial erosion.
- 8.To reduce repetitive losses through flood-proofing, elevation and buyouts.

Policies

- 1.It is the policy of the Town that preferred uses for flood hazard areas shall be open spaces, green belts, and non-commercial recreation or agriculture.
- 2.It is the policy of the Town that land development (including filling or removal of earth or rock) should be strongly discouraged within the 100-year floodplain or the special flood hazard areas which would result in net loss of flood storage, increased, or diverted flood levels, or increased risk to adjacent areas, citizens, and businesses.
- 3.It is the policy of the Town to allow utilities or facilities serving existing development (e.g., water lines, electrical service, waste disposal systems, roads, and bridges) to be located within flood hazard areas only when more resilient options are not feasible, and then only provided that these utilities or facilities are relatively protected from flooding damage.
- 4.It is the policy of the Town to extend the limits of the flood hazard area in the Zoning Bylaw to areas identified as at risk to flood erosion.
- 5.It is the policy of the Town to prevent development or intensive land uses from locating in Class I or Class II wetlands (See Map 6 "Wetlands, Bradford, VT" on file in the Town Office).
- 6.It is the policy of the Town to require that developments, and their associated stormwater

discharges, adjacent to wetlands shall not cause undue disturbance to wetland areas. Maintenance of naturally vegetated buffer strips between a wetland and a project site is strongly encouraged to prevent ground water pollution and direct discharges into a wetland.

7.It is the policy of the Town to encourage natural areas, non-structural outdoor recreational and agricultural uses as the preferred land uses within floodplains.

8.It is the policy of the Town to protect public and community water supply watersheds by limiting development to low densities and by encouraging forest and agricultural best management practices including high standards for erosion control and measures to minimize runoff.

9.It is the policy of the Town to encourage the preservation of large tracts of upland forests that provide ecological services of flood control, thus providing added protection to the low-lying areas of Bradford.

10.It is the policy of the Town to discourage commercial, industrial, and residential uses within ANR's mapped river corridor areas outside of Bradford's Town Center. (CBD, LP, VC and RSD)

11.It is the policy of the Town that new buildings within Bradford's mapped floodways shall be prohibited (except development exempted by state law such as agriculture).

12. It is the policy of the Town to support moving or abandoning roads when there are more cost-effective solutions or other routes.

13. It is the policy of the Town to only rebuild/install culverts and bridges that are designed at least to VTrans Hydraulics Manual and ANR Stream Alteration Standards.

14. It is the policy of the Town that new Town emergency services, wastewater treatment plants, power substations, and municipal buildings shall not be built in Special Flood Hazard Areas unless flood-proofed or elevated to at least 2 feet above the base flood elevation and designed to withstand erosion risk.

15. It is the policy of the Town that vegetated buffer strips should be maintained in riparian zones surrounding streams and rivers and that they be consistent with state riparian buffer guidelines. Rock riprap and retaining walls should only be used to the extent necessary and when bioengineering techniques may not be adequate to prevent significant loss of land or property.

16. It is the policy of the Town that upland forests and watersheds should be maintained predominantly in forest use to ensure high quality valley streams and to ensure that flood flows are absorbed.

17. It is the policy of the Town that emergency planning for flood response and recovery is encouraged.

Recommended Actions

1. To work with TRORC and Vermont Emergency Management to ensure that their current flood hazard area requirements meet national standards.

2. To strongly consider excluding all new buildings within the 100-year floodplain or special flood hazard area in the zoning bylaw and/or the flood bylaw.

3. To take steps to correct or replace undersized water passageways or culverts that are at risk of flooding or limit fish and amphibian passage.

4. To take steps to reinforce stream banks adjacent to roadways at risk of significant erosion from seasonal flooding.

5. To consider modifying the existing ordinance to better address control of the storage of junk, garbage, or other materials which could be hazardous during a flood event, in areas identified as special flood hazard.

6. To work with the Regional Planning Commission to strengthen the Town's Flood Hazard Bylaws to mitigate risks to public safety, critical infrastructure, historic structures and municipal investments from inundation and erosion.

7. To work with VTrans and the Regional Planning Commission on advocating for and improving the flood capabilities of state and Town-owned transportation infrastructure.

8. To continue working to develop mitigation plans, and emergency preparedness and recovery procedures from flooding.

9. To identify and prioritize in concert with the ANR River Management Section and the Regional Planning Commission for mitigation actions such as elevation/relocation or purchase and demolition existing homes and businesses at serious risk of flood damage.

10. To add areas not designated in either FEMA's maps or in VT ANR's maps, but which are flooded during a weather event to local flood regulations.

11. To work to incorporate Watershed-level planning with assistance from the Regional Commission to evaluate natural and constructed flood storage options upstream of existing areas of concentrated development that are at risk of flooding.

12. To work with ANR, the Regional Planning Commission and landowners to lessen flood risk by restoring natural channel functions where appropriate.

13. To adopt road and bridge standards to the 50- or 100-year storm level for identified critical transportation routes.

14. To periodically review and update as needed the Bradford Flood Hazard Area Bylaw.

Flood Resilience and Floodplains and Flood Hazard Areas

Floods are sporadic, inevitable, and uncontrollable natural events. It is in the public interest to plan

for floods and devise land use strategies that will protect land adjacent to water courses to minimize risks to public health, safety, and property. According to the U.S. Global Change Research Program, changes in climate may result in increased extreme weather events, making it even more imperative to use proper land use planning to reduce exposure to flood damage.

Vermont has experienced at least fifteen significant floods since 1973. Thirteen of these were declared federal disasters and caused significant economic loss. The most significant of these was Tropical Storm Irene, which caused billions of dollars in damage throughout Vermont, damaged or destroyed approximately three thousand homes throughout the state and took the lives of six people.

Bradford was remarkably fortunate during Irene, as it suffered only minor damage from a few small road washouts. Damage occurred along unstable river systems, along steep streams, and on floodplains. In some communities, recovery costs to the public sector amounted to several million dollars per flooding event. Every reasonable attempt should be made to avoid or reduce exposure to flood damage.

According to TRORC, Bradford has approximately 850 acres in flood plain, eighty-one of which are in floodways (the deepest, fastest-flowing areas in a flood). Approximately 4% of the Town's area is in flood plain. Less than 1% may be in the developable area of the flood plain (not including wet-

lands). Bradford may have some areas of unmapped flood risk. There are ten residences, 11 commercial/public buildings in the flood plain and 10 flood insurance policies insuring \$2.7 million.

Purpose for Flood Resilience Section in the Town Plan

Following the devastating impact of Tropical Storm Irene in 2011, the Vermont Legislature added a requirement that all communities address flood resilience as part of their municipal plans. Interpreted very broadly, "resilience" means that an entity—a person, neighborhood, town, state, region, or society—when faced with a particular situation or event, can effectively return to its previous state or adapt to change(s) resulting from the situation or event without undue strain. As such, "resilience" is not necessarily an action that is taken, but an overall enhanced state of being in relation to an ongoing or future specific situation or event.

When applying the term to hazards, it is important to further articulate the meaning of "resilience." In this context, "resilience" is often discussed in terms of being resistant to the effect(s) of one or multiple hazards that could be expected to occur in a specific area. For the purposes of this chapter, flood resilience will mean the ability of Bradford to effectively understand, plan for, resist, manage and, in a timely manner, recover from flooding.

Types of Flooding

There are two types of flooding that impact communities in the state of Vermont—flooding caused by inundation and flash flooding. Inundation flooding occurs when rainfall over an extended period and over an extended area of the river's basin leads to flooding along major rivers, inundating previously dry areas. This type of flooding occurs slowly, but flood waters can cover a large area. Inundation flooding is slow and allows for emergency management planning if necessary. However, unlike during a flash flood, it may take days or weeks for inundation flood waters to subside from low areas, which may severely damage property.

Flash flooding occurs when heavy precipitation falls on the land over a brief period. Precipitation falls so quickly that the soil is unable to absorb it and infiltrate it into the ground, leading to surface runoff. The quick-moving runoff collects in the lowest channel in an area—upland streams, in small tributaries, and in ditches—and the water level rises quickly and moves further downstream. Flash flooding typically does not cover a large area, but the water moves at an extremely high velocity and the flooding manifests quickly, making flash floods particularly dangerous. Due to the velocity of the water, a flash flood can move large boulders, trees, cars, or even houses.

The collecting of water in channels in steep areas also causes fluvial channel erosion, which can severely damage roads and public and private prop-

erty. Fast moving water in the stream channel may undermine roads and structures and change the river channel itself, predisposing other roads and structures to future flooding damage. Flash floods can also mobilize substantial amounts of debris, plugging culverts and leading to even greater damage. In Vermont, most flood-related damage is caused by flash flooding and fluvial erosion (erosion of stream banks). Due to the topography, the Bradford is vulnerable to flash flooding and fluvial erosion.

Causes of Flooding

Flooding is caused by a small number of distinctive types of weather, and by the cumulative impact of a weather event and the conditions on the land at the time the flooding occurs. By far the most common type of event to occur in the region is a severe storm. Severe storms may include thunder, lightning, hail, high winds, and precipitation with varying degrees of intensity. Severe storms with particularly heavy precipitation can create flash flood conditions. However, over an extended period, severe storms may cause inundation flooding due to the cumulative effects of continuous rain, saturated soils, and a high-water table/high aquifer level. As with any weather system, pockets of a severe storm may be more severe than others, leading to variability of observed impacts across the region.

The main hazards associated with hurricanes and tropical storms are high winds and flooding. By the time most hurricanes reach Vermont, they have

been downgraded to tropical storms, but that is not to say they are less dangerous. Due to the steep slopes and narrow valleys in the region, heavy precipitation from a hurricane or tropical storm tends to cause severe flash flooding and widespread destruction. The speed that the hurricane or tropical storm is moving across the area and the pockets of varying severity both have an impact on the rainfall totals observed from town to town. Storm impacts can be magnified by previous rains.

Both severe storms and hurricanes/tropical storms occur during the summer and into the fall months, but ice jams and the combination of melting snow and rain leave the region vulnerable to the impacts of flooding in the winter and early spring. Ice jams typically occur during the spring when river ice begins to break up and move downstream but may occur during a thaw period in the winter months. Sheets of ice become hung up on a narrow portion of the stream or river, such as under a bridge, culvert, or another obstruction, creating a “dam” and additional ice and water begin to back up behind the hung-up ice sheets. This creates inundation flooding immediately adjacent to the site of the “dam,” and additional inundation flooding upstream.

Once the “dam” breaks free, flash flooding may occur downstream as well. Ice jams in the region typically cause minimal damage, but they can damage road infrastructure, and flood homes and businesses.

Finally, the combination of melting snow and rain, can lead to flooding in Bradford. Flooding is worsened by land uses that create hard surfaces that lead to faster runoff, and past stream modifications that have straightened or dredged channels, creating channel instability.

Flood Hazard and Fluvial Erosion Hazard Areas in Town Flood Hazard Areas

There are two sets of official maps which can govern development in the floodplain in Vermont. They are the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Maps (FIRMs) and VT Agency of Natural Resource’s River corridor area maps. The FIRMs show the floodplain that FEMA has calculated which 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 (smaller areas that carry more current). FIRMS are only prepared for larger streams and rivers. Bradford has areas of mapped flood risk by FEMA. Recent studies have shown that a sizable portion of flood damages in Vermont occur outside of the FEMA mapped areas along smaller upland streams, as well as along road drainage systems that fail to convey the amount of water they are receiving. Since FEMA maps are only concerned with inundation, and these other areas are at risk from flash flooding and erosion, these areas are often not recognized as being flood prone.

Property owners in such areas outside of SFHAs are not required to have flood insurance. Flash flooding in these reaches can be extremely erosive, causing damage to road infrastructure and to topographic features including stream beds and the sides of hills and mountains, and creating landslide risk. The presence of undersized or blocked culverts can lead to further erosion and stream bank/mountainside undercutting. Change in these areas may be gradual or sudden. Furthermore, precipitation trend analyses suggest that intense, local storms are occurring more frequently.

Vermont ANR's river corridor maps will show the area needed to address these erosion hazard areas, which may be inside of FEMA-mapped areas, or extend outside of this area. In these areas, the lateral movement of the river and the associated erosion is more of the threat than inundation by floodwaters. Elevation or flood proofing alone may not be protective of structures in these areas as erosion can undermine structure. Vermont ANR is issued statewide river corridor maps in 2014.

Flood Hazard Regulations

The Town has a separate bylaw, Flood Hazard Area Bylaw, which includes flood regulations which prohibit new development in the Special Flood Hazard Area and the floodway. This bylaw was developed with assistance by TRORC and approved in 2014..

Promoting Flood Resilience Flood Hazard Regulation

Bradford's adopted Flood Hazard Area Bylaw set the minimum development standards allowed by the NFIP. To ensure the safety of the public and to protect against the loss of life and property in the Flood Hazard Area, and to access a larger portion of the disaster funds available through the Emergency Relief Assistance Fund, the Planning Commission could create more stringent regulations. Any updates to the Flood Hazard Bylaws that were more restrictive than they are now would apply only to new development; existing development would be grandfathered and could continue to operate within the area.

While no changes to the Flood Hazard Bylaws are required, it should be recognized that state disaster funding increases with the level of regulation a community applies. Strategies to improve the strength of the flood hazard ordinance (and improve flood resiliency) could include:

Prohibition on New Development – Most planners would suggest that a complete prohibition on new development within the floodplain is the best way to avoid future damages from extreme events.

Also, important to consider is exactly what the definition of "new development" will include. The Planning Commission could include additions and renovations to existing structures over a certain size. This is not a commonly used methodology in

most communities as impacts grandfathered uses and can be challenging to implement. Currently the Bylaw requires review by the Development Review Board.

Prohibition of Specific Types of Development – An alternative to an outright prohibition on development is to identify specific types of development that should be kept from developing within the Floodplain. In some communities, new residential and commercial development has been prohibited from developing in the floodplain. In others, only residential has been prohibited. Decisions on which types of uses to prohibit are made with substantial citizen input with considerations for what will most substantially reduce risks to lives and property.

Increasing Standards – Communities can choose to increase the requirements for new developments in the floodplain while still allowing all or most forms of development. Increased standards could include a requirement that structures be elevated higher than the minimum standards required by the NFIP (one foot above base flood elevation). Such standards could also include more specific requirements for tying down structures or for making them more capable of allowing floodwater to pass through them.

Create River Corridor Protection Area - Some communities regulate the area that extends beyond the mapped flood hazard areas. Often this River Corridor Protection Area uses fluvial erosion hazard data as part of its basis but can also include

simple setbacks from rivers in all parts of the community to deter development in areas that may erode in the event of severe flooding.

Future revisions to the Bradford Flood Hazard By-law will require input from the community regarding the level of regulation they believe is necessary to protect citizens and their buildings from severe flood hazard events. Provided that all parts of the Flood Hazard Bylaw meet the minimum requirements of the NFIP, communities have a broad range of flexibility in which to regulate the flood hazard area. For example, a community could prohibit commercial development in the floodplain everywhere except a village, because in some communities such a restriction would be damaging to the village center.

Non-regulatory approaches

Easements

Bradford could pursue riparian easements to protect floodplain from development and preserve flood storage.

Home/Property Buyouts

Following the flood damage caused by the 2011 spring flooding and Tropical Storm Irene, a number of property owners in Vermont applied for property buyouts, which were funded by FEMA's Hazard Mitigation Grant Program (HMGP) and HUD's Community Development Block Grants for Disaster

Recovery (CDBG-DR). Over the course of this process, over 130 damaged or destroyed residential properties in the state of Vermont will be/have been bought out with this grant funding. As a stipulation of the HMGP funding, FEMA requires that the structure(s) on each buyout property be demolished, and ownership of the empty parcel of land then be transferred to the town/municipality. Future development on these sites will be restricted.

The home/property buyout process has both positive and negative impacts on a town and the community at large. The TRORC region was particularly hard hit by the flooding caused by Tropical Storm Irene and had the greatest number of property buyout applicants in Vermont. As of early 2014, there were sixty properties in the TRORC region involved in the buyout process.

The towns in our region with buyout properties include Bethel, Braintree, Bridgewater, Granville, Hartford, Pittsfield, Plymouth, Rochester, Royalton, Sharon, and Stockbridge. Most of these towns are located on the White River and its tributaries. As of early 2014, 21 residential properties spread across these towns were purchased with FEMA's HMGP funds. Because the properties eligible for a buyout were heavily damaged by flooding, the buyout process is an effective way to reduce a community's vulnerability to flooding and therefore improve the community's overall resilience to flooding. As a result, a number of communities in the region have been made safer.

However, while the buyout process of an at-risk home makes a community less vulnerable to flooding, there is an inherent conflict between home buyouts and the tax and housing base of a town. For many towns in the region, a fiscal issue may arise with the loss of a few homes or properties from their tax base. As a result, some towns may need to raise taxes for the remaining landowners to maintain the town's level of service provided to the community. Higher taxes may make a specific town less attractive to some potential home buyers.

Another consequence of home buyouts is the loss of a town's housing base. Many towns in Vermont and in the region are in valleys surrounded by steep slopes. Some homes are built on the hillsides, but due to topographic constraints, many homes are built in the valleys, near rivers and streams. This location places the structure and inhabitants at risk of flooding damage or injury caused by either inundation flooding or by fluvial erosion. Often, affordable, or low-income housing is in these higher risk areas. So, during a major flooding event, these homes have a higher probability of being damaged or destroyed, and therefore may be good candidates for a home buyout. However, when the structure is razed as part of the buyout process, it is removed from a town's housing base and in addition, may be removed from a town's affordable housing base. This situation may present challenges to the town in the future.

The buyout of homes at high-risk of flood damage is a key step in improving the resilience of a town and community to flood damage. If a town's home buyouts have significantly impacted the housing base, it is important that the town have a thoughtful and creative approach to rebuilding its housing base that will maintain its improved flood resilience and conform to the town's future land use visions or settlement patterns.

Culvert Maintenance

A number of culverts have been replaced or upgraded since 2011. To improve the flow of floodwater through the Town, Bradford upgraded culverts on a number of roads in the last few years.

The last official culvert inventory was completed for the Town of Bradford several years ago. Bradford routinely updates their culvert inventory with newly created and repaired culvert listings. The process of upgrading culverts is ongoing.

TRANSPORTATION

TRANSPORTATION

Land use, energy, and transportation are related. Land use, both within and outside Bradford's borders, drives the need for improvements to the transportation system. At the same time, local land use goals must be facilitated in part by providing the necessary transportation facilities to accommodate growth where growth is desired. In addition, a given land use can have vastly different impacts on the transportation system depending on how it is sited and designed. Land use and transportation are both linked to the Town's economic well-being.

Poorly planned land use patterns increase transportation costs and the tax rate, whereas well planned development can add to the tax base of the Town, providing additional funds for the transportation system.

Goals

To provide and maintain a safe, energy efficient, and cost-effective transportation system integrating all modes of travel (auto, pedestrian, bicycle, and mass transit) and meeting the needs of the public in a manner consistent with the other goals, policies, and recommendations of this Town Plan.

Policies

1.It is the policy of the Town that land development in Bradford on the State and Federal routes

must be planned to be compatible with all modes of transportation discussed in this chapter. At the same time, the State's plans should take the Town's concerns into account.

2.It is the policy of the Town to focus its limited funds on preserving the existing transportation system and making necessary improvements for the general safety and welfare of the traveling public.

3.It is the policy of the Town to consider public input prior to a decision to change substantially the maintenance level, surface treatment, or class of a Town road.

4.It is the policy of the Town, when determining which roads to pave (or remove pavement from) and when, to evaluate traffic volume and maintenance costs against other factors, such as the upfront cost of paving and base improvements that may be necessary to support a paved surface and the potential quality-of-life impacts to residents.

5.It is the policy of the Town that expenditures for bridge maintenance and improvement projects should be based on a detailed survey of bridge conditions followed by a long-range plan for rehabilitation and replacement. State aid is available to help offset the cost of this survey.

6.It is the policy of the Town to integrate land use and transportation planning by encouraging concentrated growth in areas served by an adequate highway system, utilizing land use regulations and appropriate highway access management techniques to control the impacts of development on

the transportation system, and making transportation improvements in areas where growth is desired.

7.It is the policy of the Town to encourage access management techniques that limit the number of access points during new development along highways to reduce driver confusion and traffic congestion and to minimize conflicts between through and local (turning) traffic via provisions on further subdivision in new access permits.

8.It is the policy of the Town to cooperate with other communities in the region through TRORC and its Transportation Advisory Committee to ensure that the region's transportation system is developed in a coordinated manner that recognizes and balances the needs and desires of each community.

9.It is the policy of the Town to consider the relationship of a road to surrounding features of the landscape when planning improvements needed to safely accommodate increasing traffic.

10.It is the policy of the Town to combine widening of roadways to accommodate safe use by bicyclists and pedestrians with traffic calming measures and enforcement of speed limits to ensure that traffic speeds do not increase.

11.It is the policy of the Town to encourage incorporation of state-of-the-art bike racks into plans for new developments.

12.It is the policy of the Town to address the need for adequate off-street parking in reviewing proposed developments.

13.It is the policy of the Town to retain Class 4 roads, trails, and other public rights-of-way as public resources.

14.It is the policy of the Town to preserve existing pedestrian access and connections during future development, provided this does not conflict with preserving natural resources.

15.It is the policy of the Town to encourage the elimination of large through truck traffic through the Downtown.

16.It is the policy of the Town to encourage widening of sidewalks and streetscaping in the Central Business Area to enhance pedestrian safety.

17.It is the policy of the Town to support efforts of local schools to create school travel plans including walking and biking.

18.It is the policy of the Town to support the creation of public transit from Bradford to surrounding communities including Barre, Montpelier, White River Junction and Lebanon, NH.

19.It is the policy of the Town to encourage the expansion of the Connecticut Valley Railway line to include passenger commuter service.

20.It is the policy of the Town to discourage the idling of all Town vehicles.

21.It is the policy of the Town that access permits, on local or state-controlled roadways, be compatible with Town, Regional, and State Plans.

22.It is the policy of the Town to ensure that:

a. The Town utilizes State of Vermont design standards for all temporary and permanent access to include emphasis on drainage, sight distance, and access for emergency services.

b. The Town and State encourage use of shared driveways and/or permitting access that may result in a future shared driveway.

c. The Town should require a review of access for existing development whenever a change of use, ownership, or other application process is brought before the Development Review Board.

d. The Town should encourage commercial properties to use existing development nodes along US Route 5 to preserve or create road segments with few accesses.

e. The Town and State should use sight distance standards based on actual travel speeds and not the posted speed limits. If no such data exists or is not current, then the State or Regional Commission will collect the data.

f. The Town and State should utilize access or an access easement from a local road rather than a state highway.

23.It is the policy of the Town to support efforts to sustain, expand and enhance public transportation such as Tri-Valley Transit.

24.It is the policy of the Town to keep sidewalks in good repair.

Recommended Actions

1.To investigate adopting Complete Street Standards.

2.To work with VTrans and TRORC to ensure that improvements to the state highway system are sensitive to the desires of Bradford and maintain the rural character of the Town.

3.To work with Tri-Valley transit to improve service to the community, expand routes and reduce costs.

4.To work with Tri-Valley Transit to improve access to Greyhound, Dartmouth Coach and Amtrak services.

5.To work with Tri-Valley Transit to incorporate bus stops at recreational areas

6.To review and make any update to the Town policy regarding upgrading Class 4 roads and private roads to Class 3 town-maintained roads to ensure that –

a. Adequate Road construction standards are followed.

b. The landowners are required to pay for bringing the road up to Town standards.

c.-Input from the Planning Commission and Conservation Commission is incorporated in the Selectboard's review and decision process to ensure the

changes would be consistent with the Town Plan

- 7.To review and make any needed update to the Town's driveway regulations and road standards to ensure that safety and drainage issues are adequately addressed.
- 8.To assess whether to require new private roads and rights-of-way be constructed to Town road standards.
- 9.To prioritize and schedule the road segments planned for improvement.
- 10.To adopt a formal Capital Budget and Program for the purposes of planning and budgeting for major transportation projects.
- 11.To analyze in advance any major highway improvement project for its impact on land use, property values, the environment and impact on municipal costs and services.
- 12.To coordinate any major highway improvement projects with other Town infrastructure improvements to make such work as cost-effective as possible.
- 13.To ensure that subdivision and zoning regulations include a well-planned access policy.
- 14.To have any land subdivision or development include in the zoning permit, if granted, reference to road policies in effect and specify that the Town is not responsible for upgrade or maintenance of any property that intends to gain access via a Class 4 road or privately maintained drive.

15.To inventory parking and pedestrian needs within the Central Business Area and formulate a plan to make upgrades in the future.

16, To consider redesigning Main Street (Route 5) to enhance its appearance and functionality. Additionally, such enhancements as placing all utilities underground, correcting drainage, constructing more visually obvious crosswalks, completion of the elimination of the sidewalk vault on the eastern side of Main Street south of KD Welch Service Road and further upgrading of sidewalks and streetlights could be made. This project would involve state agencies, businesses, property owners, and the Town. The Town could apply for a planning grant to determine the scope and steps involved in completing the project.

17.To investigate the benefits of working with VTrans to make the area of US Route 5 and Route 25B in the Central Business Area into a Class 1 road, thus taking over the maintenance. This would allow the Town to work with VTrans to apply different weight limits or could result in a reduction in truck traffic within the downtown.

18.To continue to update and maintain a culvert inventory in Bradford to ensure that the 90%/10% grant match offered by VTrans is available to the Town. Additionally, the Town should develop a program for evaluating roads and bridges.

19.To work with VTrans to identify potential traffic calming options in the Downtown.

20.To consider developing a design for a pedestrian network.

21.To periodically update the inventory of all sidewalks and other pedestrian routes. Once inventoried, all sidewalks should be evaluated for their condition, and studied to determine the amount and type of pedestrian traffic they handle. All this information should be used to develop a priority ranking to help determine the order in which sidewalks should be extended, renovated and repaired.

22.To review the zoning bylaws to reduce the number of parking spaces required for development.

23. To support public transportation infrastructure such as bus stop shelters and signage.

Public Highways

Local, State and Federal Roads in Bradford

Class 1	0
Class 2	12.56
Class 3	39.01
Class 4	2.78
Total Town Roads	54.35
Vt Route 25, 25B	8.01
Route 5	5.85
Total State Roads	13.86
I-91	6.42
Total Road Mileage	74.62

As indicated above, there are a total of 74.62 miles of highways and roads in Bradford. Of this total, 20.28 are State or Federally maintained. These include Interstate 91 running north-south through Town west of Route 5 and Bradford's downtown,

Route 5 running parallel to I-91 and Route 25, which runs east-west of the Lower Plain. Though development in Town has occurred around Route 5 and the junction with Route 25, as roads providing access to much of the Town without impacting the local budget, they provide a benefit to the Town and the area north of that junction continues to be a logical area in which to encourage continued growth. Growth must be carefully considered for impacts on traffic and the rural character of Bradford.

Route 25 is a northwest/southeast route from Central Vermont to Portland, Maine, serving Bradford residents who commute to central Vermont and the Capital Region, and providing access to Bradford from Corinth and Topsham to the west and from Piermont, Haverhill and Warren, New Hampshire across the Connecticut River Bridge to the east. Route 25 also provides access to the towns of Chelsea and Randolph via the Goose Green/Chelsea Road.

Route 5, which runs through the Central Business Area and Residential Service Area, is a U.S. route and therefore subject to State weight limits. Because of the limits on I-91, large trucks travel through the Central Business Area on a regular basis. In the 2007 survey, residents commented that such traffic had a negative impact on the downtown. All State and Federal routes are subject to an 80,000-pound weight limit, with certain exceptions. The State highway weight limit for all trucks used to transport timber, milk or stone products is 100,000 pounds. Weight limits on In-

terstate 91 are also set at 80,000 pounds, with few exceptions. Municipalities are authorized to establish their own weight limits for local roads. Locally established weight limits must be reported to the State, so that truck traffic can be directed accordingly.

Nearly 75% of the public highway miles in Bradford are Town-maintained. Highway classifications determine the amount of state aid available to assist with repair and maintenance.

The Vermont Agency of Transportation (VTrans) and the Selectboard determine road classes. Criteria include traffic volume, road condition and function. Class 2 highways are the major connectors linking villages with each other and with state highways, and they receive a higher rate of State Aid than Class 3 highways. Twenty-two percent (22%) of Bradford's roads are Class 2, of which most are paved. Class 3 highways are other Town roads that are maintained in a manner enabling them to be driven under normal conditions in all seasons by a standard car. The majority (68%) of Bradford's roads are Class 3 and 15.5 miles of them are paved.

Bradford only has 2.78 miles of Class 4 highway. The Town is not obligated to maintain Class 4 roads except for culvert replacement. No State Aid is available for work on Class 4 highways. It is the current practice of Bradford to grade Class 4 roads periodically, and to replace culverts and maintain bridges as needed. While not suited for regular traffic, these roads do represent an asset for the

Town from a recreation standpoint. Such Town-owned corridors will help ensure that there will continue to be a place to enjoy snowmobiling, cross country skiing, walking, hunting, and horseback riding

Private Roads

Land use regulations are needed to ensure that private subdivision roads are designed safely and properly constructed and maintained. The safety of occupants and emergency personnel depends on proper road design and maintenance. The Town currently enforces standards for new public roads, but there is no legal mechanism in place to apply the standards to privately owned and maintained roads, which may be dedicated to the Town in the future. Subdivision regulations can be used to apply Town road standards to all new private roads and rights-of-way.

Road Maintenance

Maintaining the network of roads in Bradford is time-consuming and represents a substantial part of the Town's annual budget. In 2022, the total Town budget (not including state aid) for Bradford highways was \$2,587,213. In 2022, fees for driveway permits and State Aid was budgeted to be \$114,500, 4% of the revenue the Town needed for road and sidewalk maintenance. The remaining 96% of the Town's Road maintenance budget was raised through local property taxes. Because of the expense of major road reconstruction, the most sensible and financially affordable method of road maintenance is proactive maintenance.

A 2005 study by the Two Rivers-Ottawaquechee Regional Commission showed that one Town saved 75% in costs by maintaining a program of proactive maintenance over more costly large-scale rehabilitation or replacement projects. The Town has twenty-three miles of paved roads. Repaving is an ongoing maintenance requirement along with patching. It is a significant challenge for towns to maintain their paved roads with small highway crews like Bradford's along with budgetary constraints. When surveyed in 2007, over 60% indicated that Bradford's roads were "adequately maintained" and similarly almost 60% categorized the quality of the roads as "good." In the 2022 Survey, 87% of respondents were satisfied with road maintenance in the winter and 81% with the maintenance the rest of the year.

Culvert replacement is an essential element of road maintenance. Undersized or poorly engineered culverts are subject to clogging, which can create flooding that will damage roads. In the case of the 1998 flood in Bradford, a substantial amount of damage was caused to Goshen Road due to culvert failure. Bradford Highway Department has been trained by TRORC to conduct an ongoing culvert inventory and maintenance program. An up-to-date culvert inventory benefits the Town because VTrans offers a preferential match (90% VTrans/10% Town) in grant funding to towns which maintain the inventory. In 2005 the Town also attempted to begin a Road Surface Maintenance System (RSMS), but the system was aban-

doned because it was too complicated to be implemented.

In late August 2011, Bradford's culverts and roadside ditches were put to the test and performed well. Tropical Storm Irene struck Vermont, and wreaked havoc throughout the State. Bradford was incredibly lucky to be spared the destruction that devastated so many other communities, but Bradford's good fortune resulted from a lot of hard work, and a good bit of luck. Since the flood of 1998, the road crew concentrated on replacing undersized culverts with larger ones. When Irene struck, the drainage system for our roads was able to manage the extraordinary water flow. On that one day all the culvert replacement work over the past decade paid for itself.

Road resurfacing makes up a significant part of the Bradford Road Crew's work. Although paving roads can lead to reduced maintenance costs when compared to maintaining a gravel road with high traffic volumes, paving represents a sizeable amount of Bradford's Road Budget. The average life of a paved road in Vermont is 7-12 years if properly maintained. Nearly 40% of the roads maintained by the Town are paved. Although VTrans periodically offers grants to towns for paving projects, this funding stream is insufficient to maintain them properly. For example, a grant from VTrans for \$200,000, depending on the current cost of asphalt and related materials, might only pay to pave a quarter mile of road. Alternatively, the Town could reclaim the existing asphalt, add material, and then pave 7/10th of mile with 3 inch-

es of asphalt. In 2022, the cost of materials was so high, \$275,000 would not have enabled the crew to pave even 7/10th of a mile. As a result, the highway crew deferred spending and will apply 2022 budget to the 2023 budget so that there will be sufficient funds to complete two years of paving in one year (There is a savings when more material is purchased at one time.). This will be a challenge for the road crew as typically, they can pave 1.2 miles of road per year.

Before undertaking any new paving projects, the Town should conduct a cost-benefit analysis to enable prioritizing of road maintenance.

Because of the expense of major road projects, it is essential that they be undertaken in consultation with other Town departments. For example, if a road in the downtown is being torn up and redesigned, there is an excellent opportunity for other infrastructure improvements to occur. Much of the infrastructure is underground and runs under the road system. Therefore, replacement of infrastructure like aging water and sewer pipes should be coordinated with major road projects to allow the efficient utilization of Town equipment and to avoid having to re-do projects.

Major Projects

In addition to consulting with different Town departments, Bradford's officials should have a Capital Budget and Program that allows them to plan and save for major infrastructure investments of all kinds. Although the Town does have a Capital

Fund, it is not formally organized into a Capital Budget and Program.

The following road projects have been identified as priorities:

Bridge on Chelsea Road - The Town maintained bridge on Chelsea Rd. needs re-decking and re-structuring.

North Pleasant Street - The drainage on North Pleasant St. needs to be re-configured and the bank needs to be stabilized. This is becoming of increasing concern as there are cracks in the road surface and deterioration noted on the bank.

K.D. Welch Road - KD Welch Rd. needs drainage repairs to stop erosion on the golf course.

Route 5 bridge over Waits River replaced or renovated. This bridge is the State's responsibility and as of 2022, the bridge has not risen high enough on the VTrans list to be in the queue for repair. Currently the sidewalk on the bridge is in extremely poor condition.

Route 5 Bridge over Roaring Brook: This bridge is on the State's list for replacement.

Access Management

Proper siting and design of the access points of driveways and private roads is necessary to ensure the safety of users, as well as that of drivers, bicyclists, and pedestrians. Adequate sight distances are essential. Drainage from a driveway is also a critical issue as improperly directed stormwater

runoff can damage adjacent roadways and contribute to pollution and sedimentation of nearby streams and rivers.

Access to private property from highways and local roads is a critical issue to consider when assessing the potential impacts of future development. Access impedes mobility and can decrease safety. Single access driveways to multiple lots should be encouraged on new development.

Bradford can help minimize the effect of development and can decrease sprawl² along highways by concentrating future development activity in existing village centers and/or specific "nodes" along local roads where adequate infrastructure exists or can be provided to support intensive development and where natural constraints to future development are minimal. Bradford can also apply specific access management techniques designed to reduce the number of curb cuts or driveways needed to serve roadside development.

² Sprawl is a pattern of land use that is characterized by dispersed, automobile-dependent development outside of compact urban and village centers, along highways, and in the rural countryside. Sprawl is typically identified by excessive land consumption, lower densities of development in comparison with older centers of development, lack of transportation options, fragmented open space, wide gaps between development, a scattered appearance, lack of choice in housing types and prices, separation of uses into distinct areas, repetitive one-story development, commercial buildings surrounded by large expanses of parking, and lack of public spaces and community centers.

These techniques include:

- Requiring driveways to serve adjoining lots.
- Prohibiting curb cut access from the main thoroughfare for corner lot properties.
- Requiring off-street access and traffic circulation to adjoining parking lots in commercial areas.
- Imposing restrictions on the number, width, and placement of curb cuts on major highways.
- Requiring specific setbacks from road intersections for all new curb cuts; and
- Requiring subdivisions adjoining major thoroughfares to provide internal street access only for all lots fronting on the thoroughfare. The resulting lots would have double frontage (along the front and rear yards.)

Traffic Calming and Parking

Parking within the downtown is a concern for Bradford. Anecdotal evidence suggests that some businesses with interest in locating within the Central Business Area have declined specifically because of the lack of parking. Additionally, the 2007 Town Plan Survey contained comments regarding the lack of parking in the downtown.

Bradford's Central Business Area is served by parking along Route 5 with spaces aligned diagonally to

the road on the eastern side. This configuration might be acceptable if it were reserved for customers only, but owners and employees of downtown businesses frequently park in those spots as well, which creates a shortage of parking spaces.

Residents have expressed concerns about the rate of speed with which drivers travel through Bradford, particularly in the downtown. Speeds are primarily governed by the motorists and their ability to navigate the roads using their vehicles, rather than by traffic congestion or aggressive law enforcement activities. Time of day, road conditions, trip type, proximity to origin or destination, law enforcement visibility and type of vehicle are all variables influencing the motorists' decision to drive a certain relative speed. In 2006, the Town, through the Public Safety Study Group, requested traffic speed data be collected along South Road, Fairgrounds Road, South Main Street and North Main Street.

The results of the study, conducted by TRORC indicated that the speed limit is being exceeded by most drivers on all the tested roads, but South Road, Fairground Road and North Main Street are of greatest concern.

As speed increases beyond the posted limit, safety decreases. Increased speeds contribute to higher levels of road noise, vibrations, and air pollution. Crashes become more severe, with the greatest risk borne by bicyclists and pedestrians. Enforcement of existing speed limits is important, but the best way to slow down traffic is to utilize traffic

calming methods. The main objectives of traffic calming are to:

- Reduce the speed of car traffic.
- Promote other forms of non-motorized transportation.
- Minimize the negative effects of automobile travel.
- Create attractive streets.
- Improve the safety and convenience for pedestrians and cyclists.

When asked if residents would support traffic calming through the downtown, nearly 65% of the responses were supportive. Although there are several methods that can be used to slow the pace of traffic, only a few would be appropriate in Bradford's downtown, in great part due to state rules regarding vertical elements such as raised crosswalks and speed humps. These are the options that would be possible:

Expand or Reconfigure On-street Parking – On-street parking helps slow down traffic through what is called road friction. Expanding the availability of on-street parking would achieve multiple goals.

Chokers and Neckdowns – Chokers and neckdowns (also known as bump outs) are effective tools for slowing traffic. The curb line is extended into the street, thereby narrowing the street width, and slowing traffic.

In addition to slowing traffic, such alterations to the Central Business Area might be designed to

improve parking and to allow improvements such as improved sidewalks, new lighting, street benches, trees, greenspace and buried utility lines.

Other Forms of Transportation

Air

There is no airport located in Bradford. However, there are several airports located close by in North Haverhill, NH, Berlin, VT, Burlington, VT, and Lebanon NH. In addition, residents often travel to Logan Airport in Boston, MA, Bradley International Airport in Windsor Lock, CT, Manchester-Boston Regional Airport in Manchester, NH as well as the major airports in the New York Metro area.

Railroad

The former Boston & Maine Railroad, currently owned by the State of Vermont, runs through the Town along the Connecticut River. The line connects to an active freight section north of Wells River and to an active freight and passenger section in White River Junction.

The Town views this section of rail line as vital to the our transportation system and long-term economic development. Rail access for the Town's Industrial Park Area and the Industrial Mixed Use Area abutting the Industrial Park is considered crucial for reinvigorating the park. Iron Road Railroad, the owner of the facility north of Wells River,

has discussed tourism excursions on this line. Bradford strongly encourages the reactivation of this railroad line and encourages the State to repair the railroad crossings and signals for the safety of the citizens of Bradford.

Pedestrians and Bicyclists

A primary benefit of mixed-use downtowns and villages, where development is concentrated, is the reduction in automobile use. By locating stores, services, public facilities and high-density residential development in proximity, many residents can walk for trips that would otherwise require driving. It is essential that plans for future development and improvements to Bradford's downtown and village incorporate upgrades to the existing system of sidewalks, crosswalks, and pedestrian paths. Much improvement is needed in this area.

The following bicycle/pedestrian projects have been identified:

Routes 5 and 25 to Piermont Bradford Bridge – A bike lane could run along Route 25 from the Route 5 intersection to the Piermont Bridge. However, it would require a feasibility study to determine whether implementation is possible. This would connect the industrial park, the mobile home park, and the Town of Piermont to downtown Bradford.

Downtown to Lower and Upper Plain – Residents who wish to walk or bicycle from the Downtown to the Lower Plain or Upper Plain must travel on

the shoulder of Route 5. A sidewalk could be built to accommodate pedestrians. Bike lanes should be marked along both shoulders to accommodate bicyclists. The cost of extending the sidewalk could be borne by developers as they continue to expand development in the Lower Plain.

The 2022 Survey found that over 86% of respondents supported a Pedestrian/Bike path between the Central Business Area and the Lower Plain.

North Pleasant St. Sidewalk – Poor drainage and a weak bank are causing this sidewalk to deteriorate at a rapid pace. Sidewalks should be restored after repairs have been made to drainage and the bank has been stabilized.

Main Street Sidewalk - Because Main Street is the downtown core of the village, and its aesthetics reflect on the Town itself, it is important to have the pedestrian infrastructure in good working order. Projects that involve upgrading of sidewalks in the downtown should also include beautification improvements such as better lighting, burying utility lines, and streetscaping.

In addition, the sidewalk network has gaps throughout and a plan should be established to connect them to Little River Health Clinic, Bradford Elementary School, and Oxbow High School.

The 2022 Survey found support for completing the existing network of sidewalks, particularly to Oxbow High School (66%).

A plan should be developed to link recreational areas, many of which are near the Central Business Area.

Regional Connecticut River Valley Bike Route – Bradford is located along a scenic byway (U.S. Route 5). To capture additional tourist traffic and improve commerce within and around the downtown, a bike route and associated accommodations for bicyclists should be considered.

Snowmobiles and All-Terrain Vehicles

The Vermont Association of Snow Travelers (VAST) maintains snowmobile trails throughout much of Vermont. VAST trails have the potential to bring additional commerce to towns provided they allow access to the Town.

All-terrain vehicles (ATVs) are used primarily in spring, summer, and fall. Because ATVs are used when the ground is not frozen, they can damage woodland trails. ATVs can pose a safety hazard if they are driven on public roads. Bradford has been unwilling to take on the liability of opening public roads to ATVs. Opening public lands such as the Town Forest to ATV use should be considered only with great care. If the Town decides to allow construction of ATV trails, they should be designed in consultation with wetlands specialists and the Bradford Conservation Commission and should be built to comply with State and Federal regulations.

Public Transportation

Bradford currently has access to a small regional public transportation system, Tri-Valley Transit.

which offers regular transportation to West Lebanon, NH and has recently expanded its service both with stops/routes and schedule. There is now a route called “The Circulator” which provides local service for anyone living in the Bradford Area to access the grocery store, medical appointments, the pharmacy and other shopping and personal trips. Their southern route to West Lebanon, “The River Route,” has regular stops located in the village and at the newly expanded Park and Ride near the I91 interchange on Route 25. The River Route has numerous stops along the way including Fairlee, Thetford, and Hanover as it winds its way to the VA Hospital in Hartford and connects with Advanced Transit (which offers service in NH) and Dartmouth Hitchcock Medical Center. Stops include King Arthur Flour, Greyhound Bus Terminal, and Upper Valley Haven. Tri-Valley Transit also offers limited public transportation in the form of special requests for individuals who need transportation for medical reasons. There are ongoing efforts from the community to expand service to encourage usage. Unlike Advanced Transit, which is free, there is a charge to use the service which can prove cost prohibitive for students and those with limited resources. (Note: At this time, “The Circulator” is free.)

The Park and Ride has been significantly increased in size and a small bus stop structure has been constructed along with Level 1 electric charging stations (electrical outlets) and bicycle racks.

Tri-Valley Transit recently constructed a bus depot where it houses its buses for the Bradford Area.

Located to the rear of the Park and Ride, it is a highly energy efficient building with innovated rainwater collection system as well as a small solar array.

Given that Bradford's elderly population is growing, the need to maintain an affordable source of public transportation that can bring the elderly to major medical facilities like Dartmouth-Hitchcock and larger commercial centers for day-to-day shopping needs is important.

[1] Albert Todd, the Environmental Protection Agency liaison, in the February 1999 issue of Journal of Forestry.

LAND USE

LAND USE

In terms of planning for the future, one of the most complex discussions is about land use. How a town uses its land and plans for future land development directly impacts the character and its ability to provide adequate and affordable services. To ensure that the impact of future development in Bradford does not have unintended consequences, the town's growth must be managed to reflect the vision of this Town Plan.

This section discusses both current and future land use patterns and provides goals, policies, and recommendations for future implementation. V.S.A. Title 24, §4411(a) authorizes towns to implement land use regulations, such as zoning, subdivision, and site plan review, provided that those regulations are in conformance with this plan and §4302 of Title 24, which addresses the state's planning goals. In 2004, the state legislature passed Act 115 to define more clearly "conformance with the plan". It states that:

"All such regulatory and nonregulatory tools shall be in conformance with the plan, shall be adopted for the purposes set forth in section 4302 of this title, and shall be in accord with the policies set forth therein." [§4411(a)]

The Planning Commission has the task of implementing the Town Plan through the wide range of tools offered in state statute. All these tools must conform to the policies of the Town Plan and once drafted, the Planning Commission is required to

issue a report on how the newly drafted tools implement the plan.

General Land Use Goals

- 1.To guide industrial and commercial development in a way that will provide for appropriate economic activities on a scale that largely maintains the Town's existing settlement patterns.
- 2.To preserve open space and the rural character and present population distribution of the Town.
- 3.To protect agricultural and forestry land uses by promoting practices that are economically viable while protecting natural resources and wildlife habitat.
- 4.To provide orderly growth in the Downtown (Central Business, Village Residential and Residential Service). by planning for transportation, water, sewage, and public recreation facilities through public funding.
- 5.To preserve natural areas, unique habitats, and the quality of ground and surface waters.
- 6.To retain the essential rural character of the Bradford community while fostering its growth and economic vitality.
- 7.To improve/enhance the visual entrances into the Town.
- 8.To enhance the walkability and bikeability of the more densely developed parts of Town, by renovating, maintaining, and expanding sidewalks, bike lanes, and other non-motorized methods of transportation.

9.To work with the Bradford Business Association to plan and host events that draw customers to both Lower Plain and Main Street businesses.

10.To safeguard natural resources and maintain/enhance open space and recreational infrastructure which is key to long term health and quality of life in the community.

11.To maintain, enhance and expand recreational opportunities.

12.To encourage development of outdoor recreational use in harmony with the surrounding area.

Policies-General Land Use

1.It is the policy of the Town to make capital investment decisions taking into consideration open spaces and areas for recreational purposes.

2.It is the policy of the Town to encourage patterns of land use that maintain and enhance opportunities for outdoor recreation.

Recommended Actions-General Land Use

1.To preserve Town Right of Ways when they could provide recreational benefits.

2.To work with VAST, the Upper Valley Trails Alliance and other recreational groups to maintain and install trails.

3.To coordinate recreational activities by the Town and other organizations and work with surrounding communities to develop mutual

support in shared facilities (i.e., Elizabeth’s Park, Dog Park, Northeast Slopes, Halls Lake)

- 4.To consider creation of additional small parks.
- 5.To make the play structures at Elizabeth’s Park a high priority for renovation/rebuild and an ongoing well-conceived maintenance plan should be put in place.
- 6.To investigate establishing a pool facility in support of the long-held desires of the community going back many decades.
- 7.To educate the public about recreational uses of the Town’s parks and Town Forest.

Goals – Central Business Area

- 1.To provide a thriving and robust commercial and civic center that benefits all residents of Bradford and draws people from surrounding communities.
- 2.To encourage mixed use development in the Central Business Area
- 3.To maintain and enhance Bradford's center village as the pedestrian-friendly center of community life.
- 4.To maintain Bradford’s Village Designation and encourage the full utilization of the benefits from the ACCD designation.
- 5.Encourage the installation of public Wi-Fi routers to increase digital access while in the Central Business Area as well as improved cell phone service.

Policies – Central Business Area

- 1.It is the policy of the Town to support creative and adaptive re-use of existing buildings within the Central Business Area.
- 2.It is the policy of the Town to support and maintain Bradford’s Designated Village Center by dedicating resources to maintaining and improving infrastructure in the Designated Village Center.
- 3.It is the policy of the Town to encourage commercial growth in the Central Business Area if it maintains or enhances the historic character of the Village and creates no undue burden on taxpayers regarding public services.
- 4.It is the policy of the Town to encourage the development of streetscaping, including the addition of green space, benches, lighting, sidewalks, and façade improvements.
- 5.It is the policy of the Town to collaborate with developers to maintain the architectural aesthetics of the Central Business Area.
- 6.It is the policy of the Town to retain a post office in the Central Business Area.
- 7.It is the policy of the Town to encourage complementary infill development within the downtown.
- 8.It is the policy of the Town to encourage new businesses to locate where properties are already served by public water and sewer.
- 9.It is the policy of the Town to maintain the Historic District Design Standards to maintain the

architectural aesthetics of the Central Business Area.

- 10.It is the policy of the Town to locate major public investments including public recreation areas in or near the Central Business Area.

Recommended Actions – Central Business Area

- 1.To investigate revising the lot coverage requirements of the Zoning Bylaws in the Central Business Area to allow for greater density.
- 2.To encourage development of second floors as offices and other commercial and residential activities provided such development creates no undue burden on emergency services or other municipal services.
- 3.To investigate options for the creation of streetscaping including green space, façade improvements, sidewalks, benches, and buried utility lines.
- 4.To continue to encourage the installation of EV charging stations.

Goals – Lower Plain Area

- 1.To encourage a mix of land uses which complement the vitality of Bradford's downtown and employ residents within the Bradford area in well-paying jobs.

2.To protect and expand the economic engine that is the Lower Plain Area, while preserving scenic and natural resources.

3.To maintain and enhance traffic safety on Routes 5 and 25.

4.To facilitate and expand non-motorized transportation and increase Bike/Ped safety

5.To conduct careful site planning and administration of design standards for development.

6.To encourage the development of businesses that meet the needs of Bradford’s population and contribute to Bradford’s self-sufficiency.

Policies – Lower Plain Area

1.It is the policy of the Town to encourage the development of businesses in the Lower Plain Area that are compatible with and complimentary to those located in the Central Business Area.

2.It is the policy of the Town to provide opportunities for concentrated growth within the Lower Plain Area, without putting an undue financial burden on municipal services.

3.It is the policy of the Town to encourage cluster development whenever possible within the Lower Plain Area.

4.It is the policy of the Town to encourage development of sustainable low-carbon commercial enterprises.

5.It is the policy of the Town to encourage primary retail establishments to locate along and north of

Route 25 as well as on the eastern side of Route 5 in the area designated on the Future Land Use map as Lower Plain Area while allowing other types of development to locate in all parts of the Lower Plain Area.

Recommended Actions– Lower Plain Area

To continue implementing design review within the Lower Plain Area (and the Central Business Area) to better define the desired aesthetics of development in these areas.

Goals – Residential Service Area

To encourage an area of transition between the Central Business Area and the Village Residential Area while protecting the historic residential character of the Downtown.

Policies – Residential Service Area

1.It is the policy of the Town to support the rehabilitation and reuse of historic residential structures for the purpose of small-scale mixed use.

2.It is the policy of the Town to encourage the establishment of green spaces, gathering places, and streetscaping.

3.It is the policy of the Town to promote safe pedestrian and non-motorized traffic within this area.

Recommended Actions– Residential Service Area

1.To continue to review lot sizes, uses, and encourage the adaptive reuse of properties.

2.To maintain and expand bike/ped “complete” streets in this area.

Goals—Village Residential Area

To provide an area for densely populated residential development within proximity of the Central Business Area.

Policies – Village Residential Area

1.It is the policy of the Town to encourage new and concentrated residential development in areas adjacent to the Central Business Area if they are served by municipal services.

2.It is the policy of the Town that development in this area should provide for uses that are of a scale, type, density, and character that maintain or enhance Bradford’s Historic Central Business Area.

3.It is the policy of the Town that, as development increases in the residential area, pedestrian/bicycle access to the Central Business Area should be occur.

Recommended Actions– Village Residential Area

- 1.To utilize an inventory of the sidewalks to establish a schedule for repair, maintenance, and expansion.
- 2.To repair the retaining wall along North Pleasant Street.
- 3.To encourage and support infill, Accessory Dwellings, and other creative approaches to expanding housing units in this area.

Goals – Residential Area

- 1.To encourage residential growth in a pattern and density that reflects the traditional rural pattern of development.
- 2.To protect open space, agriculture, and forestry.
- 3.To ensure that the basic premise of this Plan for future land uses is sensitive to both the physical limitations of a site and the overall rural character of the Town.

Policies – Residential Area

- 1.It is the policy of the Town to ensure that residential uses be planned to concentrate development, maximize open space, and provide privacy.
- 2.It is the policy of the Town to continue to encourage the establishment and operation of small entrepreneurial enterprises and home businesses

as they are consistent with the general purpose of this Area.

3.It is the policy of the Town to ensure that any home business or rural small enterprise shall be sited on a large enough lot, and that the project shall be adequately screened to prevent significant odor, visual, or audible effects from extending past the property boundary. Any use shall comply with state pollution and land use laws. These enterprises should not cause an undue burden on the ability of the Town to provide services such as emergency services and fire protection.

Recommended Actions– Residential Area

- 1.To protect open space and the working landscape in Bradford, the Planning Commission should consider increasing the minimum lot size in the Residential Area and creating areas of varying density.
- 2.The Planning Commission should investigate reducing minimum lot size where Town water and/or sewer exist.

Goals – Industrial Area

1. To allow for the growth of industrial development that is in harmony with the surrounding area
- 2.To foster industrial development while protecting natural resources, including wildlife, wetlands, and groundwater, from environmental hazards.
3. To be sure industrial development is on Town sewer

Policies – Industrial Area

It is the policy of the Town to encourage industrial development in appropriate locations provided that such development does not pose an environmental issue or health hazard to the community or put an undue burden on municipal services.

Recommended Actions– Industrial Area

- 1.To consider allowing accessory commercial uses within the Industrial Area particularly the parcels in the Lower Plain Industrial Park.
- 2.To evaluate current site plan requirements within the industrial area to ensure that auto, pedestrian, and bicycle safety are appropriately managed.

Goals – Low-Density Residential Area

To allow for residential development while protecting important natural and scenic resources, including (but not limited to) topography and wildlife habitat.

Policies-Low Density Residential Area

- 1.It is the policy of the Town to encourage development that is built in such a manner as to avoid fragmentation of large forest tracts and that habitats between two or more land developments or subdivisions are maintained.
- 2.As it is the policy of the Town to promote lower density in the Low-Density Residential

Area, the minimum lot size within this area should be at least seven acres.

3.It is the policy of the Town to protect all open and active deer wintering areas and wetlands.

4.It is the policy of the Town to encourage sustainable forest management practices.

Recommended Actions-Low Density Residential

To modify zoning and subdivision to discourage forest fragmentation.

Goals for Mixed Use Industrial

1.To support small commercial and industrial type activity.

2.To support the potential use of the rails by establishments abutting the railroad.

Policies for Mixed Use Industrial

It is the policy of the Town to permit various uses with a focus on retail, commercial and small industrial usage.

Recommended Actions for Mixed Use Industrial

To review and implement appropriate standards for the area.

Current Land Use

Traditionally, the Town has served as a local center of commerce for the surrounding smaller communities. This pattern of settlement and development has resulted in two areas of concentrated development:

- The historic Bradford Village,
- The Lower Plain area surrounding the intersection of Vermont Route 25 and U.S. Route 5.

These two areas lie on opposite sides of the confluence of the Waits and Connecticut Rivers. While this separation is a natural outcome of Bradford's topography, it poses unique challenges as the Town attempts to meet the state planning goal 24 VSA, 4302(c)(1): "to plan development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside."

While this goal is often interpreted to mean a town has only one center of development, Bradford has long had two. Townspeople are very committed to maintaining the vitality of the historic village, while recognizing the critical importance of the area around the intersection of Routes 5 and 25 to the economic vitality of Bradford.

Growth in Bradford has generally reflected a pattern common in much of Vermont. Within areas of more concentrated development, the uses have remained mixed, including residential, commercial, and industrial.

Outside of those areas, land use is located along Town and State highways and is primarily residential in nature, with a wide range of home businesses and some farms.

Bradford's land use patterns have not changed dramatically since 2001. Much of the shift in land use by parcel relates to the conversion of second (vacation) homes to permanent homes. There has been a modest increase in commercial and industrial development particularly with the extension of the sewer to the Lower Plain Area.

Future Land Use

The future land use section of a Town Plan is intended to function as a guide for future development , and to aid local planners in the process of implementing the plan through regulatory tools. Future land use areas are not intended to mimic the current pattern of land use, but instead should reflect Bradford's vision of the future. That is to say – even if the land is being used one way today, it can be used differently in the future.

Based on the public input gathered in the 2022 Survey and meetings, this plan delineates the future land use and provides guidance for local planners to implement the vision expressed by Bradford residents.

Economic Relationship between Central Business Area and Lower Plain Area

Bradford, unlike many Vermont towns, is a community that can support both the Lower Plain and the Center Village. Both areas provide Bradford residents and visitors with a variety of options.

While we desire both the Central Business Area and the Lower Plain Area to prosper, the two Areas are best suited to host different types of businesses. Limited parking and small store sizes make the Central Business Area less than ideally suited for large retail businesses. But its good sidewalks, good nighttime lighting, and the proximity of the storefronts make Bradford's Central Business Area ideally suited for cafes, coffee shops, art galleries, specialty shops, restaurants, and similar enterprises.

Meanwhile, good parking and access to Route 5 make the Lower Plain Area well suited to larger retail businesses (not, however, "big box" stores or formula retail businesses).

One of the biggest challenges Bradford faces is integrating the economic activities in the Central Business Area and the Lower Plain Area so that they support and reinforce each other. Several Lower Plain Area businesses draw large numbers of customers from significant distances. Farm Way, Hannaford, Valley Floors, Oakes Brothers, Tractor Supply, J&M Landscaping, and the Tool Barn are examples. Many of the customers who

patronize these Lower Plain Area businesses do not come into the Central Business Area.

Bradford needs to adopt a strategy that will draw the people who already come to the Lower Plain Area into the Central Business Area. One strategy could be to create a marketing campaign for customers of the Lower Plain Area business to receive a coupon with each purchase that would provide a free appetizer or beverage at a Central Business Area eatery. Whether or not these specific ideas ever come to fruition, businesses in Bradford's Central Business Area and the Lower Plain Area should work together on cross promotional efforts.

Central Business Area

Bradford's Central Business Area is a cultural and economic hub for the citizens of Bradford. Bradford's Central Business Area should invite and provide for community gatherings and interaction. The purpose of the Central Business Area is to promote commerce in Bradford, while offering a mix of uses and concentrated density. The types of uses that are appropriate for this area are retail establishments, restaurants, professional offices, public buildings, and high-density residences.

Such uses should be developed at a scale, type, density, and character that maintain or enhance Bradford's Historic Downtown as the prime Central Business Area for the municipality.

Bradford's Central Business Area is contained within Bradford's Designated Village Center. (Oth-

er parts of the Village Center Designation include parts of the Residential Service and the Village Residential Areas.)

Every eight years, Bradford's Village Center designation status is reviewed by the Vermont Agency of Commerce and Community Development. If ACCD's review committee is not convinced a community is working to maintain and improve its downtown, the Agency may revoke a community's Village Center status. As of the date of this plan, Bradford's designation is up for renewal in 2024.

Maintaining Bradford's Village Center Designation is essential, as it opens more opportunities for grant funding for infrastructure improvements and makes tax credits available to property owners who improve their facades, make improvements such as handicapped accessibility and follow code compliance requirements when remodeling their buildings.

Lower Plain Area

The Lower Plain Area is located south of the designated Village which runs as far south along U.S. Route 5 as a stream that borders the Tool Barn and two parcels to the south of Lake Morey Road on the west. Like the Central Business Area, the Lower Plain Area is vital to the economic vitality of Bradford.

It is important to encourage commercial and residential development in this area. Existing commercial uses are concentrated around the junction of Routes 5 and 25, South of that junction, land

uses consist of residences, a working vegetable farm with a retail market, lumber yard/hardware store, car wash, a Tractor Supply store, a tool and tent rental business and a church.

Development north of the intersection is primarily commercial in nature, although zoning for the entire area does allow for all types of housing, including residential care facilities, treatment centers and the like. Because the land in this area is flat, has good access to Route 5, is served by both municipal water and sewer, and has well-drained soils, it is a desirable location for housing and commercial development.

Although much of the land within the Lower Plain Area is already developed, the land could be used more efficiently, particularly on properties behind those which front directly on either Route 5 or 25. Planned commercial subdivisions and developments utilizing common access roads, and cluster site planning principles, are encouraged and should be given high priority. At present, 70% of the lot may be dedicated to the building footprint. Increasing the allowed building coverage and reducing parking requirements expands opportunities for infill development. Mixed uses should continue to be encouraged in this area. However, the scale of proposed development must be considered carefully.

The purpose of the Lower Plain Area is to provide space for concentrated commercial (retail, professional offices) and housing development that does not unnecessarily consume land.

Although a mix of uses, this area is intended to be primarily commercial in nature. Land use activities planned for this area should be of a type, scale and design that complements rather than competes with the Central Business Area. No uses should impose a burden on the financial capacity of the Town to accommodate the growth caused by the project.

Such large-scale development as big box stores must be restricted. This is achieved in current zoning by setting a maximum footprint of 36,000 square feet per commercial building. Additionally, formula businesses³ should be discouraged because residents indicated they wished to develop commercial enterprises that complement the designated Village Center. Restricting this type of business has been successful using several methods, including a ban on drive-through facilities and/or prohibiting formula retail through zoning regulations.

One of the distinct disadvantages to encouraging formula business is that it creates a homogenous and unnatural landscape. The architecture used by nationwide chains does not generally represent the traditional architecture of the area in which it is built.

³ Formula businesses include retail stores, restaurants, hotels, and other establishments that are required by contract or other arrangement to adopt and maintain a standardized array of services, merchandize, methods of operation, uniforms, logos, standardized architecture and decor, or other features virtually identical to businesses located in other communities.

Additionally, businesses of this nature are often set back from the road with large expanses of parking, which is not representative of the traditional pattern of development in Vermont. To ensure that new development reflects the desired character in a town, state statute has enabled the creation of “design control” areas.⁴ These areas specifically regulate the siting, layout and design of new development and construction. According to the Vermont Land Use Implementation Manual (2006), “design regulations have been shown to have economic benefits – they allow for higher densities of development, increase property values and create attractive neighborhoods and communities that encourage new investment.”

The 2022 Survey results indicate that the community supports commercial development where

⁴ [3] Several communities have banned certain types of formula businesses. A design control ordinance would be one way to regulate formula business. These laws do not prevent a chain store from coming in, but they do require that the incoming chain look or operate in a way defined by the community rather than by the business formula. This may prove a deterrent to chains, which may refuse to veer from their standardized, cookie-cutter approach. When enacting a formula business ordinance, a community should articulate within the ordinance and its legislative history the public purposes the law will serve and specify how the restrictions will fulfill those purposes. This is key to crafting a sound ordinance. Bradford residents have expressed a clear desire to retain the rural nature of the Town and to protect the historic character of the Downtown. Bradford seeks to maintain vibrant and diverse commercial areas, and the unregulated proliferation of formula businesses would frustrate this goal and lessen the commercial areas’ appeal.

there is municipal water and sewer (77%). The expansion of the sewer to the Lower Plain Area enables such development to occur.

The community also strongly feels that a more village like look to development is preferred. According to the 2022 Survey, 72% would prefer development to be of 2-3 story structures while only 21% favor strip mall look and 30% favor small box store development with separate parking lot.

While over 85% favored Bradford growing, the predominant comments were that a slow growth is most desired.

While the entire area is designated as being suitable for commercial development, some types of commercial development should be encouraged in certain areas, while other commercial activities should be encouraged in other parts of the Lower Plain Area.

Specifically, businesses that are primarily retail in nature should be encouraged to locate north of Route 25 and south of Route 25 on the eastern side around existing commercial development.

The portion of the Lower Plain Area south of Route 25 on the western side of Route 5 south of existing retail development is well suited for a variety of residential and commercial development, although large scale retail developments (principal retail as defined by TRORC) may not be ideal for this section of the Lower Plain Area. Of note, in 2012, the water system was greatly improved, and the sewer has been extended along Route 5 southerly to the parcel where Tractor Supply is

located. This extension of infrastructure has enabled Hannaford and Tractor Supply to locate in Bradford.

Residential Service Area

The area presently designated as “residential service” begins just north of the Central Business Area. It is a relatively narrow area designed to accommodate residential and small commercial establishments while maintaining the historic character of the area. Many structures within this area are older homes with classic architectural features.

The primary difference between the Residential Service Area and the Village Residential Area (see below) is the allowance of professional offices, small retail and multifamilies as permitted uses. Such uses are generally low impact and do not negatively affect surrounding residences.

These uses should continue to be encouraged. To encourage continued mixed-use development within the Central Business Area and immediately adjacent areas, the Residential Service area has been extended up to the former greenhouse and Town Cemetery. The area north of Fairground Road, particularly near the high schools has the potential for greater development. Its proximity to the Central Business Area makes it very walkable, which is of importance to the State and Two Rivers-Ottawaquechee Regional Commission from a land use perspective.

The purpose of this area is to allow for additional service establishments to locate adjacent to the

Central Business Area, while maintaining the present residential nature of the area. Businesses allowed in this area should be appropriate to the area that is primarily residential and should not negatively impact the historic character of the older buildings.

Village Residential Area

This area is primarily residential in nature and represents the historic pattern of development, which grows around a downtown or village center. The uses allowed in this area are those, which are most likely to be compatible with residential development. Increased density of development within the Village Residential Area is reasonable. Currently zoning has a minimum lot size of 6,000 square feet (approximately 1/8 acre) and maximum lot coverage of 70%. This should enable infill but this should be done cautiously, with an eye toward maintaining the present character of the neighborhoods.

Residential Area

The bulk of Bradford’s land is located within the Residential Area. This area is almost exclusively residential uses and it represents the classic “open countryside,” outlined in state planning goals.

Although the pattern of development in the Residential Area is mostly one- and two-family dwellings, the present Zoning Bylaws allow for a wide-range of uses, some of which are more appropriate for areas with greater density of development

or immediate proximity to the Central Business Area. For example, larger more concentrated residential development like nursing care facilities or assisted living facilities should be encouraged to locate closer to the Central Business and Lower Plain Areas.

Given that the classic pattern of development in Vermont is lower density outside of the traditional village centers, the Planning Commission should consider increasing the minimum lot size from one acre. If houses were built on every acre, Bradford would no longer be a rural town. Instead, it would appear like the types of suburbs found near cities like Burlington, Vermont. Such high-density residential development would have a detrimental effect on rural character as well as a negative impact on wildlife, their habitats, and the corridors they use for migration. At the very least, areas with highly sensitive natural or scenic resources should be preserved in the Residential area, especially wildlife corridors. Another possibility is that the Town could create multiple residential zones of differing density.

The purpose of the Residential Area is to provide locations for residential uses while maintaining Bradford's rural character. Uses allowed in this area that are not residential in nature should only be allowed if they create low-impact changes to the land. Additionally, all uses should preserve the agricultural, forestry and recreational assets that are present, and should not place an undue burden on the Town to provide municipal services. Uses that are public in nature, such as schools,

post offices and Town buildings should be discouraged from developing in the Residential Area.

Industrial Area

Bradford had three areas designated as Industrial as of 2008, the Lower Plain Industrial Park, the Bradford Veneer Plant, and sections of Depot Street. In this Town Plan, the area on Depot Street is now Industrial Mixed Use and The Bradford Veneer Plant is now included in Village Residential.

The purpose of this area is to provide for employment opportunities in manufacturing, warehousing, research and development, and related uses. Residential uses should be discouraged. The Town supports efforts to promote industrial development in this area where they provide ongoing employment of its citizens.

The Town of Bradford regards large scale industrial structures that exceed 125 feet in height as inappropriate and inconsistent with the Town's vision and goals.

In the 2022 Survey, 77% felt industrial development should be where there is municipal water and sewer. In the past, serious pollution has occurred in the Town due to industrial activity resulting in several brown fields.

Low-Density Residential Area

It is a purpose of this plan to encourage the protection of open space, including agricultural and forested lands. High-density residential develop-

ment can have negative effects on the rural character of a Town and on its wildlife and open space. Dense development in extremely rural areas can greatly increase the cost of municipal services as steep slopes and long distances can make road maintenance expensive. Steep slopes have the potential to make emergency response difficult if not impossible. The Low-Density Residential Area is in two areas, one around Wright's Mountain and the other north of Narrow Hill between Kenyon Rd. and Hackett Hill Rd. This Plan recommends further investigation into forest blocks and wildlife corridors to determine whether the zoning and subdivision regulations should be changed. This is further discussed in the Natural Resource chapter.

The purpose of the Low-Density Residential Area is to require that residential uses be at a lower density than that allowed in other Areas. Uses allowed should be primarily residential, recreational, agricultural, or silvicultural in nature. Because of the distance from Town, and the steep nature of the terrain in this area, commercial uses should be prohibited. Some parcels within the Low-Density Residential Area might be appropriate for conservation.

Mixed Use Industrial.

There are two areas in Bradford that are categorized as Mixed-Use Industrial:

- Near the end of Depot Street beginning with the Sewage Treatment plant and Carroll Concrete to the end of the road at

the railroad tracks . Oxbow Veterinary and ARC Mechanical are in this area.

- Abutting the Industrial Area on Route 25 from the river to the railroad tracks. Whistle Stop Mobile Home Park, Farmway and a building formerly the site of printing press operation is in this area.

With Town water and sewer available, these area have long had various types of businesses and is well suited for such diverse uses.

RELATIONSHIP TO OTHER PLANS

RELATIONSHIP TO OTHER PLANS

Bradford is bounded by the Vermont towns of Corinth, West Fairlee, Fairlee, and Newbury, and by Piermont, New Hampshire to the east of the Connecticut River. All the Vermont towns have planning programs and planning commissions with Town Plans in effect: Corinth (2019), West Fairlee (2017), Fairlee (2020) and Newbury (2015).

These towns have land use regulations as follows:

- **Corinth** has subdivision regulations. These regulations were revised in 2002.
- **Fairlee** has zoning and subdivision regulations. Their zoning and subdivision regulations were last updated in 2018.
- **West Fairlee** does not have any land use regulations except for Flood Regulations
- **Newbury** has both zoning and subdivision regulations which were revised in 2017. The town is in the process of updating their Town Plan.

Bradford shares numerous activities and services with surrounding towns, including school services, ambulance service and fire protection. The Town is also a member of the Two Rivers-Ottawaquechee Regional Commission (TRORC).

TRORC's regional plan covers thirty towns including Bradford. Since the preparation of the Bradford Town Plan was done with the assistance of the Regional Commission, no conflicts between the two have arisen. In fact, the two

plans have similar policy statements regarding the need for development that does not overburden services. In addition, no specific development goals in this Plan conflict with any regional goals.

The neighboring plans have been read in the context of the proposed Bradford Town Plan. Once again, no conflicts exist in either general philosophy or specific development proposals along town borders.

Recommendations:

- 1.To encourage continued communication and cooperation between Bradford and its neighboring towns.
- 2.To continue participation in the Two Rivers-Ottawaquechee Regional Commission provided TRORC continues to serve the needs of the Town of Bradford.
- 3.To exchange planning information and development data with neighboring communities.

APPENDICES

1. Implementation Schedule
2. Land Use Maps
3. TRORC Energy Report
4. 2022 Town Plan Survey
5. Upland Natural Opportunities and Wildlife Habitat
6. Forest Block Map (BioFinder)
7. Roadside Ash Tree Inventory
8. ECVEDD Economic Recovery and Resilience Plan (for the Creative Economy)
9. Build Out and Capacity Study of 2018