Tunbridge
Town Plan

Approved by Planning Commission for Public Hearing:
July 19, 2017

Adopted by Tunbridge Selectboard:
October 24, 2017

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Funded in Part by a Municipal Planning Grant from the Agency of Commerce and Community Development
Fellow residents of Tunbridge:

What follows is the most recent update of the Tunbridge Town Plan. This culminates a lengthy process begun back in fall of 2003. It represents the concerted efforts of not just us, your Planning Commission, but also you, the people who live in Tunbridge.

The first Tunbridge Town Plan was written in 1988, the year the Tunbridge Planning Commission was formed. That plan served as the template for the following three plans written in 1993, 1998, and 2003. In 2003, the Planning Commission realized the need for a more comprehensive plan based on a changing landscape, both physically and figuratively. Population increases in the Upper Valley, as well as changes in agriculture, real estate values, and work and community patterns, have all played their part in redefining the Tunbridge community. Additionally, the population of Tunbridge, like that of the rest of Vermont, is changing, with fewer young people settling or staying in town and people later along in life moving here for a certain quality of life. As development pressures began knocking at Tunbridge’s door, it became clear that as a town, we needed to discuss what we want Tunbridge to look like, how we want it to grow, and what our children will inherit.

In January of 2017, the Town was awarded a $12,000 Municipal Planning Grant from the Vermont Department of Housing and Community Affairs to help fund a Town Plan rewrite. The Town secured this grant with assistance of the Two Rivers-Ottawuchee Regional Commission (TRORC). Most of the award was to pay for technical assistance from TRORC, who partnered with the Planning Commission to write this document and helped meet the criteria specified by the State. A portion of the grant, however, went towards designing and conducting a town-wide Agricultural Survey, led by Dan Rudell of the Planning Commission. Another portion of the grant went to facilitating a series of public meetings held in late Summer 2017.

We on the Planning Commission were overwhelmed by the attendance and participation of so many people at the meetings. The high quality of the input, as well as the level of concern you showed, inspired us in our work on the Plan. We are very grateful to all who participated, and we hope this document reflects the fruit of those meetings. This kind of community involvement in the town plan process is part of what makes Tunbridge the place we choose to live.

The document that has resulted is considerably longer and more detailed than previous plans. This is for a number of reasons. At this time, Tunbridge neither has zoning nor is proposing zoning. Thus the Town must rely on the Act 250 process for any development control. Because town plans play a role in this process, we wanted one that would provide sufficient and specific guidance. We also added sections to address new challenges faced by towns as competition for natural resources, energy resources, and housing has increased. Finally, in response to the overwhelming participation of townspeople, we have tried to address all the concerns shared at the town-wide meetings.

In sum, this revision could not have happened without the hard work of Tunbridge residents. Again, we are grateful for that. If we do not plan as a community, we can be sure that others will make plans for us. This Plan is just one tool, one step in the Town’s work to plan as a community and to shape its future.

Respectfully,
The Tunbridge Planning Commission

Planning is a process of choosing among those many options. If we do not choose to plan, then we choose to have others plan for us.~ Richard J. Winwood
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I. Introduction

A. The Process of Planning for Our Future – Citizen Participation

In November of 2004, the Tunbridge Planning Commission was awarded a Municipal Planning Grant from the Agency of Commerce and Community Development for the purpose of rewriting the Tunbridge Town Plan. The Planning Commission contracted with the Two Rivers-Ottauquechee Regional Commission for technical assistance services and began the process of collecting public input for the new town plan.

The process has been firmly rooted in citizen participation. A series of meetings were held in which citizens were asked what they wanted Tunbridge to be like in the next 5, 15 and 50 years. The response to these meetings and workshops was exceptional. The first of these meetings, a two-day event held in early April of 2005, was attended by over 200 people (15% of Tunbridge’s population). As a follow-up to the broader meetings, a series of subject-specific workshops (based on community interests) were held in the fall of 2005. These workshops focused on subjects like education, housing, broadband internet, agriculture, and land use which were determined to be important to the residents of Tunbridge.

The input, comments, and suggestions that the Planning Commission has received from the public have been invaluable in determining what Tunbridge’s vision for the future is and what this document says.

B. Why have a Plan?

At first glance, Tunbridge is a small, rural town that has remained relatively untouched by the changes that have occurred in surrounding towns. Tunbridge has not yet suffered from the stresses that a growing population can put on public utilities and services.

Nevertheless, work patterns are changing. It has become far more common for individuals to work outside of Tunbridge, some commuting as much as an hour to their jobs. Tunbridge is close to the Upper Valley, the most rapidly expanding growth center in the State of Vermont. The ease of access, favorable tax rate, and attractive cultural and aesthetic environment makes the Town of Tunbridge a prime candidate for growth. As a result, the population is increasing. In the decades between 1980-1990 and 1990-2000 Tunbridge experienced a 41% increase in population. And while the decade between 2000-2010 saw a slight decrease in population, it is difficult to argue that an increased population has changed the character of our community over the past thirty years. In a community like Tunbridge, a sudden influx of people will impact schools, require expanded and improved road systems, and most certainly will put a higher burden on our other town services.

Change requires our community to examine its current condition and evaluate its prospects for the future. Change can be beneficial, but in order to ensure this, people must understand the problems and opportunities facing the community and identify goals for the future.

Planning is the process of projection. A community imagines what the future should be, and then starts putting these ideas into action. Communities with little or no planning are more likely to experience problems of over-development, high property taxes and increased demands for community services. Tunbridge, like every town, has choices in the way we provide for orderly growth and in the
way we balance our natural and built environments. Planning is done to meet the needs of the people who are here now in the face of change.

Here are some specific reasons to have a Town Plan:

1. **A guide for our community** – 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.

2. **Support for grant applications and planning studies** – Many of the state-run grant programs available to Tunbridge look to see if 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.

3. **A guide for future development** – In towns with no zoning, a Town Plan can be the only tool for local control of development. The District Environmental Commission considers Town Plans during Act 250 hearings, which is why the Plan should clearly explain to developers and others what types of development are preferred in our town and where they should be built.

**C. Defining Our Rural Character**

**Why define it?**

Throughout the process of revising this document, it has become clear to the Planning Commission that the “rural character” of Tunbridge is the cornerstone of what makes Tunbridge special to its residents. It is a concept that is very important to our citizens and should be protected; but the protection of “rural character” is difficult in a town with no land use regulations.

In the eyes of the courts, plans are often seen as inspirational, almost idyllic dreams, not grounded in reality. This is, in part, due to a lack of specificity and strict language in typical town plans. Because the Town of Tunbridge does not have the traditional protection that comes from a zoning or development ordinance, and it is unclear whether such regulations would have the support of citizens at this time, it is essential to define “rural character” with specificity for the purposes of review under Act 250.

**Tunbridge in the present**

The citizens of Tunbridge enjoy the way their town is right now. It is the small, dense villages and the open, working landscapes that define Tunbridge. The continued balance between the dense concentration of development in Tunbridge’s villages and hamlets, and the diffuse residential and agricultural development of the areas surrounding the villages is important.

Our villages and hamlets, particularly the Tunbridge and North Tunbridge Villages, are the centers of our active community life.
Tunbridge is a quiet bedroom community. Most residents work out of town and in general, appear comfortable with being such a community, although there is active support for adding more small businesses to the villages and small cottage industries in homes.

Tunbridge residents have a strong “land ethic,” a need to protect and work the land. This is embodied in the deep agricultural history, tying rural character to agriculture. Therefore, agriculture, and the flavors, smells and images that go with it, is important to the residents of Tunbridge. Working farms are part of Tunbridge’s cultural and physical landscape, and citizens feel that these farms are our future and need to be supported and given opportunities to thrive.

The density of development in Tunbridge is very common in rural Vermont. The Current Land Use Map (Map 2) included with the full version of this document (a large scale-version of this map is on file at the Town Clerk’s office) demonstrates that most development exists along Tunbridge’s roads. Few structures are located far from these roads, which helps create the open agrarian feel that generates our sense of rural character. Most roads remain unpaved, and are currently meeting local needs.

While development is generally clustered along roads, the Route 110 corridor is not overburdened with an abundance of development. It remains a very scenic valley floor, with the First Branch of the White River and several active farms predominating. Citizens have made it clear that the way this area of town looks right now is important to them. They would like it to remain a relatively undeveloped, scenic agricultural and recreational resource.

Because of the natural resources that exist in Tunbridge, there are abundant formal and informal opportunities for outdoor recreation such as hunting, fishing, hiking, cross-country skiing, snowmobiling, horseback riding, swimming and others. The availability of these opportunities is tied to the rural character of the Town.

Summary of Rural Character

Tunbridge is a quiet Vermont town, surrounded by a mixture of large open fields and tracts of woodlands. Development within Tunbridge Village and North Tunbridge Village is typical of small New England villages. Buildings are built close together, with minimal setbacks from the road. In areas outside Tunbridge’s villages, development is much more diffuse, and has taken place along Tunbridge’s dirt roads, leaving much of the land open.

Citizens enjoy the opportunities for individual expression and social and community interactions that the Town offers. They believe that people should have the opportunity to utilize their property consistently with uses typical in Tunbridge. These uses may include, but are not limited to,

- Construction
- Farming
- Artisan
- Professional Services
- Public Service
- Small-Businesses
D. General Goals

The following goals are important to our town:

- Remain a rural, agricultural town by supporting and encouraging agricultural activities in Tunbridge – the primary and fundamental intention of Tunbridge.
- Plan for the controlled and orderly growth of the town, utilizing a pattern that maintains Tunbridge’s rural character.
- Promote a healthful environment for our citizens, and insure adequate and clean waters and air.
- Encourage the development of small-scale enterprises in the Villages of Tunbridge and North Tunbridge that provide basic skills and services for all of the citizens of Tunbridge, which will enhance and improve the rural way of life that benefits us.
- Ensure necessary public facilities and services within an expressed plan at a reasonable cost through something such as capital budget planning. (See Implementation (D))
- Provide recreational opportunities for townspeople.
- Help provide employment and housing opportunities that allow for affordable living in Tunbridge.
II. History and Community

A. Tunbridge History

The Town of Tunbridge was chartered under the authority of Governor Benning Wentworth in 1761. Due to the relative remoteness of the township from major New Hampshire towns, the white settlers did not arrive until more than a decade later. Settlement by American colonists came from the east (via Strafford) and from the south (along the First Branch of the White River). The first generally recognized year-round settlement was by the Moses and Susannah Ordway family in about 1775 just across the Strafford border on present-day Gilley Road. The first village at the southern border saw less than a year (in 1780) before it was substantially destroyed by the Raid of 1780, an attack by about 300 Native American fighters organized and led by British officers. It was a handful of years before the claims of new settlers were stable enough to allow the construction of the first frame houses in town for more permanent homesteads.

The land that the settlers encountered must have seemed an unspoiled paradise—as it might to us today. The First Branch flowed wide and steady, varying little through the year. Many varieties of fish, including Atlantic salmon, thrived in the waters in their season. A wide forested floodplain was filled with hemlocks, tamaracks, spruce, and other vegetation that could thrive in the saturated environment. The hills were nearly entirely forested—beech, maple, and chestnut dominating, and the hilltops decorated with deep-rooted red oaks. Some form of this environment had persisted with variation for thousands of years as the Native American populations developed a subtle and attentive stability with the wildlife. The seemingly pristine forest of Tunbridge had therefore been affected by the work of the human cultures, but this environment saw rampant change in the late 1700’s as the settlers turned the land to meet their immediate needs.

The land of Tunbridge offered a chance to pitch a claim and make a new start since there were several appealing incentives the environment offered here. The heavily wooded landscape provided a cool, but moderate climate where wildlife flourished, and many provided good food, such as moose, deer, and rabbit. The water table was high, and many dug wells offered homesteads an accessible water supply without digging more than 20 feet, even with sites high on some hills. Virgin hardwood and softwood timber was plentiful to build structures and provide fuel. Best of all, thousands of years of forest had generated topsoil that was relatively deep and very rich. Compared to the worn-out, granitic soils east of the Connecticut, the earth of Vermont offered a haven for struggling farms where they found they could readily grow grain, including wheat, shortly after clearing the land.

To say that the economy rested on an agricultural foundation is certainly an understatement, as most every family would be considered farmers by today’s standards, often with specialization or supplementary enterprise to help them trade for what they could not produce themselves. Gardens were commonplace, and many homesteads could grow corn, oats, and barley to feed themselves and their livestock. All would have been used for meat, with poultry contributing eggs and feather, some sheep being sheared for wool, and a few cattle providing dairy, leather, and much needed labor. It would be the hope of every family to have at least one horse for the greatest power in farm work, and for transportation, though human feet certainly were the primary mode of human travel. In the late winter, most households would have taken advantage of the good sugaring climate to put away maple sugar—the only affordable sweetener for most residents. Lumber would have been so plentiful and
cheap that deforestation was the norm to “improve” the land according to the short-term agricultural values of the homesteaders.

The natural environment not only supplied the settlers with raw materials to survive, but it also gave them some compact exports that could be used to purchase goods from elsewhere. Wood that was not used for building materials or firewood was often burned outright for the production of potash for export—one of the few resources compact and valuable enough to be exported in this era, supplying the settlers with some of the only cash they handled. Animal furs and skins were another durable commodity which was at first easy to come by, but was soon harder to accumulate in great numbers. These were used to bring back purchased goods like salt, spices, and some manufactured goods such as fine tools and delicate textiles.

The story of the European settlement of this frontier in Tunbridge had some common themes and trends. While some new Tunbridge residents came from immediately adjacent areas to the south and west, larger waves of new settlers came from communities in Massachusetts and Connecticut, downstream in the Connecticut River valley. These areas were seeing rising property values, and immigrants saw the lands of the “New Hampshire Grants” as promising new land for agriculture. On top of this attraction, many of this time period, and eras since, have seen this area as a place to make a new start in life. Many, like the family of Joseph Smith, the future founder of the Mormon Church, came to Tunbridge to live life freely according to their own unconventional religious and social beliefs. In many ways, Vermont overall served as the “Wild West” of New England at this time.

This is not to say there was not considerable unity and common ground through much of the town. Town meetings began as early as 1785, including only male adults who owned property in town. Early town planning recognized the common need throughout the new town for bridges, major mills, cemeteries, schools, and a meetinghouse. The meetinghouse was probably the first major project initiated, for the building was sited in the exact geographic center of town, on the west side of the river across from the present town garage. The town fathers made the reasonable assumption that this would be the middle of town settlement, but this outcome was undermined by two major shortcomings: it was one of the only structures sited on the west side of the First Branch, with no reliable way to cross to it, and there was no easy way to dam up the river for a mill, thus offering no foundation for a village and marketplace. Schools were also an early priority in Tunbridge, and by 1791 the town was divided into eleven school districts.

Early homesteads relied on transportation only occasionally by modern standards, as the settlements were largely self-sufficient in the early Tunbridge economy. Nonetheless, connecting the residents of Tunbridge with each other and the outside world was an essential need that the town recognized. By the law upon which the charter of Tunbridge rests, the town had the right to lay aside land for public roads, when and where town officials found it necessary. Main roads were planned in the 1780’s, branching off of the central valley’s highway, with ten major bridges planned to span the First Branch. The best laid plans, however, often are humbled by the shortage of money, resources, and labor, so roads were rough and the first permanent bridge was built at the town’s geographic center only in 1793. This occurred so that most residents who lived in the east could get to the new meetinghouse, but it also allowed for the more aggressive settlement of the western side of town. With roads unmaintained and traveling vehicles being something of a luxury, residents found it advantageous to develop dwellings in clusters, as residents have through the vast majority of Tunbridge history.

Dwellings congregated in South Tunbridge, Clarksville, the upper Strafford Road, and even Brocklebank, as well as the dominant villages in central Tunbridge and in North Tunbridge. Far from seeking privacy, residents found seclusion largely a necessary evil of any homesteads which ended up inaccessible or far flung from the areas that became favored for larger settlements. Most every house
built over the first century in Tunbridge was close to a town “highway”—the closer the better. The postal service was an invaluable link to Tunbridge residents, but those outside of the villages had to wait until they made trips into town to see if they had mail.

This population boom ended with the numerous homesteads finding their land and its resources exhausted, and word of flatter and richer land across the Appalachian Mountains (in the Midwest) pulled many residents of Tunbridge away. Remarkably the following decades saw a tremendous building boom of sound permanent residences, many of which survive to the present day.

The 1850’s saw the coming of the railroad (via South Royalton), and with the railroad came the rise of the export economy and a swell of industry in Tunbridge. Sheep were still abundant, and two entrepreneurial brothers by the name of Gay set up a sizeable woolen mill just north of Tunbridge Village. In North Tunbridge such enterprises as the Smith Foundry created numerous cast iron implements, including plows and two modest sizes of wood stoves. Other enterprises used the turning power of the river to drive a large cider mill and another mill that crafted wooden implements such as rakes and tool handles. Lumber and grist continued to be processed at the many dams up the First Branch, and small mills along the brooks helped provide for the milling needs of families. Stores, politics and A. N. King—the Gilded Age comes to Tunbridge

When the Civil War erupted in 1861, Vermont answered the call with more volunteers for its population than any other Union state. Tunbridge was no exception, and fervor to preserve the Union was so strong that no draft was ever forced upon the residents of the town. Many boys from Tunbridge were killed or died of disease in the conflict—far more than in any other war in the history of the Republic. The end of the war also brought many other Tunbridge men to the faraway world they witnessed in the service, and opportunities by the expanding settlement in the West all contributed the continuing decline of the population. Veterans that returned were by some estimates the “greatest generation,” volunteering in civic office, bringing leadership to the town, and investing in the town in other diverse ways.

The ensuing years saw the ingenuity of the remaining people of Tunbridge put to surprising good use. Tunbridge still relied heavily on its agricultural foundations, and the residents of the valley rallied to form the Union Agricultural Society, holding its first exposition in 1867. The harvest festival soon grew in magnitude to become what one lieutenant governor referred to as the “little World’s Fair” which has endured ever since. The Grange was also formed as a supportive co-operative society where farmers could buy in bulk, as well as find fellowship with their neighbors.

As industries came and went in Tunbridge, the turn to the 20th century saw the residents relying more heavily on the agricultural base of their predecessors. A key difference was that large farms elsewhere, particularly in the Midwest and West, now competed directly and indirectly in the price of some general agricultural commodities, such as grain and wool. While self-sufficiency and bartering still figured in the Tunbridge economy, modernization also brought the expectation as well as the need for new goods that could not be produced locally. One way farmers responded to this strain was in the harvest and use of ice, which made it possible to export some perishable food farther away. Some farmers found work in other ways; some farmers immigrated to take their place, but the trend was a steady erosion of the agricultural working population in Tunbridge.

The turn to the 20th century saw the population continue to slowly decline, but life was accelerating. Electricity finds its way to town over the first four decades. This new power had been relied upon in
the form of heavy batteries, but these new lines carrying current to Tunbridge opened up new possibilities to residents, and the appetite for this new power grew.

In the 1930 pavement comes and covered bridges start to be dismantled. The self-sufficiency of Vermonters has led some to observe “the Depression may have come, but no on could be sure” -- the shortage of cash did indeed find many farming families borrowing from those with money, and – finding themselves unable to pay it back in a timely manner—lost their properties.

Even as modernization and its effects were arriving in Tunbridge, the population declined into the mid-1960’s. In 1954 one result represented how modern technology and the greater affordability of construction was changing the operating principles of the town, as the decline in populations convinced the town to make the final consolidation of school districts into one Tunbridge Central School. The siting of the school showed that central location and structural conservation was no longer required; an opportunity to buy a vacant farm site was sufficient to convince the town to site the school considerably north of the northernmost village and build an entirely new structure. While the School was now adjacent to Route110, the choice clearly assumed that automobiles rather than walking would be the major means of transportation.

The cheap nature of transportation in the 1960’s brought some unwelcome changes in the agricultural nature of Tunbridge, and many farmers found themselves unable to sustain their livelihoods in this changing world. The influence of the railroad had become less significant, and large trucks replaced them as the primary vehicles for moving food. Consequently, some enterprises like the Tunbridge Cooperative Creamery and the canning operations in locales such as Randolph closed down in the shadow of larger processors. Farmers were told by agricultural analysts that they needed to adopt new technology and grow bigger, focusing on a single commodity—quite the contrary of what Tunbridge farmers had traditionally done over the past two centuries. Aside from growing their own gardens and having a few animals on the side, raw dairy milk became that single commodity that farmers worked to produce. Besides this limited market, and larger farms in the Midwest, the farmers who were struggling to make it in the dairy business found they were required to buy a bulk tank in order to sell to the bigger dairy processors, and many found themselves unable or unwilling to make this expensive and risky investment. A final factor that was affecting every part of the community was also the result of cheap transportation: the steady increase of the value of property here.

The boom that the nation felt after World War II found Americans with an increasing desire for homes away from urban areas, and the increase of prices for land in rural areas was the inevitable result. Tunbridge land and homesteads were affordable and appealing to many who sought vacation homes, which could be reached now in a day’s drive from many cities and large towns throughout the Northeast. Property here was desirable for many new residents such as writers, artists and others with occupations that did not require daily time in a central office.

1960’s- bring the Bulk tank, Hippies, and concerns about planning
  First zoning plan ends in failure
  Agricultural economy becomes unstable with rising land prices
  Processing plants close down, farms are sold
  Population starts to increase from its low in 1965

The era of large industry got under way in earnest after the Civil War, largely supported by the new proximity of the railroad in South Royalton. A main focus of this industry was connected with the mills. Many of these mills each produced hundreds of thousands of board feet each year. The twist with big industry then as now was that the life blood of the local endeavor was kept alive only by the
circulation of the transportation system. Many of the materials – wood and wool, for instance – came from local sources, but the consumption was more distant. Eventually, the forest and soils supporting the wool industry had declined, and the cheap sources were farther west. The nature of these new endeavors forced businesses to move into greater proximity to the railways or lose the ability to compete. Some industries moved, and others closed down--- some lasting only to the turn of the century, while others (such as a few lumber mills) living in the memory of many current residents.

The 20th century saw a dramatic revolution in commerce at the local level. While the number of roads in town has diminished, the roads still in use have become far more heavily used in the last 50 years. As homesteads were largely self-sufficient units at the beginning of the 1900’s, going out on a trip of any length was an occasion. With the current economic climate, it is now the exception rather than the rule that a resident with a car remains at home. And the length of the trips have changed enormously: a business trip to South Royalton in a horse and wagon took up a full day of work, while the driver of an automobile may complete the entire trip (with transactions) within an hour and consider themselves not really to have “gone anywhere” of note. Villages have gone from destination to a place to visit. Roads have required greater maintenance, accounting for what is now proportionally the fastest growing part of the town’s expenditures. The upgrading and widening of the roads creates a more friendly climate to those seeking to develop land on the back roads, as well as making travel at higher speed at least appear more feasible.

B. The Tunbridge Community

Community is one of Tunbridge’s strongest assets. In many of the public meetings held while writing this document, residents commented about the sense of community that thrives in the Town and how important it is to them. Citizens enjoy the programs offered in Tunbridge such as the recreational programs, and school-based, school club and library activities, as well as the cherished traditions of the months surrounding the Tunbridge World’s Fair, ice cream and sugar-on-snow socials, pot lucks and Memorial Day events.

Tunbridge citizens seem to come together for business and pleasure with a regularity that is unique in this day and age. Community dinners, the Tunbridge World’s Fair, school functions and town functions are well attended by today’s standards.

In part, the topography of Tunbridge has helped shape the community. Tunbridge is bisected by Route 110. Unlike neighboring towns, Tunbridge has no villages that are separated by the topography. The very “central” nature of the Route 110 valley and the villages located in it draw the community to the heart of the town.

The rural, agricultural heritage coupled with Tunbridge’s emerging status as a bedroom community creates a unique mix of individuals from all walks of life. Comments during the two-day visioning workshop in April of 2004 reflect this:

Of course, Tunbridge must always be aware that it takes community effort to maintain the feeling of community that is so cherished by its residents. Attendees of the Planning Commission’s workshops noted a decline in volunteerism. This is, in part, a result of cultural changes. Most families must work full time, often with both parents working outside of Tunbridge. Tight schedules and work commitments can make it difficult to give time to the community.

“People respect each other as human beings.”
“Rich people live beside poor people very well.”
“We’re willing to help one another when help is needed.”
“People are able to lead private lives as they see fit.”
C. Goals, Policies and Recommendations

Goals
1. Increase volunteerism for public programs and services.

Policies
1. The Town will continue to use public facilities for public community events.
2. The Town will support efforts to encourage volunteerism.
3. The Town will continue to support community programs.

Recommendations
1. Install welcome signs in the villages.
2. Create a public bulletin board and/or web site.

“A viable neighborhood is a community: and a viable community is made up of neighbors who cherish and protect what they have in common.” ~ Wendell Berry
III. Population

A. Population Patterns

Population, when considered in terms of past, present and future statistics, represents an important factor in the overall development patterns of our town. 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, which is important to our Citizens and taxpayers.

Shown below are population statistics for the Town of Tunbridge taken from the U.S. Census Bureau. According to the U.S. Census, Tunbridge’s year 2000 population numbered 1,309, compared to a population of 1,154 in 1990, resulting in a 1990s growth rate of 13.2%. Tunbridge’s growth rate of 13.2% was higher than the 8% rate of growth achieved by the State of Vermont and the Two Rivers–Ottauquechee Region, a pattern which we expect to continue.

Between 1980-2000, Tunbridge’s population growth indicated that when compared to its neighbors, Tunbridge was a preferred location among the five towns to purchase property. The two decades between 1980 and 2000 saw a 41% population increase in Tunbridge. But, between 2000 and 2010 Tunbridge lost nearly 2% of its population, a trend that was mirrored in surrounding communities and
in the greater Upper Valley region. The noted exceptions were the towns of Royalton and Strafford which continued to grow, albeit at a slower pace.

<table>
<thead>
<tr>
<th>Population Growth, Tunbridge and Surrounding Area</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Tunbridge</td>
</tr>
<tr>
<td>% Change</td>
</tr>
<tr>
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<tr>
<td>% Change</td>
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<tr>
<td>% Change</td>
</tr>
<tr>
<td>Strafford</td>
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<tr>
<td>% Change</td>
</tr>
</tbody>
</table>

Figure 2 – Population Growth, Tunbridge & Surrounding Area (Source: U.S. Census)

B. Age of Population

In general, the age of Tunbridge’s population is similar to that of Vermont as a whole, with much of our population over the age of 45. Unlike many Vermont towns, Tunbridge did not experience a dramatic loss of young adults between 2000 and 2010. In the 20-24 age group, Tunbridge actually gained 6% of its population. In the 25-34 age cohort, however, the community lost 12%.

The loss of young adults (generally between the ages of 25-35) has been a concern throughout Vermont during the past decade. Often referred to as a “brain drain” the out-migration of young adults raises concerns on both economic and social levels. Without a talented and well-educated pool of young workers, there are worries that the state will find it increasingly difficult to attract and retain well-paid jobs, which in turn can have serious repercussions for the state’s capacity to raise tax revenues and pay for essential services. Young adults who leave their rural communities often do so because communities lack the resources commonly sought after by people of their age group, such as reliable high-speed internet access, clear cell phone reception and opportunities for social interaction with others of their age group.

According to the Department of Economic Development’s (DED) 2007 Report “Growing Vermont’s Next Generation Workforce”, Vermont ranked at the bottom nationally for the percentage of its citizens between the ages of 25 and 29, and at the top in the percentage aged 50-54. While it is common, and perhaps desirable, for young adults to venture beyond their home state after college, the biggest concern is that many are not returning. During interviews for the DED report in 2007, young adults explained that their primary reason for leaving Vermont was to find better paying jobs. Likewise, the biggest hurdle for young adults wanting to return to Vermont was the availability of well-paying jobs and affordable housing.
However, it should be noted that those young adults who choose to return to, or relocate to, Vermont have indicated that their primary motivation for moving to Vermont is the lifestyle associated with the working landscape. Outdoor recreation, agriculture and the importance of community often encourage these citizens to return, but in Tunbridge this does not appear to be the case.

As indicated in figure 3, between 2000 and 2010 population increases have occurred primarily in the 45-64-year-old range, which reflects the ongoing effect of the baby boomer generation, but also implies that older people may have moved into the community while younger residents have left. The population of 25-44 year olds in Tunbridge dropped dramatically by 28%. Overall for Vermont, the number of residents in the same age group only dropped 16%.

The comparison between the 2000 and 2010 census information also indicates any new residents in Tunbridge’s are older (ages 45-64). The increase of population at this age group may in part explain declining enrollment in the Tunbridge school system as families in their late 40s to mid 50s often have children who are in high school or college.

As is the case throughout Vermont, Tunbridge has an aging population. In 2010, 15% of residents were over 65 years of age, which is only slightly greater than the Vermont average of 14%. An aging population will need services that are not readily available in a town like Tunbridge. The need for elderly housing will increase. Additionally, Tunbridge may see an increase in home sales as elderly residents become uncomfortable with maintaining larger houses on their own.
One program that will benefit the elderly in Tunbridge is the “Neighbors Helping Neighbors” program. This program was started by local residents in order to improve the lives of all residents – young, old, rich or poor. Neighbors Helping Neighbors relies on the strong community to supply labor for volunteer activities at no charge to the beneficiary. To date, the program has a list of nearly 40 individuals willing to volunteer.

Neighbors Helping Neighbors offers a broad range of services including transporting people to and from medical appointments, picking up prescriptions, loaning medical equipment on a short-term basis, cooking meals for people who are ill, making minor home improvements and assisting with automobile repairs.

The program also sponsors or assists in events or programs such as community pot-luck suppers, speakers or musical programs of interest to the community, and healthy cooking workshops.

C. Relative Income of Population

<table>
<thead>
<tr>
<th>Town</th>
<th>Returns Filed</th>
<th>Median Income</th>
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</thead>
<tbody>
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<td>$33,742.00</td>
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<tr>
<td>Chelsea</td>
<td>606</td>
<td>$29,406.50</td>
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<tr>
<td>Royalton</td>
<td>1253</td>
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<tr>
<td>Vershire</td>
<td>345</td>
<td>$31,003.00</td>
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<tr>
<td>Strafford</td>
<td>554</td>
<td>$41,857.00</td>
</tr>
<tr>
<td>Vermont</td>
<td>301,188</td>
<td>$32,501.00</td>
</tr>
</tbody>
</table>

*Figure 4: 2010 Median Adjusted Gross Income, Tunbridge & Surrounding Towns (Source: VT Department of Taxes)*

The Vermont Department of Taxes annually publishes *Vermont Tax Statistics*, which includes a summary of personal income tax returns filed with the State. In 2010, 621 personal income tax returns were filed from residents in Tunbridge. Eleven hundred and eighty (1,180) exemptions were claimed. Total adjusted gross personal income reported for Tunbridge residents was $40,132,816. Tunbridge’s median income is $33,742 putting it just behind Strafford as the highest median income in the surrounding area.
For 2010, 56% of the total personal income generated in Tunbridge was by filers earning $30,000 or more and 44% were earning less than $30,000.

“Never doubt that a small group of thoughtful committed citizens can change the world; indeed, it is the only thing that ever has”. ~ Margaret Mead
IV. Economic Base

A. Employment and Jobs

Tunbridge does not serve as an economic hub for commercial and industrial activity. Residents go to the Towns of Chelsea, South Royalton, Montpelier, Barre, Randolph, Hanover and West Lebanon, NH, for banking, professional and related services.

The pie chart above indicates that 42% the population of Tunbridge is employed in some form of management, professional, educational or health care profession. This data supports the notion that Tunbridge is a bedroom community, sending a majority of its residents to jobs in either the Upper Valley to Dartmouth College or Dartmouth Hitchcock Medical Center or to Randolph to Vermont Technical College or Gifford Medical Center. Agriculture, construction, logging, and public occupations (teacher, road crew, etc.) have been the traditional occupations carried on in the Town and construction still remains the second largest employment type in the community. However, many small businesses have been established in Tunbridge in recent years, including the following types:

- Artisan
- Farming
Forestry  
Laborer  
Light Industry  
Professional  
Retail

Most of these businesses are viable and aggregate a small number of jobs. Many are operated out of homes. Where non-family members are employed, these seem to be a mix of newcomers and long-time residents.

Interestingly, the physical impact of this job creation seems to be almost undetectable; most new businesses are carried out in existing buildings or modestly scaled new buildings or additions. Several old buildings have been renovated and improved by these activities. Most businesses would not be considered “industrial.” The apparent lack of discernable impact of these types of businesses makes them favorable to the citizens of Tunbridge. Small, home-based businesses tend to fit well within Tunbridge’s idea of rural character.

One surprising piece of the U.S. Census employment information is that as much as agriculture is a part of Tunbridge’s rural character and history, only 3% of the population is involved with farming, fishing or forestry, a 50% drop compared to 2000 (6%). The primary farming occupation seems to be in dairy, but there are a number of small diversified farming occupations developing in Tunbridge. For more detailed information on agriculture, see chapter XI.

As always, there are challenges to be met when one is starting a business. Health insurance costs in Vermont are high, as are income taxes. Some things, however, such as the expense of workers’ compensation, are actually less expensive than surrounding states. In general, if an individual chooses to start a business in a rural town like Tunbridge, they choose to do so because of the people and environment that are unique to Vermont.

"More than any other time in history, mankind faces a crossroads. One path leads to despair and utter hopelessness. The other, to total extinction. Let us pray we have the wisdom to choose correctly." ~ Woody Allen
B. Historic Wages of Population

The average yearly wage of an individual in Tunbridge is $27,147 as compared to $39,430 for the State of Vermont on the whole. Of 2010 income tax filers in Tunbridge, roughly 50% made less than the state average yearly wage. In Orange County, 34% of filers reported making less than $20,000, while in Tunbridge that number was 32%. On the opposite side of the income spectrum, 2% of the Tunbridge population reported over $150,000 in income, comparable to all of Orange County.

One of the primary concerns voiced by Tunbridge residents is that younger people are attracted to better paying jobs than are generally available in or near Tunbridge. Land and housing costs also contribute to this trend. As a result, Tunbridge is seeing many young people move out of town. Land and housing costs also contribute to this trend.

"A good plan today is better than a perfect plan tomorrow." ~ George S. Patton
Citizens in Tunbridge are concerned about the continued rise of property taxes and the burden they continue to put on individuals who make only the average wage. Yet as information from the Vermont Department of Taxes taken in 2011 indicates, Tunbridge has one of the lowest tax rates in its surrounding area. It is hard to deny, however, that rising property values are making it harder for middle-class citizens to buy homes in Tunbridge. These costs, coupled with increases in the overall cost of living, are making it more difficult for Tunbridge to attract young families.

Vermont’s Agricultural and Managed Forest Land Use Value Program – better known as the Current Use Program – offers landowners use value property taxation based on the productive value of land rather than based on the traditional “highest and best” use of the land. According to the Vermont Department of Taxes, in 2000 the current use value of the land in the averaged about 20 percent of the full fair market value. In 2015, Tunbridge had the third highest number of parcels in Current Use statewide, totaling 203. In general, the current use program has a limited impact on taxes, as the program reimburses towns on what they lose in municipal taxes.
D. Economic Development

The villages of Tunbridge, although acting as the center for community activities, are not the center of economic activities in Tunbridge. There is no economic center, which implies that citizens go elsewhere to do business. The Tunbridge Fairgrounds is clearly an asset to the community, bringing people from near and far for such occasions as the Tunbridge World’s Fair and the Vermont History Expo. However, these have a limited effect on the community’s economic base.

The most important consideration for continuing economic development and related growth in Tunbridge is that such development be consistent with the rural character of the Town. The types of small businesses and home occupations that are listed in “A” of this section of the Plan are appropriate for Tunbridge specifically because of the limited impact on or enhancement of the Town’s rural character.

Because small businesses seem to be most appropriate for Tunbridge, a committee has been organized to investigate high speed internet options throughout the town. Committee members are working hard to make broadband a likelihood in the near future. The availability of broadband and improved cell phone coverage would probably encourage the continued development of small, low-impact businesses in Tunbridge.

Residents have indicated that they would like to see such things as a coffee house, restaurant, or general store in the villages – particularly in Tunbridge Village as there is already a popular store in North Tunbridge. Such businesses should be encouraged to utilize existing historic buildings rather than build new ones. Fortunately for commercial developers, the villages of both Tunbridge and North Tunbridge have been designated “Village Centers” as part of the Vermont Downtown Program. This program offers income tax credit rebates for things like rehabilitation of historic structures and code improvements. For more information on this program, contact the Tunbridge Planning Commission, the Two Rivers-Ottauquechee Regional Commission, or the Vermont Downtown Board.

### Village Designation Benefits

Because of its participation in the Vermont Village Designation Program, Tunbridge’s Villages have the following benefits available:

- **10% Historic Tax Credits** - Available as an add-on to approved Federal Historic Tax Credit projects. Eligible costs include interior and exterior improvements, code compliance, plumbing and electrical upgrades.
- **25% Facade Improvement Tax Credits** - Eligible facade work up to $25,000.
- **50% Code Improvement Tax Credits** - Available for up to $50,000 each for elevators and sprinkler systems and $12,000 for lifts. Eligible code work includes ADA modifications, electrical or plumbing up to $25,000.
- **50% Technology Tax Credits** – Available for up to $30,000 for installation or improvements made to data and network installations, and HVAC reasonably related to data or network improvements.
- **Priority Consideration for HUD, CDBG and Municipal Planning Grants**
- **Priority consideration for Municipal Planning Grants and funding from Vermont’s Community Development Program.**
- **Priority Consideration by State Building and General Services (BGS)**
- **Priority site consideration by the State Building and General Services (BGS) when leasing or constructing buildings.**
The working landscape that makes up such an important part of Tunbridge’s rural character could be an important part of future economic development in Town. Promoting the creation of small, diversified farms and a year-round farmers’ market might help add local jobs and increase the number of working farms in Tunbridge.

More information on Agriculture in Tunbridge can be found in the Agriculture section of this plan, on page 52.

E. Goals, Policies and Recommendations for Action

Policies
1. Support community efforts to bring broadband internet access to the entire Town
2. Encourage home businesses and cottage industries.
3. Encourage the revitalization of historic buildings in the Villages.
4. Encourage low impact businesses to locate in the Villages.
5. Encourage businesses that use existing buildings in an appropriate manner.
6. Support economic projects that trigger Act 250 provided they are in accordance with the provisions of this Town Plan.
7. Encourage agriculture-related small businesses.
8. Keep the Tunbridge and North Tunbridge village designations up-to-date.

Goals
1. Bring broadband to as much of Tunbridge as is possible.
2. Support the creation of a community gathering place in Town.
3. Create a Tunbridge farmers’ market.

Recommendations for action
1. Continue to investigate the benefits of bringing broadband to Tunbridge.
2. Create a public bulletin board and/or web site.
3. Further investigate policies which could assist the viability of family farms within Town.
4. Form a committee to investigate the creation of a farmers’ market in Tunbridge.
5. Conduct a study that determines the types of businesses most compatible with the rural character of Tunbridge.
6. Tunbridge shall renew its village designations when they expire.

"I get up every morning determined to both change the world and to have one hell of a good time. Sometimes, this makes planning the day difficult." ~ E. B. White
V. Housing

A. Introduction

A major function of local housing planning is to meet two community objectives – first, safe and affordable housing for its present and future population, and second, suitable density and distribution of housing throughout the community. Growth in housing affects the Town’s capacity to provide facilities and services to our townspeople and the character of the area. Housing built without adequate planning for schools, roads, and other public services can overburden the ability of the taxpayers to pay for these services, and also can lower adjacent property values and negatively affect the rural character of the Town.

This section discusses the amount, type, location, and affordability of existing housing and the needs for future housing. Other sections of this Plan also include information on housing. See also Appendix B for a list of housing resources.

B. Number of Housing Units

![Figure 9 – Total Housing Units in Tunbridge, 1940-2010 (Source: US Census)]
Tunbridge’s total number of housing units has been increasing since the 1960s. The 1970s and 1980s saw a large increase in the number of homes being built throughout Vermont, and Tunbridge was no exception. Tunbridge experienced a 31% increase in new homes between 1980 and 1990, which kept pace with the 30% increase reflected in Orange County Data. This was due in large part to an increase in the purchase of second homes, and to individuals from out of state moving from the city to the country.

Between 1990 and 2000 growth slowed, increasing by only 4%. The pace of housing growth increased again between 2000 and 2010; the number of homes rose by 12.5%; a rate that was slightly faster than the county average of 11%.

C. 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 2010 Census, Tunbridge has a total of 764 housing units. Like most of the units in towns throughout Vermont, they are predominantly single-family homes, with mobile homes being a distant second.
As indicated by Figure 11, 64% of the housing stock in Tunbridge is owner occupied. An additional 22% of the housing is dedicated to seasonal, recreational or occasional use, making Tunbridge unique when compared to 14% in Orange County and 17% in Vermont as a whole. When a town has a large number of homes that are not occupied year-round, it can have unforeseen impacts on town services. For example Tunbridge, like many other Vermont towns, has a volunteer fire department. This department depends on full-time residents to staff its fire department, and a lack of full-time residents can make acquiring staff difficult because the pool of candidates is reduced.

Vacation homes notwithstanding, Tunbridge had only 1% of its total housing stock vacant in 2010. Anything below 5% is functionally considered a zero, so in general, Tunbridge does not have much available housing stock to offer, which can have a direct impact on the affordability of housing.

![Housing Occupancy in Tunbridge, 2010](source: U.S. Census)

### D. Rental Housing

Only 12% of Tunbridge’s housing stock in 2010 were renter occupied. The tight housing market and lack of unoccupied apartments continues to drive up rental costs. In 2000 the US Agency of Housing and Urban Development (HUD) calculated the fair market rent for a modest two bedroom apartment in Tunbridge at $571 per month. In 2011, that cost had risen roughly 50% to $859. In order for a renter in Tunbridge to be able to afford rent at this rate, he/she would have to make roughly $34,000 annually\(^1\). Given that 50% of Tunbridge’s households make $35,000 or less, it is likely that it would be difficult to find affordable rental housing in Tunbridge.

\(^1\) Based on the HUD affordability estimates.
Residents in Tunbridge making the average annual wage of $27,147 are paying 37.3% of their income for the average gross rental rate, which means rental properties in Tunbridge are not affordable. Coupled with the fact that rental properties represent only 12% of the total housing stock, and only 11 units were vacant in 2010, it is fair to say that additional rental housing. The Tunbridge community is aware of this need and is concerned about it. In particular, they have acknowledged the impacts that a lack of affordable housing has on attracting young families to their town.

E. Affordable Housing

Important Points

![Median Home Sales (Single Family Residences)](source: Vermont Department of Taxes)

During the past decade housing prices have dramatically increased statewide. This is illustrated in figure 12 which compares the price of residential homes in 2000 with 2010. In 2000, the median sale price for a primary residence in Tunbridge was was $152,000; by 2010 that value had increased almost 15% to $175,000. It should be noted that this increase over ten years was actually less than many of the surrounding communities, if only because Tunbridge’s median sales were higher in 2000.

Affordable housing is defined as that which a household making the County median income could afford if no more than 30% of its income were spent on housing costs. For homeowners, housing costs
include payments for principal and interest on mortgage, taxes, etc. For renters, housing costs include rent and utilities.

Continually rising property values, coupled with the mortgage crisis of 2008, has made it much more difficult for someone making an average wage to afford a home in Tunbridge. The increase of property values is not unique to Tunbridge or its neighbors, this trend is consistent with that of the State of Vermont. In its annual publication “Between a Rock and A Hard Place: Housing and wages in Vermont”, the Vermont Housing Council notes that the median purchase price of a primary home in Vermont in 2010 reached $195,000. A Vermont household would need an annual income of $58,000 as well as $16,000 in cash (for closing costs and a 5% down payment) to purchase a home at that price. It should be noted that the housing market has changed substantially over the past decade due to the national recession. While housing prices have not dropped dramatically in the last decade, income and employment opportunities have dramatically decreased, making housing even less affordable.

The cost of housing has been driven up in great part due to the tight housing market. As is noted in figure 9 in 2000 Tunbridge’s vacancy rate was only 1% which is consistent with the rest of the State and, according to “Between a Rock and A Hard Place”, the lowest in the nation.

Tunbridge, like many communities, has experienced a trend toward fewer home occupants. This trend is unlikely to be reversed. The trend results in an increase demand for housing. The elderly, single households and other special populations are oftentimes in need of special types of housing including that which is affordable and readily accessible.

Another barrier to affordable housing is the age of homes in Tunbridge. “Between a Rock and A Hard Place” points out that on the whole, “Vermont’s housing stock is among the oldest in the United States. 63% of owned homes and 74% of rentals in Vermont were built in 1979 or earlier, before newer energy efficiency technology was available, housing codes were more lax and the use of lead based paint was wide-spread. These factors make an important impact on the cost of operating housing, assuring the health and safety of all residents, and providing access to Vermonters with different abilities.”

State statute requires communities to have a program that encourages the creation of affordable housing. Because Tunbridge has no land use regulations beyond the scope of this plan and its relationship to Act 250, there are no formal regulations to encourage the development of affordable housing. However, the community supports the development of affordable housing, particularly if concentrated in its villages, provided that this housing does not put an undue burden on existing infrastructure, particularly with regard to access to water. Affordable housing development within the villages shall be designed so as perpetuate the aesthetic and architectural character of Tunbridge’s villages, and shall be at a scale that fits appropriately and does not have an undue adverse impact on the character of the community or the ability for the town to provide services.
F. Elderly Housing

According to the 2010 U.S. Census, there are 193 individuals in Tunbridge who are 65 or older. 26% of the households in Tunbridge include people 65 years or older. Residents believe that rising taxes are making it harder for the elderly to afford to own a home in Tunbridge.

Within Vermont there are several types of elderly care facilities which are subject to State regulation, nursing homes and residential care facilities. Nursing homes provide nursing care and related services for people who need nursing, medical, rehabilitation, or other special services. They are licensed by the state and may be certified to participate in the Medicaid and/or Medicare programs. Certain nursing homes may also meet specific standards for subacute care or dementia care. Residential care homes are state licensed group living arrangements designed to meet the needs of people who cannot live independently and usually do not require the type of care provided in a nursing home. When needed, help is provided with daily activities such as eating, walking, toileting, bathing, and dressing. Residential care homes may provide nursing home level of care to residents under certain conditions. Daily rates at residential care homes are usually less than rates at nursing homes.

The Vermont Department of Disabilities, Aging and Independent Living classifies residential care homes in two groups, depending upon the level of care they provide. Level III homes provide nursing overview, but not full-time nursing care. Level IV homes do not provide nursing overview or nursing care. Nursing homes, which have full time nursing care, are considered Level II. At present, there are no options for elderly care located in Tunbridge. The nearest options are in Randolph (Number of beds: 30 Level II, 18 Level III) and Chelsea (Number of beds: 21 Level III). However, given the size of the populations in both Randolph and Chelsea, it is likely that there is a large population waiting for vacancies at these locations.

In the Vermont Housing Finance Agency's issue paper "Housing and the Needs of Vermont's Aging Population", it is acknowledged that more seniors today want to "age in place," which means choosing to remain at home or in a supportive living community as they grow older without having to move each time their needs increase. Considering the lack of availability of nursing homes in Tunbridge and Vermont as a whole, this may be the optimal way to address elderly housing in the future. Having the right housing includes the ability to stay active and engaged in community life, which is a great benefit not only to the individual, but to the community as a whole. Considering the high costs of housing in Tunbridge, however, aging in place in the community may not be an option that can be considered by older residents.
Several municipalities have benefited from planned retirement communities which provide for older persons. Innovative land use policies and controls to direct special needs are encouraged. Such land usages are best located in close proximity to existing hamlet centers where basic services are available and not in rural areas.

G. Childcare

<table>
<thead>
<tr>
<th>Childcare providers, by town.</th>
<th>Registered</th>
<th>Licensed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chelsea</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Bethel</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Randolph</td>
<td>6</td>
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</tr>
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<td>2</td>
</tr>
<tr>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Vershire</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 14 – Childcare providers by Town, 2012 (Source: VT Bright Futures Childcare Information System)

An inventory of registered childcare facilities reveals that Tunbridge has a very limited amount of childcare available to the community. The State of Vermont has two classifications of childcare that are regulated, they are:

- **Registered Family Child Care Home:** A child care program approved only in the provider's residence, which is limited to a small number of children based on specific criteria.

- **Licensed Program:** A child care program providing care to children in any approved location. The number and ages of children served are based on available approved space and staffing qualifications, as well as play and learning equipment. A Licensed program must be inspected by the Department of Labor and Industry's Fire 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. Types of licensed programs include: early childhood programs, school-age care, family homes and non-recurring care programs.

There are currently only two licensed childcare services in Tunbridge. Most residents currently arrange for care with relatives, or take their children to childcare facilities beyond the borders of Tunbridge to neighboring towns like Chelsea or Royalton.

For children in the Tunbridge school system, there is the option of participating in an after-school program. As of January of 2007, there were 30 children enrolled in the program, which offers kids math, reading and physical-education components. The program was originally funded by a 3-year “21st century” grant awarded in 2004. At this time, the program manager is currently trying to secure funding to continue the program. Because our current economy requires that both family members

“What's the use of a house if you haven't got a tolerable planet to put it on?” ~ Henry David Thoreau
work, programs such as this one are needed to fill time gap between when school gets out and when parents can be home from work. It is in the best interest of the Town to make every effort to support the Tunbridge after-school program.

In addition to concerns about the availability of affordable housing for purchase and affordable rental or transitional housing, the lack of available childcare may be acting as a disincentive for young families to move to Tunbridge.

**H. Goals, Policies and Recommendations for Action**

**Goals**
1. To provide the opportunity for Tunbridge residents to have access to affordable housing.
2. To encourage the retention of existing housing and construction of new housing that meets the natural population growth.
3. To encourage the preservation of historic structures in ways that appropriately serves the need for housing.
4. To encourage the creation of additional rental properties throughout Town, provided that they do not put an undue burden on Town services and facilities.
5. To encourage the development of affordable senior housing within the Town.
6. To support the creation of a committee to further investigate the need for affordable housing in Tunbridge.
7. To encourage the use of accessory apartments.

**Policies**
1. It is the policy of the Town to ensure that the timing and rate of new housing construction or rehabilitation does not exceed the community's ability to provide adequate public facilities (e.g. schools and municipal services).
2. It is the policy of the Town to keep housing affordable by encouraging accessory apartments and clustered developments.
3. It is the policy of the Town to encourage the location of future housing so as 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 the physical limitations of the site and its proximity to current or planned public and private services such as roads and commercial/service centers.

**Recommendations for action**
1. Apply for grant funding to conduct a housing needs assessment in Tunbridge.
2. Investigate the creation of a housing and conservation fund that would be funded through a .01% property tax in an effort provide land for affordable housing.
3. Apply for a mini-grant to create an educational pamphlet about how to become a landlord and the issues associated with it.
VI. Education

A. Introduction

The Tunbridge Central School is located on Route 110 in North Tunbridge Village and offers education for grades K-8.

The total staff consists of 25 employees, 8 of which are full-time teachers. See Appendix B for additional information on education resources.

B. Student Enrollment

Enrollments of students in the Tunbridge Central School are reported annually to the Vermont Department of Education. Based upon annual student resident counts from the Department, student enrollment at the school for grades (K-8) in recent years has been as follows:

![Student Enrollment by Year 2006-2011](source: VT Dept. of Education)

Enrollment at the Tunbridge Central School has fluctuated on a yearly basis, but the average number of students over the past five years has been roughly 111, resulting in a trend line that is rising slightly.

“... I believe a lot of people share my feelings about the tragic landscape of highway strips, parking lots, housing tracts, mega-malls, junked cities, and ravaged countryside that makes up the everyday environment where most Americans live and work. A land full of places that are not worth caring about will soon be a nation and a way of life that is not worth defending.” – James Howard Kunstler, The Geography of Nowhere (1993)
Given that regionally many schools are experiencing declining enrollments, Tunbridge residents should be pleased that they have a relatively stable school population.

At the Tunbridge Central School there is a 10:17 student to teacher ratio, which is slightly more than the statewide average of 10.85.

Secondary School Enrollment

Because Tunbridge does not have a secondary school, students who graduate from the Tunbridge Central School have the option of tuitioning at neighboring high schools in the region. According to the 2011 Tunbridge School Report, students are tuitioning to public secondary schools in Chelsea, Hartford, Hanover, Randolph, Royalton. Students also attend Kimball Union and Sharon Academy which are private schools.

C. School Building

The Tunbridge Central School building was originally built in 1954, and additions were added in 1987 and 2000. One of the additions added recently was a multi-purpose room, which is made available for town functions such as Town Meeting and for recreational activities such as community basketball and volleyball. The 1954 section of the building is clearly aging. There have been some minor issues with regard to air quality in that portion of the school. In the long term, work will need to be done to upgrade this section of the school. Otherwise, the school is in good condition.

D. Adult Education

Tunbridge has a fairly limited amount of adult education opportunities. Most adults take advantage of the opportunities that are available in Randolph as an alternative. These include:

Vermont Technical College (VTC) - Vermont Technical College is located in Randolph Center. VTC is part of the Vermont State College system and offers full and part time educational opportunities that range from computer technology, to agriculture to health services. Attendees may choose a two-year program that leads to an associate's degree, a four-year program that leads to a bachelor's degree, or the college's one-year program that leads to a Practical Nursing certificate.

Randolph Technical Career Center (RTCC) – Located in Randolph village, the RTCC is part of Randolph Union High School. RTCC offers adult education courses that range from the traditional tech center focuses of mechanical and woodworking, to computer technology, small business management, bookkeeping as well as arts, crafts and languages. RTCC’s adult education classes are open to all for a fee.

The Friends of the Tunbridge Public Library do offer monthly presentations during the winter that are educational in nature.
E. Goals and Policies

Goals
1. To provide a safe and secure learning environment where quality educational opportunities are provided to all students.
2. To enable the best opportunity to educate our students at the most equitable cost to the Town's taxpayers.
3. To encourage the creation of affordable childcare facilities that meet the established needs of residents in Tunbridge.

Policies
1. Land development that is likely to result in large numbers of school children must be phased or planned so as to not place an undue financial burden on the capacity of the Town to provide educational services.
2. It is the policy of the Town to provide sufficient and appropriate physical space to meet current and projected enrollments.
3. The Town of Tunbridge supports the private development of additional facilities to meet the childcare needs of its residents and may assist with seeking funding to develop these facilities.

“Planning is bringing the future into the present so that you can do something about it now” ~ Alan Lakein
VII. Utilities and Facilities

The provision of services and maintenance of facilities is one of the key roles of any municipal government. The cost of services and public facility maintenance can represent a substantial amount of a municipality’s yearly budget (not including transportation, which is generally the largest portion).

A. Capital Budgeting & Planning

State statute enables communities to create a Capital Budget and Program for the purposes of planning and investing in long-range capital planning. Although most communities have some form of capital account where they save money, many do not have a true Capital Budget and Program. A capital budget outlines the capital projects that are to be undertaken in the coming fiscal years over a five-year period. It includes estimated costs and a proposed method of financing those costs. Also outlined in the Program is an indication of priority of need and the order in which these investments will be made. Any Capital Budget and Program must be consistent with the Town Plan and shall include an analysis of what effect capital investments might have on the operating costs of the community.

When planning for routine major facilities investments, such as roof replacements, foundation repairs, etc., it is important to also consider making energy efficiency improvements at the same time. 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.

At present, the town of Tunbridge does not have a formally adopted Capital Budget and Program to help guide investments in community infrastructure and equipment, although it does have a Capital Improvement Fund which receives an annual allocation of funding for the purposes of making capital investments. The Planning Commission may make recommendations to the Selectboard with regard to what capital investments should be considered annually as part of a Capital Budget and Program.

B. Town Offices

This building was originally known as the Market School and was the first two-roomed schoolhouse in Tunbridge. It was built in 1904. Until 2000, half of the building was used by the Tunbridge Library. It was renovated in 2001 when the Library moved out. Currently, the building houses the Tunbridge Town Offices including the Town Clerk and the Town Listers office. The building is in good shape for its age. In 2006, the Town Hall, the church, and the Town Offices were all attached to the Union Agricultural Society’s well. In 2010, the town successfully replaced the Town Office’s septic system. Energy efficiency improvements were made to the Town Hall as well, including new blown-in insulation in the attic and the installation of programmable thermostats.

C. Town Hall

The Tunbridge Town Hall was built in 1840. It is generally used for public purposes such as Town Meetings, the Memorial Day Services, local theatre groups and other community programs like “bone builders,” but it does get rented for weddings and parties as well. The availability of a fully functional kitchen in the basement level helps make these events possible.
In 2004 the building was upgraded with funds from an Accessibility Modification Grant through the Vermont Community Development Block Grant program as well as countless donations of money, labor and materials. Renovations included a new heating system for the entire building and upgraded handicapped accessibility, plumbing and electrical in the downstairs meeting area. The Town Hall committee installed a handicapped accessible elevator in the facility to allow better access to the upstairs main hall. The recent upgrades to the building have greatly improved its usability.

In general, the building is in excellent condition, particularly due to the recent renovations. The upstairs hall area of the building has the classic large windows of a hall. These windows are very old and inefficient. Upgrading to more modern and efficient windows, while still maintaining the historic appearance of the building, would benefit the hall.

D. Town Garage

The Town Garage is located at the end of Recreation Road, just north of Tunbridge Village. It is purely a functional building. It is in good condition and is adequate for the needs of Town. Aside from the need for a small addition to house flammable materials in a safe manner, the building is only in need of minor improvements.

In 2010, spray foam insulation was installed in the Town Garage’s ceiling and high-efficiency lighting was installed. Programmable thermostats were also included as part of these energy efficiency upgrades.

E. Tunbridge Public Library

The Tunbridge Public Library offers many things for Tunbridge residents: a collection of audio, video, 60+ magazines and over 9,000 books; interlibrary loan; computer and internet access; and access to the Vermont Online Library. According to a 2006 public libraries survey, there are 10,883 library visits per year at the Tunbridge Public Library, and over a thousand registered borrowers.

In addition to offering books and other services typically found at libraries, the Tunbridge Public Library hosts a number of events, including “Winter Evenings”, a series of six lectures featuring guest speakers, “Thursday Night Stories,” and a summer reading program. The library also features art exhibits in the “ArtSpace” area and co-sponsors programs with the Tunbridge Historical Society. The diversity of community events and services offered by the library make it a center for volunteerism in Tunbridge.

Built in 1829, the former Gibbs building is in excellent condition. This building was donated to the Town by the Union Agricultural Society and upgraded in 2001 (including an addition) to accommodate the library. A new well was drilled in 2005 to upgrade the water supply for the Library.

The organization is supported in part by a yearly budget item in the Town budget. In 2006, the Library received $28,775 in support from the Town and offset the remaining budget needs with fundraising, support from Friends of the Library, grants and other gifts.
F. Public Cemeteries
There are 20 cemeteries in town, 17 of which are public. Town responsibilities in these cemeteries include mowing and other general maintenance, and restoration. In response to a need for additional burial space, the town is currently developing an additional public cemetery on Russell Road.

G. Solid Waste Services
Tunbridge is a member of the seventeen town Central Vermont Solid Waste District. The Town and the Solid Waste district have a unique arrangement whereby Tunbridge utilizes their own transfer station for both trash and recycling. They contract with Northeast Waste Services (Cassella, Inc.) for pickup of both trash and recycling. The Solid Waste District assists the Town with arranging contracts for these services and handles the final destination of all trash leaving Tunbridge.

In 2006, the Town paid $24,588 for NE Waste Services to collect trash from the Tunbridge transfer station. Some residents contract directly with NE Waste Services for curbside pickup of trash, but most bring their trash to the transfer station. Recycling is handled at the transfer station and is done free of charge with the exception of metal and tires.

The Tunbridge Transfer Station has been operating at a loss for a significant period of time, due primarily to falling number of “trash tickets” and rising costs for trucking and disposal. This deficit is currently covered by additional taxes, but the desire is to have the transfer station be self-sufficient. There have been discussions with CVSWD about consolidating transfer stations in the area. It is possible that Chelsea and Tunbridge might eventually use the same location for trash handling. If the Tunbridge transfer station were to service Chelsea as well, it would most likely need some upgrades. At this writing, the discussions have been put on hold.

H. Water Supply and Wastewater Treatment Facilities
The Town has no public water or sewer system. Individual wells supply water, and septic systems handle sewage disposal. Design and construction of on-site sewage systems requires a permit issued by the Town Health Officer.

The Town does not plan to engineer or construct either of these types of facilities in the next five years, with the exception of the water supply for the Tunbridge Town Offices, Town Hall and Library. As noted above, attempts to drill a well for the three public buildings were only partially successful. The library has a well of its own, with the Town Offices, Town Hall and Church attached to the Union Agricultural Society’s well.

I. Communication Facilities

Telephone

Landline Communications - Most of the telephone related services in Tunbridge are still offered via the traditional telephone lines and poles (landline). Coverage over landlines in Tunbridge is provided exclusively by Fairpoint Communications, Inc.
**Cellular Communications**

There are no cell towers located in Tunbridge, and coverage is poor at best. While communities are enabled by statute to regulate cell towers, there is an often used exception: any cellular provider who is creating a network of cell towers is exempt from local land use regulations under V.S.A Title 30, Chapter 5, §248a. While these facilities are exempt from local regulations, due consideration to the municipal plan is supposed to occur as part of the permitting process.

While residents are supportive of expanding cellular service within the community, they do not want to do so to the detriment of the rural character of the town. Any cell tower that is proposed for development in Tunbridge must be designed so as to not have an undo adverse impact on the rural character of the area in which it is located, this shall be achieved by utilizing the following concepts (at a minimum):

- siting the tower below the ridgeline
- using stealth design to have it blend in with surrounding trees
- altering the color of the tower to reduce visibility
- use of landscaping to effectively screen the view of the equipment shelters, necessary structures or access roads from adjacent public ways, public property and residential property

Towers must be capable of supporting multiple antennae/cell service suppliers in order to limit the total number of towers located throughout the town, and thereby limiting the impact on the rural character of the community.

**Internet**

**High-speed Internet** - There are presently four ways to access the internet in Tunbridge, they are: landline, DSL, cable and satellite.

**Dial-up** - Dial-up access is the most commonly available service to residents, but speeds over a telephone modem are very slow, and given the ever increasing need for bandwidth in day-to-day use of the internet, it is not practical for more than checking email. The faster and more stable options available to residents are via satellite modem, Cable and DSL.

**Cable Internet** – Charter Communications Cable service offers internet through their existing cable TV system. Speeds are generally considered good for home users and businesses can acquire higher speeds through business specific packages. Home cable internet can be subject to slow downs at peak hours when many users are accessing the internet at the same time. Cable is most commonly available along main roads.

**DSL (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 Fairpoint Communications, but only within three line miles of the Fairpoint switching station in Tunbridge Village. Residents who live close to the Royalton town line are more likely to have DSL due to their proximity to South Royalton.

**Satellite Internet** - Provided by companies such as HughesNet, Direcway and Wildblue, satellite internet 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 location. 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 Tunbridge have access to the internet only via landline or satellite modem. Because of the difficulties in convincing cable and DSL providers to extend their coverage areas, other towns 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 the past three years, East Central Vermont Community Fiber Network has approached towns in the Upper Valley and surrounding areas including Tunbridge. This organization has developed a long-term plan to extend fiber optic cable throughout the region. Fiber optic cables offer the fastest connection speed available. Although this project is still in the development and planning stages, it has the potential to benefit Tunbridge residents.

**Goals**
1. Provide town services and facilities that meet established needs of current and incoming residents in a cost-effective manner.

**Policies**
1. Plan for future services and facilities on a reasonable yet conservative growth estimate that reflects the desire of the community to retain its rural and agricultural character.

**Recommendations:**
1. A cooperative approach to drinking and wastewater systems shall be used when possible.

“Every decision you make—every decision—is not a decision about what to do. It’s a decision about Who You Are. When you see this, when you understand it, everything changes. You begin to see life in a new way. All events, occurrences, and situations turn into opportunities to do what you came here to do.” ~ Neale Donald Walsch
VIII. Recreation

Until about 2000, Tunbridge recreation programs were initiated and run by a Recreation Committee made up of volunteers. Funds were raised through raffles, donations, and a yearly chicken pot pie dinner. The original Recreation Committee built a playground, a baseball field, and a pool to be used for swimming lessons (this was in response to the drowning death of a Tunbridge child). In addition to the summer swimming lessons, recreation programs included sports programs, occasional craft activities, and at least one short-lived attempt to provide a summer day camp.

When the number of active committee members decreased substantially in the late 1990s, the Recreation Committee voted to disband, and recommended to the Town’s Selectboard that the Town hire a recreation director and support the position, and programming, through the Selectboard’s budget. Starting in 2005 the recreation budget was funded at $6,000 per year, with half of the amount providing a stipend for the coordinator. In 2010, a Recreation Committee was re-formed (currently four members, but with no designated minimum or maximum) which has undertaken efforts to address a broad range of identified recreational needs and desires. Funding from the Town has remained level at $6,000, with funds being distributed across a range of programs and small stipends to committee members rendering services related to those programs (e.g., ice rink management, grant writing, pool restoration management, and secretary and treasurer duties.)

The Recreation Committee combined efforts with the Tunbridge Central School 8th grade to host a series of monthly breakfasts at the Town Hall as a major fund-raising source and continues to operate the “Cow-Pie Bingo” event during Memorial Day festivities. Recreation programs include coordination of volunteers and transportation to a local “learn-to-ski” program, maintenance of a 50-foot by 100-foot skating rink, and partnering with Tunbridge Central School, the School Club, and the Tunbridge One Planet Program to organize and present a Winter Carnival Family Day following the school carnival day in February. Creation of the rink relied on diverse community resources including the school, the Fire Department, the directors of the Tunbridge Fair, volunteer workers, and generous donations from community members in response to a direct-mail appeal. The rink has continued operation primarily on the basis of recreation committee and community volunteer efforts as well as the support of the Tunbridge Volunteer Fire Department who help fill the rink.

As of 2011, following the recommendation of a community panel formed to examine the issue and substantial community input, the School Board agreed that the responsibilities of the Tunbridge Central School Athletic Director should include oversight of all team sports (including soccer and basketball) involving K-8 students. These programs had traditionally been divided between Recreation and TCS oversight, but the overall sentiment was that they would be better served under a single entity. The Recreation Committee made a commitment to continue supporting the TCS athletic program through fundraising and other assistance.

The One Planet program has partnered with the Recreation Committee to offer a variety of programs that ensure regular physical activity and time outdoors for K-6th grade kids in the summer months and allow working families to make use of the services. One Planet charges fees but also uses scholarships and reduced fee rates to ensure that the program is available to any child who is interested in attending. In 2011 summer programs served 34 regular attendees, 33 of whom completed swimming lessons at the Vermont Technical College (VTC) SHAPE facility pool in Randolph Center.
Public meetings held by the Planning Commission in April, 2004, showed a strong interest in reviving the pool. Attendees identified the pool as a community center, and pointed to the importance of swimming lessons for children. The possibility was raised of building a new pool in cooperation with the Town of Chelsea. The pool fell out of use for several years as a result of deterioration of the former asphalt lining and a concern for water quality. In 2010 and 2011 members of the Recreation Committee and local volunteers undertook substantial improvements to the pool and surrounding grounds, removed the former lining and installed an aerator/distribution inlet head, and filled the pool several times to test its ability to hold water. The Recreation Committee and Town leveraged grant funding to have a snow-collapsed building directly adjacent to the Recreation field and swimming area removed and help the Town to purchase the 0.5-acre lot on which the building was sited; local volunteers contributed substantial time and labor to help remove the building and clean up the site.

During 2010-2011, the Recreation Committee focused efforts on a larger revitalization process of this Recreation area, which includes removal of that building, establishing a covered picnic area, a new playground, and some landscaping and sprucing up of the recreation field. With substantial numbers of children learning to swim at the VTC pool, it is conceivable that renovation of the pool at this time may be geared to use as a wider community facility rather than a primary place to offer swim lessons.

Currently the pool is fed from a nearby brook, which appears to be subject to periodic contamination from undetermined sources. In 2011, the White River Partnership and local volunteers began bi-weekly water quality monitoring on this brook, directly upstream of the intake for the pool. The first year of monitoring was marked by a distinct lack of rainstorms immediately preceding test days, and generally indicated some of the lowest levels of contamination at monitoring sites spread throughout the overall White River watershed. On the limited number of test dates closely following rainstorms, however, the site repeatedly indicated some of the higher levels of E. coli contaminants in the watershed, frequently exceeding EPA-recommended thresholds for swimming sites. Water quality monitoring at this site is scheduled to continue in the future, and the first reach (~1.38 mi.) of the stream is included in a Phase 2 (i.e., field assessment) geomorphic study of the First Branch and its major tributaries for which the White River Partnership obtained funding to conduct in 2012. Options for the revival of the Tunbridge pool include eliminating the most obvious source(s) of bacterial contamination (which will hopefully be identified by these monitoring efforts) and continuing to rely on the brook for a constant flow of water, and/or improving the pool’s ability to hold water by rebuilding it with a liner (and installing a water treatment system). While the latter option is clearly the more expensive, it is the one most likely to produce a reliable recreation resource for the Town.

At the 2004 community meetings, another area of significant interest was bicycle and walking paths. One specific location identified for a path was between the villages of Tunbridge and North Tunbridge; also discussed as trail sites were old roads, snowmobile trails, and the town forest. The sense of community created by recreation activities was noted, along with the recognition that expanded recreation programs would increase connections between people. In 2010 a management plan was developed for the Tunbridge Town Forest, including preliminary delineation of potential recreational resources, and in 2011 mountain bike trails were laid out (with one loop created and ready for use) in the Town Forest by local residents. Former skid roads in the Town Forest are generally capable of serving as good hiking/skiing trails, though some portions need minor clearing and maintenance work. Some of this work was conducted by volunteers in 2010, and several guided and informational hikes were conducted in the Town Forest. Strong interest has been expressed in expanding these types of offerings, but it has been evident that parking facilities to access the Town Forest may need to be upgraded or expanded to permit access to a broader audience (vehicle ground clearance is currently a
limitation at the Drew Lot, and the best access to the Town Garage Lot goes through one of the Town sand pit areas and is posted to limit access via this route).

There is a general sense that many opportunities exist for broadening the scope of recreational activities in town, and also broadening the age range that is served. Success in achieving these general goals will require connecting with the instinct for volunteerism that is still a strong part of the Tunbridge community, while at the same time building acceptance for increased use of town funding for recreation programs.

Goals

1. To continue and foster partnerships such as those between the Recreation Committee, Tunbridge Central School, the School Club, and the Tunbridge One Planet Program to provide a broad range of affordable recreational activities and opportunities.
2. To continue summer recreational programs for school-age children, especially through effective partnerships such as that with the Tunbridge One Planet program.
3. To revive the Tunbridge pool to serve the broader Tunbridge community.
4. To establish and maintain recreation trails for town residents with a “carry-in, carry-out” waste policy, and to provide parking and access facilities to these trails that permit use by a broad range of constituents. Whenever possible, provide trail connectivity that promotes walking and biking access between facilities.
5. To continue the tradition of unposted land remaining open for recreational use when used in a responsible, appropriate manner.
6. To support the overall health and well-being of adults and children of all ages by providing easily accessible opportunities for physical activity, outdoor recreation, and connection with the natural world.

Recommendations

1. Appoint a long-term Stewardship Committee for the Tunbridge Town Forest.
2. Upgrade the landing at the Drew Lot of the Tunbridge Town Forest for use as a parking area (accessible to a range of vehicles) and consider a small kiosk with a welcome sign and/or maps of the trail layout.
3. Identify and develop access to the trail system at the Town Garage Lot of the Tunbridge Town Forest.

“We never know the worth of water till the well is dry.” ~ Benjamin Franklin
IX. Health and Emergency Services

A. Health Care Facilities

Health care facilities are essential in the prevention, treatment, and management of illness, and in the preservation of mental and physical well-being through the services that they offer. Rural locations such as Tunbridge are served by small facilities that can assist residents with general health care 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 the area over which the population is distributed can make providing adequate health care more difficult, particularly for the elderly who may not be able to drive themselves to major health care facilities. Likewise in rural areas, emergency care for severe trauma or major acute illnesses such as stroke and heart attack may take longer to arrive than in more populated locations, risking potential loss of life.

There are no options in terms of town-based health care services in Tunbridge. The Chelsea Health Center is the closest location for family medical care. For more specific health care issues, Gifford Medical Center is located in the nearby town of Randolph. Gifford Medical Center offers a wide range of services to serve most medical needs. There are large-scale community hospitals in Rutland and Berlin, and a tertiary care facility in Lebanon, NH.

B. Tunbridge Volunteer Fire Department

The Tunbridge Volunteer Fire Department (TVFD) is a private organization that serves Tunbridge and is part of the mutual aid network. It also responds to all automobile related rescue squad calls. In 2011, the TVFD responded to 32 calls, which included structural fires, chimney fires, motor vehicle accidents and mutual aide calls.

B. Staff

In 2011, the TVFD had an average of 9 firefighters per call and an average of over 12 firefighters per training. There is always a need for additional volunteers to serve as firefighters, to help raise money, and to help care for the equipment, but at this point in time the TVFD is having a difficult time recruiting new members. This is a common problem statewide. Changes in Tunbridge’s demographics, the effect of living in a bedroom community, and the many State and Federal requirements for training have negatively impacted the TVFD’s pool of interested volunteers. In particular, day coverage is spotty because many residents work out of town. The staff of the fire department has taken steps to try to encourage people to become involved with the TVFD, and is interested in any ideas or suggestions that would help improve volunteerism.

Fire Station

The Tunbridge Fire Station is located at the corner of Monarch Hill Rd. and Route 110. The building itself is quite old, but part of it was damaged in a flood during the early 1990’s and was rebuilt. The most recent improvement to the building was the installation of a generator. The building does not
meet the needs of the TVFD, but like most volunteer fire departments they make do with what they have. The building is undersized, barely allowing for all of the fire and rescue vehicles to fit into it. Additionally, the building lacks floor drainage making the cleaning of vehicles during the winter impractical. In addition to housing the four Tunbridge engines, the building also houses a rescue vehicle for the First Branch Rescue Squad.

Funding

The TVFD receives some funding from the Town, but most funding comes from either grants or donations. Taxpayers pay for the department’s operating expenses, and large purchases are made out of the Town’s capital budget. In 2010, the Town paid $26,920 for fire department expenses, plus an additional $35,000 toward a new fire truck.

C. Police Protection Services

Tunbridge has two constables, each elected by town vote. Police coverage in Tunbridge is provided Tunbridge contracts with the Orange County Sheriff’s department for police protection services. In 2011, the cost of this contract was $6000. Additional police coverage is provided by the Vermont State Police in Royalton.

D. Emergency Medical Services

First Branch Ambulance and Rescue

Emergency medical transportation is provided by First Branch Ambulance and Rescue in Tunbridge (FBAR). EMTs in Tunbridge respond to calls using the Rescue truck and are trained in vehicle extrication skills.

FBAR serves Tunbridge and Chelsea, and is overseen by a board of directors, including at least two representatives from each town. Although FBAR is overseen by a single entity, there is a division between the Ambulance and Rescue. The Rescue squad is based out of Tunbridge and shares limited space with the Tunbridge Volunteer Fire department. The Ambulance is located in Chelsea. Both sections of FBAR have their own director.

Aside from space issues at the Tunbridge Fire Department, FBAR has indicated the need to replace one of their rescue vehicles. Funding for the FBAR is provided by yearly payments from Chelsea and Tunbridge. In 2011, each town paid $30,000. Additional operating capital is acquired through grants, donations and fund raising events.

DHART

The Dartmouth-Hitchcock Advanced Response Team is based in Lebanon, NH at Dartmouth-Hitchcock Medical Center. DHART crews provide both air medical transportation services to the medical communities of Northern New England. In addition, DHART flight crews respond to public safety agency requests for medical evacuation of trauma patients from scenes of injury, and will transport to the closest Trauma Center in the region's five states. Operating 24 hours a day and seven
days a week, DHART Crews transport adult, pediatric and neonatal patients to ANY appropriate medical facility in New England.

E. Emergency Preparedness

The Town of Tunbridge, with assistance from the Two Rivers-Ottauquechee Regional Commission maintains a Basic Emergency Operations Plan (BEOP). The BEOP document contains contact information for Selectboard members and emergency service providers, assigns Incident Command System roles and outlines the course of action in the event of an emergency. The BEOP is updated on a yearly basis and is adopted by the Selectboard.

Because of the scale of the yearly Tunbridge World’s Fair, the community has also developed an Emergency Response plan for the fairgrounds. This plan will be an essential tool for first responders if an event occurs during the Fair, but is flexible enough to apply to the entire town during any major incident.

F. Emergency Access

Any new development in Tunbridge should be designed so as to allow safe access for emergency services. Poorly designed driveways that are too steep or too narrow can limit access, particularly in the winter and may represent a safety hazard for the emergency responder. In new subdivisions or developments that trigger Act 250, the design of such drives or similar facilities shall be done in consultation with the Tunbridge Fire Department.

G. Goals, Policies and Recommendations

Goals

1. High quality medical care should be available to all Tunbridge residents.
2. To ensure the protection and safety of the citizens of Tunbridge against crime and violations of law.

Policies

1. It is the policy of the town to support and encourage the development of local health care facilities and counseling services to help residents obtain health care as close to home as possible.
2. It is the policy of the town to support programs that expand medical coverage or improve medical services for Tunbridge residents.
3. It is the policy of the town to support the development of assisted living or other facilities or services dedicated to supporting the elderly in Tunbridge.
4. It is the policy of the town to support efforts to provide residents with access to high quality physical and mental health care through local providers.
5. It is the policy of the town to support efforts to decrease response times for emergency services.
6. To guarantee the residents of Tunbridge adequate fire protection services.
7. That the law enforcement needs of the town and its citizens be reviewed and assessed on an annual basis by town officials with input from the citizens to determine the adequacy of police protection provided and to provide greater protection if determined to be inadequate.
8. That the need for additional equipment or facilities for the elected Constable be considered as an important part of the annual assessment.
X. Transportation

A. Introduction

The Vermont Agency of Transportation and the Tunbridge Board of Selectmen jointly determine our road classification. There are four road classifications used by the State of Vermont. The classification determines the rate of State financial aid in the repair and maintenance of Town roads (there is no State aid for Class Four roads). The classes are:

- **Class 1:** town highways that form the extension of a state highway route and that carry a state highway route number.

- **Class 2:** important town highways, often paved, with the primary purpose of linking towns and high traffic areas such as village settlements and state highways.

- **Class 3:** all traveled town highways other than Class 1 or Class 2 highways that are negotiable under normal conditions, all seasons of the year by a standard manufactured pleasure car.

- **Class 4:** all other town highways on which public use is limited.

- **Legal Trail:** A public right-of-way which are not highways and are generally used for recreational purposes. They may have previously been a town highway or may be newly laid out. There is no minimum width required and the municipality has no maintenance obligations to the road, its, bridges, or its culverts.

B. Town Roads and Road Maintenance

Tunbridge has a total of 70.76 miles, excluding Class 4, of Town roads, consisting mostly of Class 3 roads. This does not include the 7.93 miles of Vermont Route 110 that runs through Tunbridge and is maintained by the State. The total mileage of roads in Tunbridge is slightly higher than the average of 65 miles per town in Orange County.

<table>
<thead>
<tr>
<th>Class</th>
<th>Mileage</th>
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<tbody>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4.84</td>
</tr>
<tr>
<td>3</td>
<td>65.92</td>
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<tr>
<td>4</td>
<td>12.85</td>
</tr>
<tr>
<td>Legal Trail</td>
<td>2.45</td>
</tr>
</tbody>
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Figure 16 - Source: VT Dept. of Transportation

Most of Tunbridge's residential properties are on Class 2 and Class 3 roads. There are about 60 residential properties on Class 4 roads in Tunbridge. In general, it is the policy of the Town to limit the amount of maintenance that occurs on Class 4 roads. Plowing does not occur on Class 4 roads.

The quality of Town roads and their level of maintenance affect not only the Town tax rate, but also the type and rate of Town development. Road improvements may make Tunbridge a more attractive place to live.
place of residence and increase the commuter population. This, in turn, may increase demand for Town services and thus additionally raise the tax rate.

Overall the condition of the roads in Tunbridge is good.

Tunbridge uses approximately 10,000 yards of gravel and crushed stone for its roads, which the Town buys from Chelsea. Tunbridge uses approximately 5000 yards of sand a year, which Tunbridge purchases from East Randolph.

The highway budget has consistently been one of the largest parts of the Town's budget. In the 2015-2016 fiscal year the Town expended $869,355.00 on highway maintenance costs. The highway budget is not entirely funded by Town revenues. State Aid contributed $110,000 or 12.7% of the total for the 2015-2016 fiscal year. The Tunbridge Highway Fund does not receive Federal Revenue Sharing funds. Tunbridge has a strong desire to maintain its rural roads, road maintenance is of high priority to the Town.

C. Bridges

Tunbridge has five covered bridges (all listed on the National Register):

- Cilley (or Lower) Bridge — Southwest of Tunbridge Village
- Flint Bridge — Northeast of Tunbridge Village (off VT 110)
- Larkin Bridge — North Tunbridge (off VT 110)
- Howe Bridge — South of Tunbridge Village (off VT 110)
- Mill (or Hayward & Noble or Spring Rd.) Bridge — West of VT 110 on Spring Road

These bridges are important to the history of Tunbridge as well as adding to the rural character of the Town. They are maintained through a joint collaboration between the Town of Tunbridge and the Vermont Agency of Transportation (VTRANS). Much of the funding to rehabilitate and maintain these historic bridges comes from the State in an effort to preserve historic structures and help support tourism. Vermont’s covered bridges are a popular tourist attraction.

There are twelve bridges in Tunbridge that are maintained by VTRANS. The remaining 24 bridges in Tunbridge are on town roads and therefore are maintained by the town road crew.

D. Road Standards

The Town currently uses highway rules and regulations based on state standards that were adopted by the Selectboard on June, 17, 2013. This policy details road construction standards and policies for road classifications, right-of-way, access, road acceptance, and numerous other construction and maintenance related activities. These highway rules and standards can be found at the Town Office. The responsibility of ordinance implementation rests with the Selectboard and the Tunbridge Road crew. In the event that a proposed development is considered under Act 250, the following shall apply:

- Emergency management services will have guaranteed safe access to all development.
- Roads should be designed with multi-modal transportation safety (pedestrian, bicycle, etc.) in mind.
• Since local and state road construction follows State of Vermont design standards, private roads should be constructed to those standards, thereby minimizing changes if the road is accepted by the Town at a later date.
• Road design and construction shall adhere to the relevant Town Plan goals and objectives - land use, natural resources and transportation elements.
• All roads shall reflect a context-sensitive design that preserves and enhances the adjacent land uses and transportation system.

Major transportation projects often place a greater emphasis on contemporary engineering design standards. However, in some instances, the design and engineering of our roadways and bridges fail to consider the Town's unique historical and natural landscapes. The design of a transportation project should account for a road being historic, scenic, pleasant to drive, or respectful to the people and businesses living alongside it. While engineering sufficiency criteria are important factors for road and bridge improvements, compatibility with existing and future development patterns also are important considerations.

E. Access Management

According to the Vermont Agency of Transportation (VTrans) definition, access management is a process that provides or manages access to land development while simultaneously preserving the flow of traffic on the surrounding road system in terms of safety, capacity needs, and speed. Access management is an important process to provide reasonable accessibility to adjacent land uses while maintaining a safe and efficient flow of traffic. Transportation professionals have established that a single, well-designed access to a public highway presents few concerns for the traveling public. However, if access has been poorly designed and/or its frequency increases, the road's health declines proportionally. The result is increased traffic congestion, crash rates, and road maintenance obligations to handle surface water improperly channeled to the road surface or shoulders. Ironically, these factors eventually compromise access to all land uses along the affected roadway. In many instances, towns are forced into costly highway expansion projects.

The Town recognizes the value of access management and can implement access management strategies through its planning and public works related ordinances and policies. The following are some of these strategies for all public and private transportation and development projects impacting local and state public roads as well as private roads:

• Utilize State of Vermont design standards for all temporary and permanent access, to include emphasis on drainage, sight distance, and access for emergency services;
• Encourage use of shared driveways and/or permitting access that may result in a future shared driveway;
• Require the review of access for existing development whenever a change of use, ownership, or other application process is brought before the Town;
• Encourage commercial properties to use existing development nodes in order to preserve or create road segments with few accesses;
• When practical, approve subdivisions with private and public road designs that allow shared access with other adjacent subdivisions and/or have the private rights-of-way reserved so an access may be built to connect to existing and future development;
• Encourage permanent landscaping and roadside enhancements to visually define access points and contribute to the roadway's aesthetic character;
• Use sight-distance standards based on the actual travel speeds and not the posted speed limits. If no such data exists or is not current, then the Town will work with the Regional Planning Commission to obtain the appropriate data.

F. Other Modes of Travel

Bicycles and Pedestrians

Many residents bike or walk on town roads in Tunbridge. The rural nature of most of Tunbridge’s roads makes bike and pedestrian travel reasonably safe. However, bike and pedestrian travel along the Route 110 is less safe due to higher traffic volume and speed and a lack of available shoulders.

Tunbridge has 2.45 miles of legal trails, all of which can be used by the public for hiking. Additional recreational opportunities can be found using trails maintained by VAST.

ATVs

ATV usage is a popular form of recreation in the Town, however, misuse can lead to long-term road damage. Some ATV use is allowed on town roads, but it is limited to Class 4 roads as long as damage does not incur.

Public Transportation

Tunbridge, like most Vermont Towns, lacks public transportation. Stagecoach, Inc. offers limited public transportation in the form of special requests for individuals who need transportation for medical reasons, etc. Although there is no Stagecoach bus route in Tunbridge, there are a number of routes that depart from nearby Randolph where Stagecoach is located. Tunbridge residents can take advantage of Stagecoach's "Ticket to Ride" Program helps pay a substantial percentage of the cost of rides for senior citizens (60+) and persons with disabilities when there is not available transportation in the household or the person requesting the trips is unable to drive on the day of the trip. Ticket to Ride is available for a broad array of destinations, such as medical services, shopping, errands, and social purposes.

Given that Tunbridge's elderly population is growing, the need for 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. See Appendix B for additional transportation information.

G. Goals, Policies, and Recommendations

Goals

1. To maintain a transportation system that is safe, efficient, meets the needs of residents, and complements the other goals and policies of this Plan.
2. To ensure that future development does not unnecessarily or unreasonably impact the public investment in Town and regional transportation systems or facilities, including highways, bikeways, and trails.
3. To support local, regional and statewide efforts to provide public and private transportation systems that meet the needs of all population segments and not just those who use automobiles.
4. To minimize transportation energy consumption by encouraging carpooling and creative alternatives for sharing transportation resources.

5. To provide pedestrians with safe areas to travel within the Villages of Tunbridge and North Tunbridge, such as sidewalks, crosswalks, and bike paths.

6. To provide regular maintenance and upgrades to road equipment and facilities, provided that the costs do not put an undue burden on the people of Tunbridge.

7. To recognize the importance of balancing the need to have safe roadways with the desire to maintain appropriate widths and the health of existing vegetation in its role as a structural component of the roads.

Policies

1. Prior to a final decision to proceed with a major capital transportation project, policy makers should first analyze the project against reasonable alternatives and include public input. In examining the alternatives, investigation should focus on the environmental, energy, social and investment costs and the extent to which such costs meet the goals and policies of this Plan.

2. Development that creates impacts on Tunbridge’s road system requires improvements to Town highways, such costs shall be borne by the developer, in consultation with the Selectboard, and the Selectboard shall have sole power to change the classification of the road.

3. It is the policy of the town to minimize curb cuts to insure the proper function and performance of a town highway.

4. It is the policy of the town that the design of access roads and related facilities provide for proper alignment of new or relocated driveways along a roadway.

5. The Town shall seek public input in any decision to substantially change the maintenance level or surface treatment of any town road.

6. The Town, as written in V.S.A. Title 19 Section 310, does not maintain Class 4 Highways, excepting bridges and culverts. The policy of the Selectboard is that before the town would consider adopting a new road or upgrading an existing highway, the abutting property owners shall be responsible for the cost of improving and/or building the road to Town specifications. Final decision regarding the nature of the improvement rests with the Selectboard.

7. Private landowner shall not improve or update town-maintained roads without previously getting approval for the Selectboard.

Recommendations:

1. In reviewing requests to improve or update town-maintained roads, the Selectboard shall consider all of the following criteria:
   a. Volume of traffic,
   b. Noise of vehicles,
   c. Impact to neighbors, and
   d. Weight of vehicles.

2. ATV usage shall not lead to the damage of roads.

3. The Town shall continue to update its Road and Bridge standards.

4. In the event that any of Tunbridge’s five covered bridges were to collapse, break, or fall into disrepair, the Town should improve it for emergency access.

5. Given the interest in the benefits from biking, hiking, snowmobiling, cross-country skiing, and similar outdoor recreational activities, the Town should, as an alternative to complete discontinuance of a highway, give full consideration to preserving Class 4 roads for recreational use by downgrading their status to a legal trail and thus retaining the public’s interest in them.

“In the end, our society will be defined not only by what we create, but by what we refuse to destroy.” ~ John Sawhill, Nature Conservancy
6. The Town should investigate the right-of-way and width of its roads in terms of feet and rods.
7. Tunbridge should work with the Vermont Agency of Transportation to analyze speed limits on town maintained roads to ensure the safety of drivers and residents.

**XI. Agriculture**

**A. Introduction**

For the past several decades, the perception has been that Vermont is losing its farms. In fact, this isn’t the case. According to the 1974 Census of Agriculture, there were just fewer than 6000 farms in Vermont. By 2007, that number had increased by 16.4%. The reality is that Vermont has been losing dairy farms at a rapid rate; there were only 1219 dairy farms in Vermont in 2007 as compared to over 3000 in the late 1870’s. Dairy farms have been replaced by other types of farming. Three quarters of Vermont farms are diversified farms – farms that farm or raise multiple products to contribute to their income stream.

In 2007, USDA data indicated the estimated agricultural revenue in Vermont to be $673 million per year. Vermont’s major agricultural and food product output totaled $2.7 billion in 2007, the latest year of the Census of Agriculture.

Many other businesses in Vermont depend on the “farm economy.” According to the Vermont Farm to Plate Strategic Plan (F2PSP), which was released in 2011, Vermont has at least 457 food processing establishments that employ at least 4,356 people and is the second-largest manufacturing sector employer in the state, behind computer and electronic products. In addition, Vermont has at least 263 wholesale distribution establishments that collectively employ at least 2,288 people. The farm-related food industry is clearly connected to the farm economy.

Though federal law recognizes the importance of farmland and farmland protection, local planning and zoning regulations often neglect the issue of prime agricultural land and the conflicts that arise between expanding development and successful farming.

The distinctiveness of the working landscape gives Vermont its beauty. Farms provide open space for wildlife habitat, scenic views and a connection to the land that is hard to find in other places. They also help our towns avoid sprawl and maintain small town and village settlement patterns. As such, to continue to receive the benefits farming has to offer, a community must encourage farming. During several instances at the April 2005 Tunbridge Planning Commission workshops, farmers pointed out that if residents want the landscape to remain open, then someone has to be actively working that land, whether they are grazing cattle on it, or growing hay or other products.

Farming is important to the residents of Tunbridge. It is fundamental to the Town’s history and to its future. Citizens believe farming and agriculture must be protected and encouraged to grow. See Appendix B for agricultural resources and other sources of support.

**B. Historic Agriculture in Tunbridge**

During the early to mid-1900’s, Tunbridge had many more farms than it has today. It was not uncommon for these farms to be operated by multiple generations of a family during the early to mid-
1900’s, but in the 70’s and 80’s younger generations became less interested in farming. By the 1980’s many of the farmers who followed in their parents footsteps had reached their later years of life, making farming a challenge physically. This, coupled with the lack of a successor to take over the farm also led to the closing of some farms.

Farms of the early to mid-1900’s were generally diversified in nature, having a wide range of products which were sold at a broad number of markets locally and in New England. In the 1950’s and 1960’s, trends in agriculture began to move from this diversified model to one where farms specialized primarily in a single product -- dairy. This reliance on a single product put farmers at the mercy of national milk markets, which were notoriously unstable. The primary reason that farm closures occurred, particularly during the 1980’s (see below) was due to instability of milk prices, one of several key moments in agricultural history that have impacted farming in Tunbridge.

**Bulk Tanks and Parlor Floors**

In the 1960’s, due to growing concerns about the safety of mass-produced milk, the federal government issued mandates that made it illegal to ship milk that had been produced in a barn with a wooden floor, since it had been found that wood could harbor the bug that caused the cow teat disease, mastitis (Source: Hands on the Land, Jan Albers, 2000). Most farms during this era had wooden floors, and the cost of replacing that floor with a concrete floor represented an expense that was challenging to overcome.

Also in the 1950’s stainless steel cooling tanks, known as bulk tanks, became favored by milk transporters because of their efficiency. Federal regulations eventually made bulk tanks mandatory because they allowed for testing of the milk in a more controlled environment. Bulk tanks were expensive, and worse for the farmer, they required building a separate room for the tank – the milk house.

**Consolidation**

According to Jan Albers’ “Hands on the Land” in 1953 there were 10,637 dairy farms in Vermont, producing about 1.5 billion pounds of milk per year. Herd sizes at that time averaged 25 milking cows (this statistic was confirmed by local farmers during interviews done for this study). By 1963, there were only 7,127 dairy farms, but they were producing more milk. By the 70’s, the number of dairy farms fell to 4, 153 with production at almost 2 billion pounds of milk per year. Each herd averaged over 60 cows. By 1999, Vermont had only 1,714 dairy farms, but was producing over 2.6 billion pounds of milk annually. Albers notes that “The trend toward fewer, bigger, more efficient dairy farms has had a great impact on the state. It finished off many hill farms that had managed to survive the end of the sheep craze and the great depression.” In 2010 the number of dairy farms in Vermont had dropped to 1,055.

**Impacts of Mechanization**

A 1964 study by the University of Vermont of those who left farming in Central Vermont showed a strong correlation between the inability to mechanize and farm abandonment. Of those farmers who gave up farming, 90% were using milk cans, 25% still had work horses, and only one-third had hay balers. Those farmers who attempted to keep up with technology, often had to assume huge-debt
loads, which caused them to be over-extended and vulnerable to the constant fluctuations in milk prices.

**Milk Market Instability and the Whole Herd Buyout Program**

The 1980’s were a difficult time to be a dairy farmer. Cultural influences, including a growing obsession to reduce fat in diets, reduced milk consumption nation-wide. This in turn created a glut of milk and prices stagnated. Plummeting milk prices put a severe amount of stress on Vermont’s dairy farms. The debt often associated with farming, and constantly rising property taxes made operating a farm challenging under normal circumstances, during the 1980’s it was far worse.

In a national response to stagnating prices, the Federal Government created the Whole Herd Buyout Program. Under the program, part of a 1985 federal farm bill (which also cut price supports), the government attempted to reduce the nation's annual milk production by 8 percent to stabilize the plummeting milk prices. According to a 1986 article by the Associated Press (Source: Peter S. Hawes, Associated Press, AP News Archive Mar. 17, 1986), that meant taking about 1 million cows out of production nation-wide. The government offered to pay farmers the roughly the equivalent of one year's revenues from milk sales over a five-year period. In exchange, the farmers' milking cows would be slaughtered or sold abroad. According to Jan Albers, 192 Dairy farms participated in the program in 1986, including four located in Tunbridge.

**C. Present Day Agriculture in Tunbridge**

During the drafting of the 2007 Town Plan, PC members and volunteers conducted an inventory of active farmland (see figure 17). This was effective in determining the present-day status of agricultural land use in Tunbridge, but did little to establish any discernible pattern of the relationship between agriculture and other land uses over time. While the community still values agriculture statistics in the Plan indicate that only 6% of the working community has jobs in agriculture. The limited amount of actual farming in the community begs the question: Is Tunbridge still an “agricultural community?” As part of the 2011 revision of this Plan, the Planning Commission chose to look at Tunbridge’s agricultural community with greater detail in order to answer this question. With assistance from the Two Rivers-Ottauquechee Regional Commission, an analysis of changes in the working landscape over time and the collection of data on present day agriculture revealed valuable information.

An analysis of the United States Census of Agriculture data between 2002 and 2007 (2007 being the most recent period of data collected) shows that farming in Vermont is slowly shifting away from the larger scale farm that developed as a result of trends toward consolidation. Between 2002 and 2007, the number of farms in Vermont increased by 6%. The average size of farms decreased from 189 acres to 177 acres between ag censuses. This is most likely due to the fact that 37% of Vermont’s farms in 2007 were considered “hobby farms” – farms that sell under $2,500 in agricultural products per year. While the number of “hobby farms” continues to grow, these farms only produce slightly less than 3% of Vermont’s agricultural income.

In Vermont, dairy remains king of agriculture. In 2007, 21% of Vermont’s farms generated 90% of Vermont’s agricultural income, all of them dairy farms. In Tunbridge, dairy represents the community’s largest farms. Dairy’s role as one of the stronger elements of the state’s economy can be
measured by its contribution to the state's gross domestic product. In only 13 states does dairying make up more than 1% of the state's GDP. Dairying in Vermont is responsible for 7% of the state's economy, second only to the fast-growing dairy industry in Idaho with 11.5%.

Records maintained by Tunbridge listers indicate that at least 53% of the land (approximately 15,000 of Tunbridge’s 28,000 acres) in Tunbridge is in some form of agricultural use. According to the U.S. Census of Agriculture, there were 36 farms (including all types of farming) in Tunbridge in 2007.

![Figure 17 - Land Use by Category (Source: Tunbridge Agricultural Survey)](image)

**D. Types of Farming**

**Dairy**

Dairy has been the dominant form of Agriculture in Vermont for over 100 years, and continues to bring the largest amount of gross income from farming into the state. 73% of Vermont’s total agricultural market value in 2007 was dairy (nearly $494 million). Despite dairy’s dominance in Vermont’s agricultural system, the number of working dairy farms has decreased by 91% over last nine decades. Presently, there are seven active dairy farms located in Tunbridge, and an additional four dairies that work lands in Tunbridge but are based in a neighboring town. These dairies work approximately 60-70% of the open lands in town. This land gets used primarily for grass/legume...
production; both hay and pasture, with roughly 10% of Tunbridge’s open land devoted to corn production.

According to the Agricultural Census, the average size of a Vermont dairy herd in 2007 was approximately 115 cows. In Tunbridge, the average herd is only 40 to 50 cows. While this may somewhat be dictated by the topography of Tunbridge, which is more hilly than the areas of Vermont that dominate the dairy industry, the smaller herd size indicates that viable Tunbridge dairy farms are adapted to optimizing the land base available.

According to UVM Extension, 5% of Vermont-produced milk is sold and consumed in the state as fluid milk. About another 45% is used for manufactured products by milk processors in Vermont. The remaining 50% of Vermont-produced milk is shipped out of state as fluid milk. Federal milk orders establish the minimum price paid to dairy farmers sufficient to assure an adequate supply of fresh milk for consumers.

The use of milk in value-added products such as cheese and ice cream has a large impact on Vermont’s economy. According to the F2PSP there are more than 60 value added dairy producers in Vermont, including makers of cheese (e.g., Cabot Cheese, Shelburne Farms), yogurt (e.g., Butterworks Farm, Millborne Farm Drinkable Yogurt), ice cream (Strafford Organic Creamery, Island Ice Cream, Ben & Jerry’s), cream cheese (Franklin Foods), kefir (Doe’s Leap), and cottage cheese (Cabot), as well as goat dairy products (Fat Toad Farm).

Because nationwide pressures can have a strong impact on the average price per one-hundred weight of conventional milk, some farms have worked through the rigorous process of becoming certified organic. Although the process of switching from conventional to organic is expensive, organic milk prices have proven to be much more stable than conventional. In 2012, Organic milk distributors Horizon and Hood (Stonyfield Organics) last year offered flat price of roughly $26.50 per hundred weight when compared to non-organic rates which, as of June 2012 were around $15. The ability to plan for the future based on a stable pay price is an important aspect of future farm viability.

According to the Northeast Organic Farming Association (NOFA-VT), there were 113 organic dairy producers in Vermont in 2006. That number has increased to 191 in 2012, an increase of 69%, driven by conventional dairy farms shifting to the more stable prices of organic milk. This number represents approximately 15% of the total number of dairy farms in the State. Out of the 7 active dairies in Tunbridge, there are currently 6 certified organic farms.

Livestock

The sale of livestock is a growing facet of diversified agriculture in Vermont. Livestock sales generated over $76 million for Vermont farmers and accounted for about 42% of nondairy sales in 2007. According to the 2007 Census of Agriculture, Vermont has 2,459 cattle and calve farms (with at least 44 certified organic), 1,944 poultry and/or egg farms (with at least 20 certified organic), 1,047 sheep and/or goat farms (with at least two certified organic), and 249 hog farms (with at least nine certified organic). In Tunbridge, there are 8 beef producers, 7 poultry producers, and one pork producer.

Maple Sugaring
Maple syrup has long been associated with the State of Vermont. The history and tradition, coupled with the market image surrounding maple syrup, make it a popular Vermont branded product. Vermont was the largest producer of pure maple syrup in the United States, equal to 46% (1,955,000 gallons) of total U.S. production in 2010 and currently produces more than enough maple syrup to meet local demand and exports most of its annual crop. Direct retail sales of maple syrup in Vermont are valued at $15 million.

It is very common for farms of all types to pursue maple sugaring as a way to supplement their income. In Tunbridge, for example, there were 19 farmers who reported sugaring as one of their endeavors in the 2005 Ag Survey.

In the past decade, regulations have been put in place to allow for the certification of organic maple sugar. While many people believe it is a simple process, in order to be certified, your sugarbush must be free of pesticides and formaldehyde must not be used when tapping trees. There are additional limits on the number of taps allowed per tree imposed under this certification.

**Vegetable and Berry Farming**

The 2007 Census of Agriculture estimated a market value of over $29 million for Vermont vegetable, fruit, berry, and nut production.

Vermont has at least 494 vegetable farms on 2,927 acres. Sweet corn is planted on about 38% of these acres, while pumpkins make up another 14%. Fruit trees are grown on 3,480 acres by 305 farms. Apple orchards make up 93% of these acres, while grapes are grown on about 5%.

According to the UVM Center for Sustainable Agriculture, this segment of Vermont’s agricultural business has been growing at an average of 10 to 20% annually. The local produce provided by these growers make up the majority of all foods found at farm stands, farmers’ markets and local food co-ops.

Based on the inventory collected during the Tunbridge Ag survey in 2005, there were three farms that list their “primary endeavor” as vegetable growing, when this information was updated in 2012, only two farms listed vegetable growing as their “primary endeavor”.

**Organic Farming**

Organic farming is a rapidly growing sector of agriculture in Vermont, and according to the Northeast Organic Farmers Association – Vermont, the state has a greater proportion of organic to non-organic farms than any other state in the nation. Vermont Organic Farmers, LLC estimates that in 2011 gross sales from organic farms was over $69.8 million, and $129 million including both producers and processors of organic products.

Because of strict requirements regarding the use of fertilizers, hormones and pesticides, organic products are generally considered healthier and more natural than their conventional counterparts. Organic livestock grown for meat does not contain antibiotics. Organic vegetables are grown in healthier soil and contain higher levels of nutrients than conventionally grown vegetables. Organic farms are encouraged to use regenerative soil building practices. Livestock have pasture and humane treatment requirements as well.
Farms that wish to have their product bear the “certified organic” label must meet the requirements set forth by the USDA in 2002. Vermont standards, set by NOFA-VT are actually more stringent. Six farms in Tunbridge are Certified Organic by NOFA-VT.

E. Agricultural Pressures

Instability in the Milk Market

The Vermont F2PSP indicates that 2009 was a bad year for dairy farmers as milk prices dropped to their lowest level in the past 50 years: $13.99 per 100-weight of milk (adjusted for inflation to 2010 dollars). This significant drop in price is indicative of years and years of instability, and it remains the primary reason that dairy farms close for business.

While choice of cooperative and organic/non-organic certification are variable, it is clear that dairy production is still the primary source of farm income for Tunbridge’s largest farms. Cooperatives offer farmers a sound structure for marketing and sales, leaving them free to focus on farming.

Costs of Feed

Driven in part by lower production and an increase in the manufacture of ethanol, grain prices have been increasing. According to the F2PSP, the total amount spent by Vermont farmers on animal feed increased 15% from 2002 to 2007 (from $132 million to $151 million, adjusted for inflation to 2010 dollars) even though the number of dairy cows in Vermont decreased by 9% during that period. One indicator of animal feed costs—the benchmark Central Illinois price for a bushel of corn—increased 124% from 2006 to 2008 (adjusted for inflation to 2010 dollars). The impacts of rising fuel prices, diversion of commodities for uses such as ethanol and low crop yields in exporters of feeds continue to push the cost of feed up. This extra cost can hit a farmer hard, particularly when they are finding it difficult to access farmable land to generate their own feed.

Lack of Farmable Land

Across Vermont, the most serious issue facing agriculture is the constant loss of good farmland due to growing pressure from development. In 1974, there were 1.7 million acres of farmland. In 2005, there were 1.2 million acres statewide. The Tunbridge Ag Survey estimates approximately 15,000 acres dedicated to agriculture and forestry, greater than half of Tunbridge’s 28,000 total acres.

When surveyed as part of the Analysis of Agricultural Change in Tunbridge project, farmers reported that 70-80% of the lands they farmed were located off-farm. Much of the production on these lands is focused on the generation of feed through hay or corn, although some grazing takes place as well. The need to generate feed locally is a strong one, as grain costs continue to rise due to climbing gas prices and limited availability of feed. Local farmers are dependent on a wide range of property owners who are willing to lease their property for the purposes haying or growing corn for feed.

This relationship can create potential challenges for the farmer. The farmers who participated in this study indicated that a number of the landowners who they lease from are aging and will eventually give up their land. When landowners sell their property to someone who intends to build a home on it, it takes that farmable land out of production. One farmer indicated that if he were to lose 20 acres of land, it would seriously impact his ability to produce his feed locally.
While local production helps the farmer avoid the expense of purchasing expensive feed, producing feed locally is not without expense. Local farmers are travelling as many as five miles to lands outside of their farm. This distance, when driven multiple times a day while transporting the feed produced on the land, represents a substantial amount of time and fuel used. The number of trips during a given day can increase in the event of equipment failures, etc. Active farmers who participated in this study speculated that there is no additional land available to be farmed, making the potential of losing lands that much more of a concern.

Taxes

High property taxes put an undue burden on farmers. Because the size of a property tax bill is based on the value of the land owned, and not the amount of money earned on that land, it is not based on the landowners’ ability to pay. Unless a farmer’s property is enrolled in Vermont’s current use program, this property is assessed at market value. This can create special hardships for farmers and others with land, but relatively low cash flow. Family-owned farms are often the hardest hit because they have assets (their land) that are valued greater than the income they can produce. Fortunately for farmers in Tunbridge, taxes are generally lower than the surrounding area (see tax chapter). However, when property values in Vermont rise, there may come a time when property is so highly valued that the cost of paying taxes on it becomes cost prohibitive for the farmer.

Property Values

As property values escalate, they not only increase a farmer’s tax burden, but they put greater pressure on them to sell their property. In general, much of a farmer’s wealth is invested in his or her land. For a farmer, high property values may represent an opportunity to liquidate that investment at a greater return. Given the financial difficulties that surround farming, such an opportunity can be hard to pass up, particularly if there are no younger family members who intend to continue farming. High property values also create a hurdle for young people interested in buying land for agriculture-related enterprises.

F. Conservation Easements

Conservation easements are a common method used to ensure that the working landscape gets preserved. The Vermont Land Trust (VLT), Vermont’s largest non-profit conservation organization, has conserved more than 590 parcels of land in agricultural use throughout the state, totaling 145,109 acres. Approximately 484 acres of land have been conserved by VLT in Tunbridge. Most land purchased with the intent of applying a conservation easement to it is funded, at least in part, by some form of grant funding from either state or private sources.

The use of conservation easements has both pros and cons for municipalities, they include:

Pros

- Easements are flexible; they can be written to achieve specific goals of the town involved.
- They are perpetual, and restrictions put on the conserved lands will remain in force even when the property is sold to a new party.
- They conserve scenic beauty and environmentally sensitive areas.
- Eased property remains on the tax rolls.
Cons

- Establishing an easement involves up-front costs, such as paying for legal counsel, biological analysis, etc.
- There are long-term expenses involved with monitoring the easement.
- The easement holder is responsible for ensuring that the restrictions placed on the easement are followed.

The Tunbridge Planning Commission acknowledges that conservation easements are one potential solution to preserving the working landscape. The Planning Commission recommends that both the landowner and town consider all options thoroughly before committing to the conservation easement process.

G. Agriculture and Land Use Regulation

Land use regulation has a definite impact on farming. For example, a zoning ordinance that allows for large tracts of land to be sold for residential purposes could conceivably help protect open space, but that open space might no longer be available for agricultural use without considerable forethought and design. The same ordinance calling for much smaller lot sizes (such as one acre) would, over time, lead to an incremental decrease in the amount of useable farmland.

Therefore, if Agricultural uses are to be preserved, we need to protect them. V.S.A. Title 12, Chapter 195, Section 5753 is intended to protect farmers against nuisance law suits. It states that:

Agricultural activities shall be entitled to a rebuttable presumption that the activity does not constitute a nuisance if the agricultural activity meets all of the following conditions:

(A) It is conducted in conformity with federal, state, and local laws and regulations (including accepted agricultural practices);

(B) It is consistent with good agricultural practices;

(C) It is established prior to surrounding nonagricultural activities; and

(D) It has not significantly changed since the commencement of the prior surrounding nonagricultural activity.

However, there have been circumstances where the state statute has not offered enough protection.

That said, the citizens of Tunbridge intend to give farming priority when development is considered. Provided that agriculturally related development does not negatively impact the health, welfare or safety of nearby residents, it should be encouraged. The noted exception to this rule might be large scale (3000 head of cattle on 3-acres of land, for example), concentrated animal feeding operations, which might be judged to have a distinctly negative impact on a diverse, robust rural character and clean environment.

H. The Community’s Role in Agriculture
The Tunbridge Community values its long agricultural heritage, and it seeks to maintain this relationship with the land, not just by honoring the past, but by encouraging agriculture into the future. Much of what impacts our farms come from outside of Vermont. Changes in technology, consolidation, fluctuating milk prices, rising taxes and the potential for growing debt make farming a challenging occupation. Land does not stay in agriculture unless the goods and services produced by farms have a market. Without a profitable market, farms go out of business, land goes fallow and land is sold for other purposes. As hard as the farmland preservation movement has worked to save agriculture over the past 20 years, preserving land doesn’t preserve farming. Land is essential to farming, but not sufficient to make the agricultural economy thrive.

In the past decade, there has been a substantial amount of research and study analyzing Vermont’s desire to support agriculture. The Farm to Plate Program and the Working Land Initiative are both working hard to push changes at the state level that are designed to further Vermont’s agricultural production.

The final thesis of the 2011 Analysis of Agricultural Change in Tunbridge resulted in a series of recommendations that the community may want to consider as a way to support agriculture on a local level. They include:

**Form an Agricultural Advisory Committee**

Any community wishing to support the agricultural economy needs to work with a partnership of entrepreneurs, appropriate non-profit, for profit and public sector organizations. Public officials are uniquely positioned to bring people together around a shared agenda for the public good. The Town of Tunbridge should consider creating an Agricultural Advisory Committee, because they would act as a focus group that would study and consider ways the community can be involved. A Tunbridge Agricultural Committee’s role could include:

- Understanding the organizations that are actively supporting agriculture.
- Providing information about the services that are available to farmers, old and new.
- Encouraging growth in the agricultural economy at a local level.
- Providing outreach and training for farmers and non-farming landowners who are seeking to work with farmers.
- Working with the Planning Commission to provide input into municipal policy and land use relating to agriculture and service operations needed by agriculture, particularly under Act 250.
- Helping farmers handle the transition from one owner to the next by connecting farmers with organizations that provide transition services.

**Continue to Support Tunbridge’s Agricultural Heritage**

The Tunbridge World’s Fair represents one of Tunbridge’s strongest assets in terms of supporting agriculture. As long as it has been in operation, the fair has focused on agriculture. Over the Fair’s four days of operation, there are demonstrations of farming and agricultural traditions and culture, working antique displays, horse and ox pulling, horse racing, cattle and horse shows, junior exhibits,
floral and 4-H exhibits. Over the past decade, efforts have been made to broaden the Fair’s appeal to families, making it an even stronger marketing tool for Tunbridge’s Agricultural Heritage.

The value of the Fair to the Tunbridge community should be recognized, and its value to local farmers should be considered as well. For many local farmers, the fair represents a unique opportunity to meet with other farmers, to present their skills and their animals to the greater community and to provide educational opportunities for future farmers and other youths. The fair is ultimately the center point for promoting Tunbridge’s agricultural history. The community should support it, and find opportunities to highlight local farmers at the event, whenever possible.

**Market the Tunbridge Brand**

The Fair, coupled with the close-knit community and scenic beauty of Tunbridge create a distinct identity for the community. That identity could be the catalyst for the creation of a local brand - the Tunbridge brand - for all agricultural products produced within the community. The growing "buy local" movement continues to highlight the value of locally produced products. Conservative estimates by the F2PSP indicate that locally produced food accounts for at least 5% of total food purchases (over $50 million) in Vermont.

If Tunbridge's agricultural community were to join into a collective who focused on producing products based on the identity of Tunbridge's community, it could be a very strong marketing tool. Such a brand would be recognized as "the hometown choice" and it would be distinctly local to the surrounding area. The formation of a cooperative that focused on the Tunbridge Brand might open up local farmers to new and larger markets, which might help sustain agriculture in Tunbridge into the future.

**Create Municipal Financial Programs**

Considering that much of the pressure experienced by farmers is related to the stability of the farming economy, finding ways to reduce financial burdens on agriculture is important. The high cost of taxes is always foremost on a farmer’s mind, as they often have large amounts of land. Most active farmers in Tunbridge are enrolled in Vermont’s Current Use Program, which taxes agricultural lands at a lower rate, and has certainly helped reduce the farmer’s tax burden, but it is not enough of a reduction.

One possible option worth considering is the creation of a Local Agreement to reduce or eliminate property taxes on certain properties. Or, as an alternative to a shift in municipal taxes, the community could work with local banks to create a Tunbridge Agricultural Investment fund. With a model of this type, the community works with a bank to create a CD into which Tunbridge residents can donate funds that the bank agrees to use to fund low-interest loans to farmers and those interested in creating farm related services or value-added products using locally produced ingredients.

**Support state-level agricultural initiatives.**

In the past 10 years, there have been a wide range of initiatives at the state level that are designed to encourage the continued growth of the agricultural economy. The Farm to Plate initiative created a long-range plan for the purposes of sustaining agriculture in Vermont. The Vermont Working Landscape Partnership has furthered this effort by proposing ways in which to encourage continued agricultural growth.
There are also needed reforms to existing programs that should be addressed. Despite the benefit that current use offers to Vermont’s agricultural and forestry communities, there are many who feel that there are too many non-working lands enrolled in the program. Efforts to reform the program have had limited success. The Tunbridge community can support these programs by communicating with their local legislators. An active Agricultural Committee that keeps abreast of potential legislation can help the community be aware of potential changes through public outreach.

I. Goals, Policies and Recommendations

Goals
1. In order to maintain the essential rural character of Tunbridge, encourage the growth of agriculture, in all its forms.
2. Encourage the growth, marketing and consumption of local foods.
3. Promote or encourage self-sufficiency and sustainability through agriculture.
4. Participate in the local food web.

Policies
1. It is the policy of the Town to support agriculture provided that it is conducted at a scale that is consistent with the historical agricultural practices of Tunbridge.
2. Work with State of Vermont agencies and various farm support groups to develop viable farming opportunities in town.
3. The Town should consider offering property tax incentives to farming endeavors.
4. It is the policy of the Town to support the continued operation of the Tunbridge World’s Fair.

Recommendations
1. Conduct the Tunbridge Agricultural Survey every ten years at a minimum.
2. The Selectboard should form an Agricultural Advisory Committee for the purposes of supporting agriculture in Tunbridge.
3. The Selectboard should consider possible municipal financial programs, such as tax abatements or low cost loans to support local agriculture.
4. Create a farmers’ market.
5. Investigate tax stabilization for agriculture at the town level.
6. Seek opportunities for local buyers to utilize locally produced farm products.
XII. Land Use

A. Introduction

Land use planning rises to a principal concern for the members of the Planning Commission and the citizens of the Town of Tunbridge because our actions today directly influence and impact the way our Town’s landscape will look in the future. How we use our land, our policies for land use, and our plans for future land development can affect a wide range of issues, including the town’s character and its ability to adequately and efficiently provide services. In order to ensure that the impacts of future development in Tunbridge do not have unintended consequences, the town’s growth must be managed to reflect the vision of this 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 preview, provided that those regulations are in conformance with this plan and §4302 of Title 24, which addresses the state’s planning goals.

A wide range of tools are available to town planners for the purposes of implementing the town plan. These tools include subdivision regulations, zoning bylaws, capital budget and programming, as well as other ordinances (see chapter XVI for more information). All of 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.

B. Historic and Current Land Use

The First Branch of the White River runs north and south through the approximate center of town. Most of the town's area lies within parallel ridges east and west of the river. (A small portion lies over the western ridge on the uplands of the next valley.)

Historically, Tunbridge’s land use pattern has been one of concentrated villages and diffused residential and agricultural development. Although Tunbridge Village (also known as "Market Village") and North Tunbridge are denser hamlets of 30 to 40 principal buildings each, the majority of the population is spread throughout the town, living along the network of mostly unpaved roads (Class 3 and 4 roads). Tunbridge’s settlement pattern, with residential populations living outside villages, has remained unchanged since the 1820s, when the population was as high as 2,003 people. As an indication of these historic settlement patterns, Tunbridge once had 18 separate schoolhouses and several post offices.

Small, compact villages and open, working landscapes define Tunbridge. The continued balance between the concentrated development in Tunbridge’s villages and hamlets, and the residential and agricultural development of the areas surrounding the villages remains essential to maintaining the rural character of Tunbridge.

Tunbridge Village and North Tunbridge are centers of public activity. The Town Offices, Public Library, Tunbridge Church & Parish House, Town Hall, and the Post Office are located in Tunbridge Village; the school, Baptist Church, Grange, and another store are located in North Tunbridge In
South Tunbridge, which has only four or five residences, the Methodist Church is active one month each summer. These types of traditional rural village development typify the rural character in Tunbridge.

Above all, agriculture, as was echoed in the 2015 survey, remains an important land use in Tunbridge that defines the character of the Town. The rural character of Tunbridge is entwined with its agricultural history, and both are important to residents. Residents acknowledged, in the 2015 survey, that without active efforts to encourage farming, the distinct appearance of Tunbridge’s working landscape will not persist. The character of the town is defined in part by agriculture, the direct and indirect contributions agriculture has to the economy, and people’s connection to the working landscape.

**Goals**
1. Continue Tunbridge’s historical land use pattern of concentrated villages and diffused residential and agricultural development.
2. Maintain rural character by balancing developmental pressures, natural resources, agricultural activities, and home based businesses.

**Policies:**
1. Agricultural businesses that support the rural character of the Town are encouraged.
2. Home businesses, light industry, and developments that contribute to Tunbridge’s rural character are encouraged.
3. Large-scale development that undermines Tunbridge’s rural character is highly discouraged.

**C. Land Use Regulation and Future Land Use Areas**

Historically, the citizens of Tunbridge have opposed zoning regulations that have been considered. Land use regulations, such as zoning and subdivision, have divided residents in Town. However, land use regulations can be an important tool to combat unwanted development. Although opinion from the 2015 survey is not united about the need for land use regulations, all residents agree they would like to maintain Tunbridge’s current aesthetics. Residents of Tunbridge value and wish to maintain the existing working landscape.

State regulators have designated all towns without land use regulation as “1 Acre Towns”; therefore the following actions trigger Act 250 review:
- Any commercial or industrial developments of over one acre of property shall trigger a review under Act 250.
- The subdivision of land into six or more lots within a continuous period of five years shall trigger review under Act 250.

Under Criterion 10 of Act 250, any proposed project must conform to all duly adopted local and regional plans. It seeks to ensure that new development respects the wishes of Vermont citizens about the future of their town and region. Under Criteria 9 of Act 250, developments will also assess their impact on primary agricultural soils.
Goals
1. Protect the rural character of Tunbridge, its agricultural uses, and its natural resources.
2. Maintain the current aesthetics of Tunbridge’s working landscape.
3. Recognize that each property is not isolated from others and encourage responsible development and resource management within the community.

Policy:
1. Tunbridge encourages and supports agricultural uses in the Town to maintain the aesthetics of its working landscape

Recommendations:
1. New development shall be similar in character and density with the surrounding area.
2. All new development in all of Tunbridge’s land use areas shall be of a type, scale, and physical appearance that is consistent with existing land uses.
3. Density of development in all of Tunbridge’s land use areas shall be similar to that of the area in which it is located.
4. The scale of new buildings in a development shall be similar to others in the immediate area.
5. Development in Tunbridge shall not result in a significant increase in traffic volume.
6. Chain retail enterprises (including factory outlets, large grocery stores, fast food establishments, and shopping malls) shall not be located in Tunbridge.
7. Strip development (including but not limited to convenience stores, large chain retail stores, and fast food establishments) shall not be located outside Tunbridge’s Village Center Areas.
8. Development in Tunbridge shall support local needs of residents and shall foster the health of the local economy.
9. Tunbridge should consider adopting subdivision regulation to protect the Town’s forests, fields, and natural resources.

D. Village Center Areas
Tunbridge’s Village Center Areas cover the densely developed Tunbridge Village and North Tunbridge Village. These centers are intended to be the center of public activity; offer community services, appropriate retail and commercial opportunities; and preserve the historical nature of the villages.

Density in Tunbridge Village and North Tunbridge Village is much higher than in other areas of the community, with some parcels being as small as half an acre and others larger than six acres. This level of density is appropriate provided that new development does not put an undue burden on the availability of potable water. In the “Utilities and Facilities” section of this plan, it was noted that the Town of Tunbridge has had difficulties finding a reliable water source for their buildings in the Village. Clearly, there are limited water resources in Tunbridge Village, and as such any new development or improvements that would require a new water system or upgraded capacity would need to prove that such activity would not negatively impact the existing water resources.

Goal
1. It is a goal of the town to maintain viable village centers through good planning and subsequent development.

Policies
1. The density of development in this area should reflect existing settlement patterns, land capability, and the availability of utilities for expansion.
2. Shops, services, professional offices and public facilities should be developed at a scale and design appropriate to existing characteristics.
3. Rehabilitation and renovation of structures and older buildings of historic merit is encouraged to enable new and more economical uses of property and to avoid obsolescence.
4. Where new development is being planned, efforts should be directed to ensure that such development is complementary and compatible to the configuration of existing buildings and streetscape. Development shall respect traditional scales, proportions, and shapes of the surrounding village. Appearance of new development shall conform with existing buildings.
5. Major public investments, such as improvements to Route 110, should be encouraged and endorsed only on finding that they will not unreasonably or unnecessarily jeopardize or endanger the character of the Village Centers. Prior to the commencement of plans, state planners shall consult with the Town and affected property owners regarding these types of activities.
6. The Plan supports pedestrian enhancements that will promote walkability and safety.

Recommendations:
1. New development shall not create an adverse impact on the aesthetic quality and existing character of North Tunbridge and Tunbridge Villages Center Areas.
2. Tunbridge shall renew its village designations when they expire.

E. Working Landscape and Resource Conservation Area
The Working Landscape and Resource Conservation land use area will assist in the protection of Tunbridge’s forests, farms, natural resources, and working lands. The purpose of the land use area is to protect the natural resource value of town lands, which are largely undeveloped, and to ensure the longevity of Tunbridge’s working landscape. Lands within these conservation areas typically need special protection due to their fragile nature, irreparable value, and important ecological function. They typically consist of unpaved and unimproved roads and remoteness from the Town’s designated village areas. The purpose of the land use area is to provide for current use, both in agricultural and forestry uses.

Goals:
1. Protect scenic areas, open space, and wildlife corridors.
2. Preserve Tunbridge’s historic settlement pattern, defined by the Town’s existing village areas, surrounded by rural countryside.
3. Maintain the character of Tunbridge’s rural countryside and support agriculture, forestry, and recreational uses in these areas, as well as low-density residential uses.
4. Maintain and enhance Tunbridge’s heritage of working farm and forest lands as part of a sustainable, ecological, and local economy.

Policies:
1. Conservation uses, agricultural uses, and single-unit dwelling units are appropriate uses in the Working Landscape and Resources Conservation Area.
**Recommendations:**
1. The minimum lot size in the Working Landscape and Resource Conservation area can be as small as 1 acre, but density of this Working Landscape and Resource Conservation Area shall not exceed 1 principal year-round dwelling per 27 acres.
2. Affiliated subdivisions in the Working Landscape and Resource Conservation Area, specifically multi-family units, shall not exceed 5 units per structure.
3. No affiliated subdivision shall create more than 20 lots.

**F. Route 110 Corridor Area**

Vermont Route 110 parallels the First Branch of the White River along the valley floor, running north-south through Town. The purpose of the Route 110 land use area is to maintain the important aesthetic qualities of the White River’s watershed and the Fire Branch’s valley area. This valley floor was cited as an important visual element of Tunbridge’s rural character during the 2005 public meetings. There is little commercial development along this road, with the exception of what lies within the Village Center Areas. Any development that occurs in this highly visible area should be designed so as to minimize the impact on the rural character of this area. (See Map 7 –Future Land Use Areas),

In general, the Route 110 Corridor Area is a mix of densities, with denser development being located to existing transportation corridors and lower density development being located in more rural areas. Uses that are residential or agricultural in nature are preferred in this land use area. The types of commercial development proposed for this area would include small professional offices, small service businesses and inns as well as low-impact light industrial. Primary retail establishments are discouraged from locating in the Route 110 corridor area.

Due to the constant ebb and flow of the First Branch of the White River, the Route 110 valley floor has the most concentrated amount of prime agricultural soils in Tunbridge. Prime Agricultural (Prime Ag) land is defined by the National Soil Conservation Service as land that is well suited for the production of food, feed, forage, fiber, and oilseed crops, with the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when properly treated and managed. This definition, although one dimensional (focused only on growth of products and not taking into account aesthetic values), does point out the value these soils represent to farmers.

The First Branch is also a center for recreational opportunities in Tunbridge. Access to the river allows for swimming, fishing, canoeing, kayaking and other activities. Plus, it is a thriving riparian ecosystem that would likely be upset if development were allowed to occur in this valley uncontrolled.

This area is to remain largely open and scenic and retain the recreational, agricultural and ecological value of the land. Large-scale developments, such as condominiums and industrial developments are inappropriate in this area.

**Goals**

1. It is the goal of the Town to maintain the distinct scenic value of the Route 110 corridor.
2. It is the goal of the Town to protect the Prime Agricultural Farmland in the Route 110 corridor.

**Policies**

1. The density of development in this area shall reflect existing settlement patterns, and shall not exceed 10 units per structure.
2. New development proposed in for the Route 110 Corridor Area shall be of a nature that effectively blends in with the existing landscape.
3. Any development that is proposed for the Route 110 Corridor Area shall carefully consider the potential negative impacts on Prime Agricultural Soils, and shall make all attempts to avoid them.
4. If more than one building is to be included in a development, the buildings shall be clustered to avoid impact on the rural character of the Route 110 Corridor.
5. Buildings and roads shall be located at the edges of woodlands and fields and along hedgerows to preserve tillable units, whether or not in the same ownership.
6. Commercial development in this area shall be limited to low-impact light industry, small professional offices and services, and agricultural businesses that are located in clusters.
7. Land use activities which potentially threaten groundwater shall be carefully reviewed and monitored to prevent undue loss of quality and quantity to groundwater.
8. Development on Prime Agricultural soils is strongly discouraged.
9. If development on Prime Agricultural soils in unavoidable, than off site mitigation shall be required.

Recommendations:
1. Land in this land use area should be considered a priority for conservation.

G. Special Flood Hazard Areas

The Purpose of the Special Flood Hazard Area is to limit development in areas in Town that are vulnerable to flooding and erosion. The Special Flood Hazard Areas in Tunbridge, which were last mapped by the Federal Emergency Management Agency in 1985, follow the First Branch of the White River. For more information on Special Flood Hazard Areas, see the Natural Resources chapter of this Plan or refer to Tunbridge’s Flood Hazard Ordinance.

Floodplains are often excellent agricultural land due to the thick layers of river-borne soil deposited there. Floodplains also provide natural storage of floodwaters resulting from snowmelt, high volume rain events, or prolonged rainstorms. Floodplains are poorly suited for structural development.

Goals
1. Agricultural use is encouraged on the high-quality soils of the floodplain.
2. Recognizing and maintaining the flood plain functions of the valley, particularly sediment storage and nutrient retention.

Policy
1. New development within the limits of the 100-year floodplain is discouraged to mitigate the damage to health and property from future flooding. Improvements to existing structures in the floodplain are acceptable, provided that careful planning is done to insure against unnecessary loss of property or public endangerment.

Recommendations:
1. Land in this land use area should be considered a priority for conservation.
2. Tunbridge should consider adopting a 50 foot vegetated streambank setback buffer.
J. Residential/Agriculture Area

This area encompasses all areas in Tunbridge not designated in sections D, E, F and G of this chapter. Its primary purpose is to protect the working landscape while allowing for a reasonable mix of low-impact uses.

The Residential/Agriculture Area is a mix of residential and agricultural development. Appropriate uses in this area include farming, forestry, small professional offices, small service providers, residential development, home occupations, recreation, agriculture- and cottage industries.

Residents in this area should expect to encounter the sights, sounds, smells and activities typically associated with a working landscape. Likewise, “right-to-farm” ordinances, and other measures designed to protect and encourage agricultural uses should be included in any future land use ordinances. Industrial and retail uses are prohibited from development in this area.

Goals
1. It is a goal of the Town to encourage agriculture of all varieties throughout Tunbridge.
2. It is a goal of the town to support new agricultural developments provided that they continue to maintain the rural character of the Town.

Policies
1. Maintenance of a working landscape is the primary goal for the Residential/Agricultural Area. Projects which adversely affect the rural setting and conflict with the existing working landscape should not be located in this area.
2. Agricultural and residential uses are to be the primary and dominant land uses in the Residential/Agricultural Area. New development in this area shall not adversely affect the rural character of this area.
3. Only commercial development uses consisting of small professional offices, small service providers, home occupations, cottage industries, agriculture, farming, quarries, sand pits, and forestry are appropriate in the Residential/Agricultural area.
4. Development that creates a substantial amount of traffic, or causes a single town-maintained road to exceed than 400 trips per day, shall not be allowed due to the burden it will have on existing road infrastructure.

H. Act 250 Requirements

All projects requiring an Act 250 permit shall conform to the following requirements.

Lot Layout – All Uses
- Avoid monotonous lot layout of equally sized and shaped lots, especially along a road frontage. Subdivision into a series of 10-acre lots with similar proportions is specifically prohibited.
- The amount of frontage and building position will be varied from lot to lot to avoid a suburban pattern of repeated houses or other buildings situated at or near the middle of adjacent lots one after another.
- Creating more than one adjacent lot with a depth greater than four times its frontage (“spaghetti lots”) is prohibited.
- Buildings shall be located at the edges of woodlands and fields, relatively close to roads, along hedgerows, etc., in an effort to preserve tillable units, whether or not in the same ownership.
- Lay out lots to take advantage of and preserve desirable features, such as stone walls, hedgerows, fields, natural clearings, and land contours.
- Locating buildings at the top of ridgelines or at the brows of hills where land is open and sites would be highly visible from nearby public roads is prohibited.
- Excavation for roads or buildings where excessive erosion will be likely is prohibited.
- Locate buildings and other construction such that they will not detract from natural or scenic features, such as bodies of water or historic resources.
- In the case of multiple unit projects, buildings shall be clustered.
- On developments involving adjacent buildings or lots, driveways must be shared.
- Locate light industrial and commercial uses where they will not be prominently visible, or screen such uses to minimize detrimental impacts on neighboring uses.
- Locate any noisy, toxic, or noxious uses where they will not be detected from public roads or neighboring uses, (especially housing), and/or take all reasonable means to screen or lessen any detrimental impacts of such uses. This provision does not apply to agricultural uses.

**Construction in Village Center Areas: Tunbridge Village Historic District or North Tunbridge**
- Construct buildings that are of the size and scale of other buildings in the Village Area.
- Use traditional building massing, forms and materials within these two settled areas.
- Where alteration of “contributing structures” (structures that are deemed architecturally or culturally significant to a historic district) within the Village Historic District is contemplated, such alterations shall maintain the original character.
- Within Village Center Areas, home businesses are deemed to be a use compatible with existing uses.
- Any development within the Village Districts may have an impact on the existing water supply due to the limited space. Developers must prove that their development will not have any negative effects on public or private water supplies within this area.

**Commercial Development in Route 110 Corridor Area**
- Development shall be located in clusters set back from the highway, provided that no commercial development shall occur more than 200 feet from the highway.
- Existing buildings or parts thereof shall be reused for commercial development.
- Large parking or delivery areas shall not be located in front of commercial buildings. Large parking areas shall be located at the sides or rear of such buildings. Where feasible, share parking areas between adjacent uses.
- Large commercial signs (4’ by 4’ or greater in dimensions) are prohibited.
- Maintain trees and existing vegetation adjacent to Route 110. A generously landscaped buffer (using native plants and trees) shall be part of any new construction adjacent to Route 110.
- Share all curb cuts to Route 110. Minimize paved or impermeable areas.

**Development in the Residential/Agriculture Area**
- No subdivisions of more than 5 total lots shall be permitted in the Residential/Agriculture Area.
- No development of more than 20 total housing units shall be permitted in the Residential/Agriculture Area.
- No commercial development shall be permitted in the Residential/Agriculture Area except for development directly related to agricultural, forestry, recreational uses, or home occupations on the same lot.
• No building in the Residential/Agriculture Area, for any use other than agricultural, shall exceed a total of 10,000 square feet.

XIII. Natural Resources

I. Wetlands

Background

Wetlands are ecologically fragile areas and the management of these lands has a direct bearing on the quality and quantity of water resources.

The Vermont Water Resources Board estimates that wetlands comprise less than 5 percent of the surface area of Vermont. In addition to being Vermont's most productive ecosystem, wetlands serve a wide variety of functions beneficial to the health, safety and welfare of the general public, including the following:

- Retaining storm water run-off, reducing flood peaks and thereby reducing flooding;
- Improving surface water quality through storage of organic materials, chemical decomposition and filtration of sediments and other matter from surface water;
- Providing spawning, feeding and general habitat for fish;
- Providing habitat for a wide diversity of wildlife and rare, threatened or endangered plants; and
- Contributing to the open space character and the overall 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 in the bulleted list above.

Under the Rules, if land development can be expected to impact a protected wetland, such activity cannot commence unless the Vermont Agency of Natural Resources first grants a Conditional Use Determination (CUD). A CUD will be granted when the proposed use will not have an undue adverse impact on the function of the wetland. In many cases, such approvals are granted with conditions to mitigate impacts and to more readily protect wetlands.

For Tunbridge, as well as the State, the most significant wetlands have been mapped and are included as part of the National Wetlands Inventory (NWI) or the Vermont Significant Wetland Inventory (VSWI), which are prepared by the U.S. Fish and Wildlife Service. These wetlands have been delineated on USGS topographic maps, and by reference are made a part of this Plan (see Map 6, Natural Resources). Other smaller wetlands often do not show on these maps, so a field determination by a qualified biologist is needed for most activities that involve state permits.

It is important to note that future investigations of wetlands within Tunbridge may result in additional areas being determined as significant or important for conservation.

Goal

1. To identify and encourage land use development practices that will avoid or mitigate adverse impacts on significant wetlands.
Policies

1. Structural development or intensive land uses shall not be located in significant wetlands or within buffer zones to significant wetlands.
2. Developments adjacent to wetlands should be planned so as not to result in undue disturbance to wetland areas or their function. Mitigating measures to protect the function of a wetland are an acceptable measure.

Recommendation

1. The town should conduct an inventory of wetlands and vernal pools to determine where, if any, wetlands that have not been mapped by the State of Vermont are located.

J. Flood Hazard Areas and Floodplains

Background

There is a general scientific consensus that our climate is experiencing a warming trend that has been induced by human activity. According to the U.S. Global Change Research Program, changes in climate extremes may not result in more rain overall, but in an increase of extreme weather events. Flood frequency and amplitude may increase in some regions while other areas may experience drought.

Floods are inevitable and uncontrollable natural events which occur sporadically and affect lands adjacent to watercourses. It is therefore in the public interest to plan for floods, and to implement land use strategies which will protect these areas and minimize the risks to public health, safety, and property.

Floodplains, lands adjacent to watercourses, are periodically inundated by heavy rains or during spring thaws. They are porous and can absorb considerable water before reaching flood stage. Floodplains make excellent agricultural land but are poorly suited for development, both because of their propensity for flooding and because of their proximity to watercourses, which creates the potential for pollution.
Types of Flooding
Generally speaking, there are two types of flooding that impact communities in the state of Vermont—
inundation and flash flooding. Inundation flooding occurs when rainfall over an extended period of
time 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 short period of time.
Precipitation falls so quickly that the soil is unable to absorb it, 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 a very 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 property. 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 large 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 its topography, Tunbridge is
vulnerable to flash flooding and fluvial erosion.

Causes of Flooding
Severe storms with particularly heavy precipitation have the ability to create flash flood conditions.
However, over an extended period of time, severe storms may cause inundation flooding due to the
cumulative effects of continuous rain, saturated soils, and a high water table/high aquifer levels.

Floodplains and river corridors fill an important need, as flood waters and erosive energy must go
somewhere. Development in the floodplain can lead to property damage and risks to health and safety.
Development in one area of the floodplain or river corridor can also cause increased risks to other areas
by diverting flood flows or flood energy. Debris carried by the floodwater from one place to another
also poses a danger. Flooding is worsened by land uses that create impervious surfaces that lead to
faster runoff, and past stream modifications that have straightened or dredged channels, creating
channel instability.

Ice jams have presented a significant source of flooding in Tunbridge. Ice jams occur less frequently
than typical riverine flooding, but can be a destructive force to Town infrastructure. Ice jams occur
when the accumulation of ice in a river, stream, brook, or other flowing water body inhibits the flow
and increases the surface elevation of that water body. Ice jams typically occur in late winter or early
spring, are prone to occur when heavy rain and rising temperatures cause rapid snowmelt. They are
associated with the warming of ice that initiates river flow and an increase of rainfall and spring runoff
that increases surface water volume. Rivers, subsequently, swell and ice layers begin to break, which
then flow downstream and create obstructions around natural and man-made barriers. Ice jams have
caused damage in the past to the Mill Bridge in Tunbridge.

Historic Flood Events and Tropical Storm Irene
Vermont has experienced 21 statewide and regional floods since 1973, and the potential for these severe events is increasing dramatically. All but one of these were declared federal disasters, and economic losses were significant. Damage was not limited to designated floodplains, but often occurred along unstable river systems and steep streams. In some cases, recovery costs to the public sector alone amounted to several million dollars per flooding event. Public interest dictates that every reasonable attempt should be made to avoid or reduce such exposure to flood damage.

One of the worst flood disasters to hit the Town of Tunbridge, as well as the overarching region and the State of Vermont, occurred on November 3, 1927. This event was caused by up to 10 inches of heavy rain from the remnants of a tropical storm that fell on frozen ground. A more recent flood event that devastated the region and the state was the result of Tropical Storm Irene, which occurred on August 28, 2011. Record flooding was reported across the state and was responsible for several deaths, as well as hundreds of millions of dollars of home, road, and infrastructure damage. Due to the strong winds, some in an excess of 60 mph, 50,000 Vermont residents were initially without power, and many did not have electricity restored to their homes and businesses for over a week.

On August 28, 2011 the state of Vermont found itself in the path of Tropical Storm Irene. In many areas, the storm's impact was almost as severe as the Great Flood of 1927. Areas of Vermont sustained extraordinary damage, when record rainfall resulted in catastrophic flooding. Some areas received ten inches of rain and were battered by winds of 50 miles per hour during an eight hour period. Rivers across the state crested at levels not seen for generations, some exceeding historic records established during the flood of 1927.

The 2012 Vermont CDBG Recovery Action Plan described the storm's impact thusly: "The damage was severe and widespread. Six Vermonter lost their lives. Fifty thousand households lost power, affecting 74,000 people. Over 3,500 homes were damaged or destroyed, displacing 1,500 families; more than 500 of the impacted homes were mobile homes. Transportation and public infrastructure were decimated. Of Vermont’s 251 towns and cities, 225 suffered damage to municipal infrastructure. In the immediate aftermath, over 500 miles of state roads were damaged, more than 200 miles of state-owned rail made impassable, over 200 bridges damaged, and 34 state bridges closed. Thirteen communities were completely cut off for days, as National Guard units were mobilized to deliver emergency supplies to these towns by air. More than 300 businesses sustained losses or were destroyed. Agricultural impacts include the flooding of 20,000 acres of farmland, and the loss of over 400 acres of crops as well as many herds of livestock for Vermont’s family farms. The largest state office complex was completely flooded, forcing the evacuation of state employees and clients of the Vermont State Hospital (an acute mental health facility), displacing 1,500 state workers indefinitely. Even the State Emergency Operations Center (SEOC) was flooded, necessitating its relocation to the FEMA Joint Field Office. Sixteen public schools could not open for weeks."

The localized impact of this disaster has placed many Vermont communities under severe fiscal stress. The cost of damage in many rural towns is several times their total annual operating budget. To pay for repairs and replacement, nearly 50 small Vermont communities have had to obtain loans and lines credit, some for more than $1,000,000. This is a significant amount considering these are small rural towns, in some cases with only a few hundred residents. These towns will be paying off Irene related debt for many years to come. Fortunately for Tunbridge, the impact of Irene was minimal when compared to harder hit communities. With the percentage of severe storms that have heavy precipitation increasing, it is clear that Tunbridge, like all communities, needs to be prepared for the possibility of an Irene-like event.
Another significant flooding event occurred in Tunbridge in July and August of 2013. Showers and thunderstorms occurred daily and rainfall rates as high as 2-3 inches an hour caused flash flooding in Tunbridge. The Town experienced damage on Falls Hill Road and Ordway Road, damage for this flooding event totaled $73,150 in Tunbridge according to FEMA’s public assistance database.

National Flood Insurance Program (NFIP)
There are two sets of official maps that govern development in floodplains 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 FEMA maps primarily consider inundation flooding (like a bathtub filling), while the River Corridor area maps are designed to consider the potential impacts of flash flooding and fluvial erosion (caused by rapidly migrating streams or changes in channel location).

FEMA administers the National Flood Insurance Program, which provides flood hazard insurance at subsidized rates for property owners in affected areas. Rates are based on calculated risks. In order to qualify for federal insurance, towns must adopt and retain a bylaw to control land development within these areas. Minimum standards must be included and approved by FEMA. Coverage is only available to landowners if a town elects to participate in the program. The Town of Tunbridge incorporates Flood Hazard regulations as part of its Flood Hazard Area Ordinance, and has been recognized as a participating community the National Flood Insurance Program since it enrolled in September 18, 1985.

FEMA has prepared a Flood Hazard Boundary Map for the Town of Tunbridge, which includes flood hazard areas for the First Branch of the White River. (these maps are typically only detailed for larger streams and rivers). These FEMA Flood Insurance Rate Maps (FIRMs) show the floodplain that FEMA has calculated would be covered by water in a 1% chance annual inundation event also referred to as the “100 year flood” or base flood. This area of inundation is also called the Special Flood Hazard Area (SFHA). The floodplain depicted on these maps comprises roughly 350 acres, approximately 1% of the town. FEMA FIRMs sometimes also show stream flood profiles, expected base flood elevations (BFEs), and floodways (smaller areas that carry the bulk of the stream current).

FEMA FIRM Maps were last updated for the Town of Tunbridge in September 1985, and did not include BFEs or a floodway delineation. Because FEMA maps lacked this information for several other Orange County communities as well, the United States Department of Agriculture Soil Conservation Service was engaged to conduct Flood Insurance Studies for several Orange County towns that included more detailed mapping, hydrologic studies and evaluations.

The Town of Tunbridge has adopted the Flood Plain Management Study for Tunbridge (prepared in 1991 by the USDA Soil Conservation Service), in conjunction with the FEMA maps, as the official maps referenced for administration of the Flood Hazard Area Ordinance last updated in June 2014. This study provides survey reference points, stream flood profiles and BFEs against which surveyed elevations can be compared, greatly reducing the burden of developing costly hydrologic studies for trying to determine impacts to or from development along the First Branch floodplain.

These maps are on file at the Town Office and at the Two Rivers-Ottawquechee Regional Commission. Contact the Tunbridge Town Clerk to determine if a proposed development is in the Flood Hazard Area.
**Fluvial Erosion Hazards and River Corridor Areas**

Recent studies have shown that a significant portion of flood damage in Vermont occurs 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. It should be noted that small, mountainous streams may not be mapped by FEMA in NFIP FIRMs (Flood Insurance Rate Maps), flooding along these streams is possible, and such flooding should be expected and planned for. Property owners in areas outside of Special Flood Hazard Areas ("100-year" floodplains) are not required to have flood insurance, but may be able to obtain it cheaply if they are outside of these SFHAs). Flash flooding in these reaches can be extremely erosive, causing damage to road infrastructure, threatening 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 streambank/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 show the areas that may be prone to flash flooding or erosion, which may be inside of FEMA-mapped areas, or extend outside of these areas. In these areas the lateral movement of the river, sudden surges, and associated erosion are a greater threat than inundation by floodwaters. The ANR mapped River Corridors represent the area where rivers and streams will need to meander and move over time to reduce instability, and they depict areas that are at risk from erosion. Elevation or floodproofing may not be protective in these areas as erosion can undermine structures. Rivers, streams, and brooks that have mapped River Corridors include the First Branch of the White River, the Farnham Branch of the White River, Dickerman Brook, Bicknell Brook, and several unnamed tributaries of the First Branch of the White River. Several of these corridor delineations were refined based on fieldwork conducted during a 2013 geomorphic assessment of the First Branch and some of its major tributaries. ANR further recommends that small streams draining less than a 2 square mile watershed have a 50 foot setback for any development to reduce potential damage from flash flooding. While Tunbridge has not formally adopted these Corridors for consideration in its Flood Hazard Ordinance to date, ANR does consider these Corridors in Act 250 proceedings.

In the Town of Tunbridge, 25 total structures reside in the special flood hazard area, meaning they have a 1% chance of flooding every year. These consist of 17 buildings and 8 out-buildings or accessory structures. If all of the structures in the Special Flood Hazard Area were damage or destroyed in a flooding event, the damage would total approximately $1,993,140.

Additionally there are 43 structures that reside within the mapped River Corridor. Presently, these structures consist of 26 single-family dwellings, 7 camps, 6 mobile homes, 1 seasonal home, 1 government building, and 2 commercial structures. If all of these structures were damaged and destroyed, the damage would total approximately $6,613,830. In an effort to help reduce the risk to health, structures, and road infrastructure, it is important to restore and improve the flood storage capacity of existing floodplains and to increase the overall area for accommodation of floodwaters in Tunbridge.

**Flooding and Land Use**
Floodplains are fragile areas which are part of the land and water interface between lakes, ponds, rivers and streams. How these lands are managed has a direct bearing on the quality and quantity of water resources, as well as the safety of the town. Flood hazards can be exacerbated by poor development practices, such as allowing development in the floodplain without accounting for “no net fill”, channelizing or straightening river segments, and eliminating buffer areas next to rivers and streams.

The potential for flooding can be reduced by adopting the following policies:

Goals
1. To enhance and maintain use of flood hazard areas as open space, greenways, non-commercial recreation and/or agricultural land.
2. To ensure no net loss of flood storage capacity in an effort to minimize potential negative impacts. These impacts include the loss of life and property, disruption of commerce, and demand for extraordinary public services and expenditures that result from flood damage.
3. To maintain maps that reflect as accurately as possible the flood hazard areas to assist in appropriate land use decisions.
4. To recognize that upland areas adjacent to unstable rivers and to steep streams may be at risk of erosion during floods.

Policies
1. It is the policy of the Town that the preferred uses for flood hazard areas shall be for natural areas, open space, greenbelts, and non-commercial recreational or agricultural uses.
2. Any land use activity (filling, or removal of earth or rock) within flood hazard areas which would result in net loss of flood storage or increased or diverted flood levels or increased risk to adjacent areas shall be prohibited.
3. Structural development or intensive land uses are discouraged from locating in Class I and Class II wetlands and their buffer zones. (See Map 6 – Natural Resources.)
4. Developments, and their associated stormwater discharges, that are adjacent to wetlands should be planned so they do not cause undue disturbance to wetland areas. Maintenance of 100 foot naturally vegetated buffer area from a Class 1 wetland or a 50 foot naturally vegetated buffer strip between a Class 2 wetland and the project site is encouraged to prevent ground water pollution and direct discharges into a wetland.
5. Structural development and placement of fill within the limits of the Special Flood Hazard Area is discouraged. Where careful planning at the local level accepts development within the floodplain, the development should be designed to achieve no-net-fill, and located so they do not impede the floodwaters and endanger the health, safety, and welfare of the public. No structural development, except bridges, should be located within the limits of a floodway.
6. Utilities or facilities serving existing development (e.g. water lines, electrical service, waste disposal systems, roads, and bridges) may be located within special flood hazard areas and mapped river corridors only when off-site options are not feasible and provided that these utilities or facilities are relatively protected from flooding damage.
7. Tunbridge prohibits all new fill and construction of buildings floodways.
8. Move or abandon roads that often experience flooding.
9. Design culverts and bridges to comply with VTrans Hydraulics Manual, ANR Stream Alteration Standards, most recent VTrans Codes and Standards.
10. Do not build Tunbridge’s new emergency services, power substations, or municipal buildings in the Special Flood Hazard or River Corridor Areas.
11. Maintain Tunbridge’s upland forests and watershed predominately in forest use to ensure high quality valley streams and to reduce flood flows.
Recommendations

1. Flood hazard regulations should be extended to limit development in River Corridor areas identified as at risk to fluvial erosion.
2. Tunbridge should consider prohibiting new development and maintaining vegetative buffers within 50 feet of surface water resources in Town.
3. All substantial improvements to structures should be elevated 2 feet above base flood elevation (BFE).
4. Tunbridge should continue working to update hazard mitigation plans and emergency preparedness and recovery procedures.
5. The Town should continue to maintain and update town bridge and culvert inventories. This information should be used to develop a schedule to replace and update undersized structures.

K. Water Resources

Background

Water resources include aquifers (groundwater) and surface waters. Sustainable yields of quality water are necessary for the lives and livelihood of citizens of Tunbridge.

The continued availability of clean, high-quality drinking water is a concern for all Vermonters. Because of this, in 2006 the Groundwater Management Act was passed by the Vermont Legislature and signed into law by Governor Jim Douglas. This Act (10 V.S.A. chapter 48 (5)) is designed to help define the groundwater system, enable greater scrutiny of commercial water extraction operations and provide for the study and mapping of groundwater resources throughout the State. Hopefully, this legislation will bring Vermont “up to speed” with neighboring states regarding groundwater protection and mapping. Tunbridge has no mapped groundwater information.

The process for mapping groundwater is complicated. It involves multiple scientific methods including using technology to create a detailed picture of groundwater situations and use patterns, analysis of well data provided to the state by well drillers and site specific analysis. Unfortunately, there is no easy method. Due to this fact, the Vermont Geological Survey completed a series of coarse scale groundwater studies at state and county-wide levels and the Vermont ANR Atlas now includes information from private well logs as well as displaying information on Source Protection Areas.

The health of Tunbridge’s surface waters is essential to maintaining quality groundwater, as well as an important element for outdoor recreation and natural beauty. There are a number of state and federal programs that help fund stream-management projects, such as the Conservation Reserve Enhancement Program (CREP). CREP provides funds to farmers for the purpose of preserving lands once used for agriculture, with the goal of introducing and encouraging plant life to prevent erosion and provide habitat. Stream instability can lead to excessive flooding and other types of damage due to increased flow velocity.

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.
The Vermont Agency of Natural Resources, in cooperation with federal and other state agencies, has evaluated aquifer recharge areas serving systems involving 10 or more connections or 25 or more people. These recharge areas are acknowledged and are recognized as important for protection. Land developments that are potential threats to water quality and significant aquifers are discouraged from locating in these areas. The area surrounding the Tunbridge Central School well has been designated a Source Protection Area by the State of Vermont.

The Drew Lot of the Town Forest, which consists of a 97-acre parcel that is owned by the Town of Tunbridge. The Town Forest was originally set aside to ensure adequate protection and water availability by the Village Improvement Society as a resource to Tunbridge Village. The Town, including the Village Center Areas, operates predominantly upon private wells. Tunbridge currently has a Town Forest Committee that participates in the protection and management of this municipal resource.

As it has been noted in other chapters, the Town has discovered that there are some serious limitations to the availability of groundwater in Tunbridge Village. Because an increase in the number of wells in the Village could strain an already limited system, any future development in Tunbridge Village that requires a new well or septic system to be created shall be carefully reviewed. Because of these issues, the town of Tunbridge is particularly concerned with criteria 1, 2 and 3 of the Act 250 process. [See 10 V.S.A. Section 6086 (A)(1)(2)(3).]

Goals
1. To maintain or enhance the quality and quantity of drinking-quality resources.
2. To allow use of groundwater resources by new development in such a manner as to protect the public right to adequate quality and quantity of the resource. There is particular concern that most of Tunbridge’s water supply is private wells with strong potential to be negatively impacted by large withdrawals (as well as many small streams, as the 2016 drought indicated)
3. To consider surface water and groundwater impacts and effects related to proposed or existing uses of land.
4. To maintain or improve surface water quality and quantity.
5. Ensure adequate protection for the water resources of the Drew Lot of the Town Forest, historically set aside by the Village Improvement Society in large part due to the importance of these resources to Tunbridge Village

Policies
1. No new development or improvements in Tunbridge Village that require a new well or septic system shall be allowed unless the builder can prove that there will not be a significant impact on the availability and quality of already limited resources.
2. Land use activities that potentially threaten groundwater quality and quantity, should be carefully reviewed and monitored to prevent undue loss of groundwater quality.
3. Act 250 permit applications for commercial, industrial, commercial-residential, or mixed use development shall provide estimates of projected water usage, and if expected to exceed 20,000 gallons/day withdrawals will require semi-annual reporting to the Agency of Natural Resources and the District Environmental Commission of actual usage if permitted.
4. Development in Tunbridge should not diminish the quality and quantity of surface water and groundwater resources in the Town.
5. Maintenance or enhancement of water resources for recreation, fisheries, necessary wildlife habitats and quality aesthetics are high priorities. Water resource policy and practices should protect these uses.
6. The location, sizing and density of on-site sewage disposal facilities should be determined by the capacity of the soil, the natural limitations of the site, and underlying substrata conditions, such as depth to bedrock and seasonal high water tables. For the most current information regarding permitting, see http://www.anr.state.vt.us/dec/ww/rules.htm.

7. Preservation of the natural state of streams should be encouraged by,
   - Protection of adjacent wetlands and natural areas;
   - Protection of natural scenic qualities; and
   - Maintenance of existing stream bank and buffer vegetation including trees, together with wildlife habitat.

Recommendations
1. Continue to support the White River Partnership water quality monitoring and watershed planning efforts for the First Branch, including projects identified in the 2014 White River Stream Geomorphic Assessment and River Corridor Plan.
2. Investigate maintaining and improving public access to the river for recreational use.
3. Conduct a mapping study of groundwater resources in Tunbridge.
4. The Planning Commission should consider creating a policy regarding development and riparian buffer zones in future versions of this plan.
5. Tunbridge shall participate in the White River Tactical Basin Planning Process in coordination with the Vermont Department of Environmental Conservation.
6. Tunbridge should develop a Source Water Protection Plan for the Drew Lot of the Town Forest, clarify deeded water rights from these sources, and develop a plan for future allocation.
7. Develop an emergency operations protocol with the Tunbridge Trout Pond Association to manage water levels to mitigate flooding hazards during high intensity rain events.

L. Wildlife and Forest Resources

Forests

Healthy forests provide a significant number of benefits to our communities, including environmental benefits (such as clean water supply, clean air, mitigation against climate change, wildlife habitat, and biological diversity), and economic benefits (such as tourism, recreation, and the wood products industry).

Trends in forest health have changed over the past decade. In the 2013 US Forest Service’s National Forest Inventory and Analysis Program report, figures indicated that since 2007 there has been a continuing, though gradual, loss of about 75,000 acres of forestland in Vermont. Developed land in Vermont increased significantly between 1980-2010 (67%). The pattern of development growth has led to significant forest fragmentation throughout the state.

Forest Fragmentation

Forest fragmentation is the breaking of large, contiguous forested areas into smaller pieces of forest. For natural communities and wildlife habitat, the continued dividing of land with naturally occurring vegetation and ecological processes into smaller and smaller areas creates barriers that limit species’ movement and interrupt ecological processes. Since the 1980s, Vermont has experienced “parcelization,” which is the result of larger tracts of land being divided into smaller ownerships or land holdings. The more individuals that own smaller parcels of forest, the more likely that the land
will ultimately be developed with infrastructure (such as roads and utilities) and buildings. The 2015 Vermont Forest Fragmentation Report identifies the following causes for this trend:

- Escalating land prices;
- Increased property taxes;
- Conveyance of land from aging landowners; and
- Exurbanization (the trend of moving out of urban areas into rural areas).

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 totally eliminates others.

To help mitigate the effects of human population growth and land consumption, many scientists and conservationists urge governments to establish protected corridors, which connect patches of important wildlife habitat. These corridors, if planned correctly, allow wildlife to move between habitats and allow individual animals to move between groups, helping to restore or maintain genetic diversity that is essential both to the long-term viability of populations and to the restoration of functional ecosystems. Important corridors have been mapped in Tunbridge particularly on the eastern side of Town, in relation to work done by the Linking Lands Alliance.

Tunbridge has approximately 148 acres of Town Forest which are available for public use, including a trail system for walking and biking. The total acreage is broken into two parcels: the Drew lot is 97 acres and the Town Garage lot is 51 acres. A Forestry Management Plan for both parcels was developed in 2011. The plan allows for the possibility of harvesting lumber from the parcels, and highlights the history of the Drew Lot in protecting water resources for Tunbridge Village.

As of 2017 Tunbridge had the largest number of parcels (203) enrolled in Use Value Appraisal Program in the State of Vermont. This totals 13,346 acres of forestland and 3,951 acres of agricultural land enrolled in the program. Forest management plans required for enrollment of forest land in the Current Use Program are obliged to be updated every 10 years, and well-crafted management plans can play a large role in ensuring vital wildlife habitat and corridor connectivity.

There are several other important forest blocks and habitat connector areas in Tunbridge that are priority locations for protection where development and fragmentation should be avoided to protect ecological function.

- **Taylor Valley and Broicklebank Hill:** The northeastern corner of town constitutes the highest priority interior forest and habitat connectivity. This area, which is part of the larger Taylor Valley Conservation Area, is located north of Strafford Road and east of County Turnpike. This large interior forest block continues into the Towns of Strafford, Chelsea, and Vershire, and is one of the most ecologically significant forest blocks in Vermont.

- **Curtis Hill:** A priority interior forest block is located east of Route 110, north of Larkin Road, and west of Bicknell Hill Road.
- **Tunbridge Town Forest Town Garage Lot to County Road:** A priority interior forest block is located north of Strafford Road, South of Foundry Road, east of Route 110, and west of County Road.
- **Tunbridge Town Forest Drew Lot, East Hill, and Williams Hill:** A priority connectivity forest area is located south of Strafford Road and Drew Road, and east of Potash Hill Road. This area provides important habitat connectivity that for wildlife that connects crucial core habitat for far-ranging animal species.

**Wildlife**

Wildlife is one of the popular attractions to the area and provides some citizens of Tunbridge with direct and indirect livelihoods from sports, tourism or direct harvest of wildlife. Additionally, the interconnection of wildlife with their environment has an impact on the natural environment.

Wildlife management requires management of human activities around animals as much as management of animals around human activities. Managing for specific species is not as desirable as managing for the entire ecosystem supporting the species.

Tunbridge’s fields, forests, wetlands and streams are home to a diverse and healthy wildlife population that includes bear, bobcat, moose, deer, otter, geese, ducks and mink, to name only a few. Nearly all open space provides habitat for game and non-game species. There are, however, some areas in Tunbridge which provide critical habitat that should remain intact. These areas include wetlands, deer wintering areas, bear mast stands, and edge (the transition zone between two cover types, such as field and forest). Development or logging in or adjacent to these areas should consider wildlife implications during the planning process.

Wintering areas are an important habitat requirement for deer during the critical winter months when snow depth and climate are limiting factors to survival. Typically these areas consist of mature softwood stands, at low elevations or along stream beds, which provide cover and limit snow depths. Southerly facing slopes are also beneficial due to good sun exposure and may be utilized even in areas of limited softwood cover. More specific factors, such as percent canopy closure, species of softwoods, and stand age, also figure into the quality of the wintering area.

Most important when considering development and its impact on wildlife is the concept of habitat fragmentation. Forests provide habitat to a diverse population of wildlife, which are negatively impacted when forested land is fragmented through development.

**Goals**

1. To maintain or enhance the natural diversity and population of wildlife, including natural predators, in proper balance.
2. To restore stable populations of endangered or threatened wildlife in appropriate habitat areas.
3. To maintain or improve the natural diversity, population, and migratory routes of wildlife.
4. To allow sport and subsistence hunting of ecologically sound intensities to provide continued success of the species.
5. To provide the community with access to quality forestland for recreational use.
6. To reduce the fragmentation of forestlands.

**Policies**

1. Wildlife populations and natural diversity should be maintained or enhanced.
2. Long-term protection of major habitats through conservation easements, land purchases, leases and other incentives is encouraged.
3. It is the policy of the Town to protect deer wintering areas from developments and other uses that adversely impact the resources.
4. Development other than isolated houses and camps shall be designed so as to preserve continuous areas of wildlife habitat. Fragmentation of wildlife habitat is discouraged. Effort shall be made to maintain connecting links between such areas.
5. Preference shall be given to development that utilizes existing roads and field lines.
6. The Forestry Management Plan shall be kept up-to-date in order to properly manage Tunbridge’s municipal forests.
7. New developments shall take reasonable steps to avoid disruption or loss of major identified wildlife corridor crossings.
8. The construction of utilities, roads, or other physical modifications in the priority areas identified in this plan as important forest blocks and habitat connectors is incompatible with this plan.
9. Subdivisions and other development on large lots shall minimize impacts on forestry potential and habitat values of undeveloped areas by concentrating development at the forest edge near other development and roads; shall use small lot sizes and shapes so that most of the remaining land is in a large undeveloped tract; shall minimize clearing forest; and shall avoid the creation of additional roads or power lines that would further future development into interior areas.

Recommendations
1. Encourage owners of necessary habitat for threatened species (see Appendix B, Vermont Fish & Wildlife Department, for listing of current threatened and endangered species of plants and animals) to contact the State for assistance in developing a management plan for these sites.

M. Mineral Resources

Background
The use and management of Tunbridge’s earth and mineral resources are matters of public good. Maintenance of sustainable quantities of gravel, sand, crushed rock, and other materials are essential for business development, as well as state and local highways. In spite of this, public and private interests are oftentimes in conflict over use of the resource. It is in the interest of the Tunbridge business owners and residents to enable utilization of these resources when such uses do not significantly inhibit or conflict with other existing or planned land uses, or are in conflict with other stated goals in this Plan.

Goal
1. To support extraction and processing of mineral resources only where such activities are appropriately managed and the public interest is clearly benefited.

Policies
1. 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;
   - To not significantly interfere with the function and safety of existing road systems serving the project site;
• To minimize any adverse effects on water quality, fish and wildlife habitats, viewsheds and adjacent land uses; and
• To reclaim and re-vegetate sites following extraction.
• To minimize noise impacts on adjacent uses including residential areas.

Recommendation:
1. Tunbridge should consider the Town Garage parcel for potential future ledge extraction and quarrying.

N. Plant Communities

In Tunbridge, there are a broad range of communities that exist in the older forests, early successional forests, open fields and valley floors. The breadth and diversity of wildlife and plant communities indicate a healthy, thriving ecosystem, exemplary of the outstanding soils Tunbridge is blessed with. Yet plant communities are usually strongly affected by the surrounding environment. Plants respond to soil structure and chemistry, hydrology, and climate. The effects of unmanaged development can have a negative impact on plant communities, which in turn will harm the overall ecosystem in the area affected.

Invasive species are a growing problem in Vermont. Invasive species are defined as plant and animal species which are introduced, usually by human methods, to an area outside of their native range. These species often have no natural predators or population controls in their new ecosystem, which allows their population to increase and their new home ranges to expand. Once in the wild, invasive species may continue to reproduce and displace native species, causing biodiversity to suffer and throwing entire ecosystems out of alignment. Both Federal and State governments have guidelines in place for handling invasive species, and there are resources available to interested parties through the University of Vermont. While the list of invasive species in Vermont is extensive, the most common invasive plants in Tunbridge are Wild Chervil, honeysuckle, Japanese Knotweed, and Wild Parsnip. See Appendix B for additional sources of information on natural resources.

Goal
1. Minimize the spread of invasive plant species in Tunbridge.

Policies
1. Developers should locate their projects in areas to avoid sensitive plant communities.
2. Developers, excavation companies, logging operations, and construction companies should maintain buffer areas during development to protect against silt runoff.

Recommendations
6. Research what other communities in Vermont and elsewhere have done to minimize the spread of invasive plant species.
7. Advise utility crews, road crews, private landowners, and local excavators and construction works to take care to minimize the spread of invasive species such as Japanese Knotweed, Wild Chervil, Wild Parsnip and Purple Loosestrife
3. Whenever possible, have the road crew mow roadsides before invasive species go to seed and wash equipment thoroughly after mowing areas with the presence of invasive species.
4. Educate landowners as to what invasive plant species look like and how to control their spread, possibly through the printing of a basic document.
XIV. Energy

A. Global Perspective on Energy Resources

Concern about the sustainability of our nation’s dependence on foreign oil has grown greatly since the oil crisis of the mid-1970’s. As prices of oil-related fuels rise, everyday activities such as home heating and travel by car become increasingly burdensome for the average Tunbridge resident.

While the Planning Commission recognizes that energy supply and demand are directly influenced by economic forces at the state, federal, and international levels, the manner in which Tunbridge plans for future growth can still have an important impact on global energy resources. For example, a highly dispersed and unplanned pattern of land use in Tunbridge (or anywhere else, for that matter) can waste both land and energy resources.

Theories such as the Hubbert Peak Theory (a.k.a. Peak Oil), suggest that at some point – perhaps sooner than later – the worldwide consumption of oil will outpace the existing supply. Although new technologies may enable energy providers to extract oil from locations that were previously impossible to reach, there is most likely a finite amount of oil available, and there is definitely a finite amount of pollution that the earth can incorporate before exhibiting significant climatic changes.

Given the predictions of Peak Oil, the Town of Tunbridge, like the rest of the world, should prepare for a very different future. Declining oil production and increasingly worrisome signs of climate change underscore the need for good planning and active discussion about energy alternatives. Principles of energy conservation, stewardship, and independence can surely help.

B. Vermont’s Energy Future

Vermont strongly supports reducing its reliance on fossil fuels and securing energy independence for the state by improving the energy efficiency of residential, business, and government buildings, and utilizing in-state renewable energy resources. To highlight the state’s commitment to efficiency, the State set a 5% energy savings goal for state government, a standard that is now mandated by law. Additionally, the State set a long-term goal of obtaining 90% of Vermont’s energy demand from renewable resources by 2050.

C. Local Energy Demands

According to the 2011 Vermont Comprehensive Energy Plan, energy demand grew at a 1.8% rate of growth from 1990 to 1999, but has been close to 0% for the past 10 years. The likely combination of state energy efficiency programs and the 2007–09 recession impacted energy demand across most end-use sectors. The American Community Survey reports that the major heating fuels consumed in 2010 in Vermont were oil (47%), electric (5%), wood (15%) and LPG and gas (30%).

In terms of per capita energy consumption for residential and transportation purposes, the Northeast is about the same as the rest of the U.S. In Vermont, almost 80% of residential energy is dedicated to space heating and domestic hot water, while approximately 34% of the state’s total energy usage goes toward transportation.
Of the energy dedicated to transportation, over 50% is used to fuel private cars for residents (as opposed to being used for public transit, road maintenance, or another public purpose).

Data collected by Efficiency Vermont in 2008 reveals that the Town of Tunbridge used less energy per residence than 2/3 of the towns within the Two Rivers-Ottaweech Region. In 2008, this data showed that the average Tunbridge residence used approximately 6,431 kWh of energy annually.

D. Decentralized Energy

Since the Rural Electrification Act was signed in 1936, our nation has moved toward a centralized system to provide all but the most rural locations with electricity. On a simplified level, energy is produced at a generation plant and sent through transmission lines via a nationwide “grid”. Energy from the grid is routed to transformer stations and then delivered to consumers.

In the past our energy production was decentralized, there with many small, local energy producers. It was not uncommon for individual towns to have their own source of energy – usually through hydro power. In Tunbridge, for example, residents recount that there were at least six different dams on the First Branch of the White River used to produce power or run machinery. As energy distribution became more industrialized, these small companies were replaced by larger regional power companies. Presently, Tunbridge is served by two electricity providers, Central Vermont Public Service (CVPS) and Washington Electric, Co.

While this model may be acceptable in times where there is plenty of energy, the possibility of a worldwide fuel shortage casts a shadow of doubt on it. For Tunbridge, it may be worth considering the concept of decentralized energy production.
The ultimate goal of decentralized energy production is to have every household or cluster of households producing its own energy using free and renewable resources. While this might be unrealistic in the near future, technological advances keep moving forward and make the likelihood of cost-effective home energy generation a distinct possibility.

There are a number of small-scale power generation options that could be considered and with planning and the support of town government could be implemented, for example, use of the First Branch of the White River for power generation. A small hydro turbine placed in a logical location might be able to produce at least enough energy to provide power to the Village. There may be locations in town suitable for wind generation facilities. Clearly, the impacts and costs of these concepts will have to be given much thought, but nevertheless, they are worth considering.

E. Local Renewable Energy Resources

The Vermont Energy Atlas is an online tool that can be used by anyone to gather information on existing and potential renewable energy resources by counties, towns, or individual parcels in the state. The following data for the Town of Tunbridge was collected at www.vtenergyatlas.com in 2011:

Solar - Most locations in Vermont are capable of generating solar energy through photovoltaic panels or solar thermal systems. At present Efficiency Vermont reports that Tunbridge has five net-metered photovoltaic (used to generate electricity) sites and two thermal solar sites (usually used to heat water). Additionally, it is estimated that the Town of Tunbridge has 737 residences with the potential solar capacity of 1,014 MWh, 13 commercial locations with the potential solar capacity of 17.5 MWh and 8 public locations with the potential solar capacity of 12 MWh.

Wind Generation - There are multiple levels of potential wind energy generation, ranging from Class 1 (10-11 mph) to Class 7 (19-25 mph). Many towns in Vermont are unlikely to have commercial generating capacity due to topography; however, there are potential opportunities for residential, small-commercial and large commercial facilities in Tunbridge in some locations.

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Figure 20: Potential Wind Development in Tunbridge in Acres
(Source: Vermont Energy Atlas, 2012)

2 This information reflects only systems that have registered with Efficiency Vermont and may not include all solar systems in Tunbridge.
The most viable location for small and large scale commercial wind development would be on Brocklebank Hill, along the border between Tunbridge and Chelsea. Locations for small commercial or residential scale wind energy generation are greater. These areas align with Tunbridge’s ridge-tops which occupy the eastern and western sides of the community.

**Biomass** - The term ‘biomass’ refers to biologically-based feedstocks (that is, algae, food or vegetable wastes, grass, wood, methane, and much more). Biomass can be converted into an energy source to fuel vehicles (e.g. biodiesel), heat homes, or even generate electricity.

Many homes use biomass for heating individual buildings in the winter, and sometimes to provide electricity. According to the 2011 Vermont Comprehensive Energy Plan, those using wood for primary heating consumed about 5.4 cords in 2007–08, while those using wood as a supplementary source used 2.25 cords. In that same year, Vermont households burned about 20,155 tons of wood pellets, with primary-heat-source consumers burning 3.8 tons and supplementary-heat-source consumers burning 1.2 tons for the season.

Commercial biomass energy generation facilities should be located close to available biofuels to reduce transportation impacts and costs. A biomass power plant would require a great deal of space to accommodate the various stages of collection and conversion of the mass into fuel before burning it to produce electricity. Water can also pose a problem as biomass facilities require large quantities to handle the recycling process of waste materials. Materials would have to be transported to and from the facility, so truck traffic should be a consideration in selecting a site. Additionally, before a biomass energy generation facility is located in Tunbridge, developers should prove that their proposed project will not negatively impact the rural character of the community or the local road system.

If a biomass energy generation facility is located in Tunbridge, it will be essential for the community to monitor biomass production for sustainability. It is possible that with a well-managed source of biomass, the community could generate income.

**Biofuels:** Biofuels are commonly grouped into two categories: ‘first generation,’ which refers to corn-based ethanol and oilseed crop-based biodiesel, and ‘second generation, which refers to algae-based biodiesel and ethanol made from the cellulose in plants. Tunbridge has no existing biodiesel sites.

Growing biomass to use in biofuels may be a viable way to encourage farming in Tunbridge; however, balance should be sought between growing for energy demands and for human and animal consumption.

**Hydropower:** There are active no hydropower facilities located in Tunbridge. However, Tunbridge has had small-scale hydro in the past. While large hydro facilities are more commonplace in Vermont, advances in technology are making it increasingly viable for small-scale residential use. Micro hydropower has the potential to generate enough electricity to power a home, provided that the essential ingredients – water and vertical drop – are available. Hydro can be an excellent complement to a solar system, because water flow is often greater during the winter season when solar is less effective. At all times, the health and stability of the river ecosystem needs to be prioritized above the generation of energy.
F. Meeting the Local Energy Demand – Increasing Awareness and Efficiency

There are a number of ways that the Town of Tunbridge can meet its local energy demand, first by lowering that demand, and then by working to meet the remaining need with local, untapped energy resources.

Decreasing Energy Use by Changing Behavior

Raising awareness about wasteful energy behaviors and energy saving behaviors reduces the strain on existing energy resources, and helps residents and businesses save money, making the town a more affordable place to live with a higher quality of life.

Decreasing Energy Use by Implementing Energy Efficiency

For those necessary or desired services that require energy, we can apply the principles of energy efficiency to ensure that we use less energy to provide the same level and quality of service. Examples include:

- Insulating with high R-value (or heat flow resistance) material,
- Using high efficiency windows,
- Installing energy efficient appliances like refrigerators, freezers, front loading washing machines, gas heated clothes driers and heating systems without blowers,
- Using high efficiency lighting,
- Using gas and/or solar hot water heaters,
- Siting buildings to make use of existing wind blocks and natural cooling patterns derived from the landscape’s topography.
- Siting buildings with maximum southern exposure to capture passive solar energy.

New residential development in the State of Vermont is required to comply with Vermont Residential Building Energy Code (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.
- Factory-built modular homes (not including mobile homes)

In order to comply with the RBES, a home, as built, must meet all of the Basic Requirements and the Performance Requirements for one of several possible compliance methods. If the home meets the technical requirement of the Residential Energy Code, a Vermont Residential Building Energy Standards Certificate must be completed, filed with the Town Clerk of the community and posted in the home. If a home required by law to meet the Residential Energy Code does not comply, a homeowner may seek damages in court. It includes heating and cooling systems as well.

G. Making Changes and Implementing Solutions at the Municipal Level

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. The relationship between a municipality and its energy use creates opportunities to have an impact on local energy use reduction.
Form an Energy Committee

Tunbridge does not have an energy committee, but towns are statutorily enabled to create one. An energy committee (EC) is a volunteer group that is formed for the purpose of establishing and implementing the town’s energy goals; the group can act independently or request to be formally appointed by the Selectboard. The work that can be done by an EC includes conducting energy audits on municipal buildings, tracking energy use for these buildings, working with the PC on the Energy Plan. Most importantly, an active EC can help the town save money while saving energy.

Auditing Municipally Owned Buildings

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

Municipal officials should consider conducting audits on additional town buildings in order to determine what improvements are necessary, and which projects would have the highest cost-benefit ratio in terms of energy and financial savings.

Property Assessed Clean Energy (PACE)

Vermont enacted legislation in May 2009 (Act 45) that authorizes local governments to create Clean Energy Assessment districts. Through PACE, municipalities can offer financing to property owners for renewable energy and energy-efficiency projects. Eligible projects include the installation of solar water and space heating, photovoltaic panels (PV), and biomass heating, small wind, and micro-hydroelectric systems. Property-Assessed Clean Energy (PACE) financing effectively allows property owners to borrow money to pay for energy improvements. The amount borrowed is typically repaid via a special assessment on the property over a period of up to 20 years; if the property owner wishes to sell the parcel before fully repaying the obligation, then the obligation is transferred to the new property owner at the time of sale.

Tunbridge created a PACE district in 2012, but the program has not been implemented. Implementing a PACE program can take 2-6 months if there is active coordination of the process. Coordinators may need to advise elected or appointed municipal officials, or simply to monitor the Town’s progress. In Tunbridge communities, the Selectboard should determine who is best charged with facilitating implementation of PACE in their community. Regardless of who is assigned the task, the necessary implementation steps are as follows:

- Engage town officials who will be impacted by PACE
- Review Program Parameters to see if town wants to further restrict allowable levels
- Determine how municipality wants to administer – in-house or contract with Efficiency Vermont/PACE Administrator
- Decide how to finance – inter-municipal agreement or town funds or bonding?
- Develop PACE application process and marketing plan
- Adopt Municipal PACE Program
- Promote PACE to Residential Property Owners
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. Although most communities have some form of capital account where they save money, many do not have a true Capital Budget and Program. A capital budget outlines the capital projects that are to be undertaken in the coming fiscal years over a five-year period. It includes estimated costs and a proposed method of financing those costs. Also outlined in the Program is an indication of priority of need and the order in which these investments will be made. Any Capital Budget and Program must be consistent with the Town Plan and shall include an analysis of what effect capital investments might have on the operating costs of the community.

When planning for routine major facilities investments, such as roof replacements, foundation repairs, etc., it is important to also consider making energy efficiency improvements at the same time. 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.

At present, the town of Tunbridge does not have an adopted Capital Budget and Program to help guide investments in community infrastructure and equipment. The Planning Commission may make recommendations to the Selectboard with regard to what capital investments should be considered annually. Tunbridge should strongly consider creating a Capital Budget and Program.

Policy Making for Change

In addition to reducing the energy use related to facilities, municipalities can implement policies that lower energy use by town staff or encourage greater energy efficiency. Examples include:

Energy Efficient Purchasing policy – A policy of this nature would require energy efficiency to be considered 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. For example, the Town of Tunbridge could create a policy requiring that town vehicles (such as dump trucks and other road maintenance equipment) not idle for more than a set period of time. Idling is an expensive waste of fuel, and a policy such as this could lead to substantial savings in money spent on fuel by the town.

Through policy making, local government can set a clear example for townspeople and encourage sustainable behavior that will ultimately result in both energy and financial savings. Please see the recommendations section (J, below) for more ideas.
H. Section 248 and Act 250

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

Section 248

Distributed power generation facilities, such as hydropower dams, fossil fuel plants as well as 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, similar to Act 250. In making its determination, the Board must give due consideration to the recommendations of municipal and regional planning commissions and their respective plans. Accordingly, it is appropriate that the Tunbridge Town Plan address these land uses and provide guidance to town officials, regulators, and utilities.

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

1. **Preferred Locations**: New generation and transmission facilities shall be sited in locations that reinforce Tunbridge’s traditional patterns of growth, of compact village centers surrounded by a rural countryside, including farm and forest land.

2. **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 (except as required for hydro facilities)
   - Fluvial erosion hazard areas shown on Fluvial Erosion Hazard Area maps (except as required for hydro facilities)
   - Wetlands as indicated on Vermont State Wetlands Inventory maps or identified through site analysis.
   - Rare, threatened or endangered species habitat or communities.

3. **Significant Areas**: All new generation, transmission, and distribution facilities shall be sited and designed to avoid or, if no other reasonable alternative exists, to otherwise minimize and mitigate adverse impacts to the following:
   - Historic districts, landmarks, sites and structures listed, or eligible for listing, on state or national registers.
   - Public parks and recreation areas.
   - The Route 110 Corridor Area.
   - Special flood hazard areas identified by National Flood Insurance Program maps (except as required for hydro facilities).
   - Public and private drinking water supplies, including mapped source protection areas.
   - Primary agricultural soils mapped by the U.S. Natural Resources Conservation Service.
   - Necessary wildlife habitat identified by the state or through analysis, including core habitat areas, migration and travel corridors.
4. **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 farm land, and primary agricultural soils mapped by the US Natural Resource Conservation Service.

5. **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.

6. **Site Selection**: Site selection should not be limited to generation facilities alone; other elements of the facility need to be considered as well. These include access roads, site clearing, onsite power lines, substations, lighting, and off-site power lines. Development of these elements shall be done in such a way as to minimize any negative impacts. Unnecessary site clearing and highly visible roadways can have greater visual impacts than the energy generation facility itself. In planning for facilities, designers should take steps to mitigate their impact on natural, scenic and historic resources and improve the harmony with their surroundings.

**Act 250**

Act 250 requires that the "best available technology" for energy efficiency and recovery be used in construction. In its review of development proposals, Act 250 applies a life cycle cost test to determine the "appropriate level" of energy efficiency. The appropriate level requires the developer to invest in energy efficiency up to the economic break-even point for a particular structure, occupant, and usage pattern. This standard allows for flexibility in design without sacrificing the energy efficiency of specific measures. In addition to the “best available technology” requirement, commercial developments under Act 250 are required to adhere to the rules set forth in Vermont’s Commercial Building Energy Standards (CBES).

In addition to the “best available technology” consideration, Act 250 should also consider greenhouse gas emissions as a waste that must be minimized, that private utility services be required to make reasonable efforts to incorporate onsite generation from renewable resources and that the location of development must also be determined to minimize transportation energy use through location adjacent to employment, housing or village centers.

**I. Energy and Transportation Policy**

It is important that communities recognize the clear connection between land use patterns, transportation and energy use. Most communities encourage the development of residences in rural areas, and these are in fact coveted locations to develop because of the aesthetics that make Vermont special. However, this rural development requires most of our population to drive to reach schools, work and services.

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 Town should be encouraged to locate adjacent to existing roads. In particular 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 locate on roads which can effectively handle the size of vehicle needed. The town is generally reluctant to take on additional roads, therefore new development in areas that are not presently served by town roads should be discouraged.

J. Energy Assurance Planning

The dramatic rise in fuel costs in the late 2000’s brought concerns about the stability of our national energy system to the forefront. Dependence on foreign fuels puts the nation in a position of weakness, unable to control prices and maintain fuel supplies. This lack of control highlights the fragility of our dependence on foreign fuel, particularly petroleum. Because Vermont has no refining capacity and no crude oil reserves, which creates distinct challenges in the event of a petroleum emergency.

If the costs of petroleum were to, for example, double in cost, Tunbridge would be challenged to continue to offer services and taxpayers would be forced to absorb those rising costs. This, coupled with the impact such fuel cost price changes would have on the private sector could spell disaster for any part of the United States. Additional concerns lie in our ability to maintain our existing energy distribution systems in the event of a severe hazard event. The State of Vermont has seen an increase in the number of declared disasters over the past decade. In 2011, Tropical Storm Irene isolated a number of communities, keeping them from available fuel sources.

Fuel disruptions can wreak havoc on our transportation systems, economies and the provision of services. Tunbridge should engage in comprehensive, integrated energy assurance planning that is designed to mitigate and enable timely response to the consequences of energy supply disruption whether through shortages created by cost or by hazard events. Our Municipal Hazard Mitigation Plan should include an element that specifically addresses fuel shortages. To ensure that there is a comprehensive approach to energy assurance planning; Tunbridge should assess impacts to the local supply and distribution system in the event of a fuel shortage. This plan should include a clear set of non-mandatory and mandatory fuel conservation measures. These measures are designed to alleviate supply shortages or disruptions and potentially prevent a more serious crisis. For more extreme events, communities should be prepared to implement a fuel allocation program that ensures that any available fuel will be distributed to priority areas of need, such as emergency response and health care providers.

K. Goals, Policies and Recommendations

Goals

1. To encourage a continued pattern of settlement and land use that uses energy efficiently.
2. To promote the design, siting and construction of buildings and structures that are energy efficient and minimize the need for costly sources of energy.
3. To encourage the responsible development of local renewable energy sources and to reduce dependence on outside energy sources.

Policies

1. Major public investments, such as schools, public recreational areas, and municipal facilities, as well as major commercial or residential developments need to be situated within or in close proximity to state highways.
2. The rehabilitation or the development of new buildings and equipment should use proven design principles and practices with the lowest life cycle costs (cost of owning, operating, maintaining, and disposing of a building or a building system over a period of time):
   a. Where land development or subdivisions are proposed, design plans shall reflect sound energy conservation principles, such as solar and slope orientation and protective wind barriers. An example would be the cluster planning concept, which is an approach that encourages energy conservation and efficiency; and
   b. Visual effects of electrical generation, transmission, and distribution facilities shall be minimized whenever feasible.
3. Generation, transmission, and distribution facilities or service areas shall be encouraged only when they complement the recommended land use patterns set forth in this plan.
4. To reduce commuting, the development of broadband services, energy efficient home occupations and small-scale home business is encouraged.
5. To promote energy efficient commuting, the community supports state and regional transportation programs serving Tunbridge.
6. To provide input on behalf of the citizens of Tunbridge in any Public Service Board Certificate of Public Good application relative to the generation of energy.
7. Any commercial energy generation facility proposed in Tunbridge should be developed so as to avoid negative impacts on the rural character of the area in which they are proposed to be located. Developers should make all possible efforts to minimize damage to important natural areas as identified in the Natural Resource section of this Plan. Additionally, such facilities should be located as close to existing roads as possible to avoid any increase in the services provided by the town.

Recommendations
1. The Town should consider creating a Town Energy Committee to increase public awareness and use of energy conservation practices through educational efforts and consider alternative energy sources in public facilities.
2. The Town should continue to investigate ways to reduce the cost of municipal energy use.
3. The Planning Commission should identify areas in town that are appropriate for large and small scale energy production such as wind and solar.
4. The Town should investigate tax incentives that would encourage energy efficient siting of residences.
XV. RELATIONSHIP TO OTHER PLANS

Tunbridge is bounded by Chelsea, Randolph, Royalton and Strafford. All of these towns have planning programs and planning commissions. All of these towns have plans in effect: Chelsea in 2008, Randolph 2010, Strafford 2011, and Royalton in 2010.

These towns have land use regulations as follows:

- Chelsea has zoning bylaws with districts, including a historic design and review overlay district in the Village Area. These bylaws were revised in 2007.
- Randolph has had subdivision and zoning bylaws with districts since the 1960’s. Their Town Plan was completely revised and adopted in 2004. They are currently working on a complete revision of their zoning bylaws.
- Royalton does not have land use regulation, but is currently trying to determine support for such an ordinance. Their Town Plan was adopted in 2010.
- Strafford has had multi-district zoning bylaws for at least 15 years, and was one of the first towns in the area to have zoning. Strafford also has a subdivision bylaw. They are currently revising their zoning bylaws.

In general, each community’s land use policies are similar to Tunbridge’s in that they encourage densely populated village centers surrounded by open countryside. There are no significant differences in land use patterns and therefore there are no conflicts with this Plan.

Tunbridge shares numerous activities and services with surrounding towns, including school services, rescue squad and fire protection. The town is also a member of the Two Rivers-Ottawquechee Regional Commission (TRORC).

TRORC’s regional plan covers 30 towns including Tunbridge. Since the preparation of the Tunbridge 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.

Recommendations:
1. To encourage continued communication and cooperation between Tunbridge and its neighboring towns.
2. To continue participation in the Two Rivers-Ottawquechee Regional Commission.
3. To exchange planning information and development data with neighboring communities.
XVI. Implementation

A. Putting the Plan Into Action

The character of Tunbridge, its people, and landscape has 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 Tunbridge desires for the future. One thing is certain – the community will change. The opportunity is that 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 Tunbridge Town Plan.

B. Adoption of the Plan

Adoption of the Tunbridge 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 Tunbridge.

C. Ongoing Planning

Planning for change is a continual process for Tunbridge 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 Tunbridge.

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, that discuss important issues relevant to the Town plan will ensure that the document truly reflects the vision of the residents of Tunbridge.

The Tunbridge 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 five years to be kept relevant. The Planning Commission is responsible for the maintenance and amendment of the plan. Within the next five years following adoption of the plan, the Planning Commission will need to evaluate the plan in light of new conditions and needs. Re-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 Tunbridge to influence and integrate its planning policies with State agency planning affecting land use.
D. Implementation Tools

Vermont law enables Tunbridge to implement the adopted Tunbridge 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. Examples of potential implementation tools include:

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

- Uses of land,
- The placement of buildings on lots,
- The relationship of buildings to open space, and
- The provision of parking, signs, landscaping and open space.

Zoning generally involves partitioning the town into districts or zones that have a different set of uses, densities, and other standards for development. Zoning districts must be reasonably consistent with the Town Plan. As an alternative to conventional methods, Tunbridge may opt to implement a set of measurable performance standards for specific uses as opposed to dividing the Town into districts. This technique, referred to as "performance zoning", is designed to be more flexible and to recognize the specific conditions of each site proposed for development.

Subdivision Regulations - Tunbridge does not currently have subdivision regulations. These regulations, if adopted, would be administered by the Planning Commission. Such regulations govern the division of parcels of land and the creation of roads and other public improvements. Furthermore, subdivision regulations can ensure that land development reflects land capability and that critical open spaces and resources are protected from poor design or layout.

Flood Hazard Bylaws - Under Vermont law [24 V.S.A., Section 4412], the Town of Tunbridge may regulate the use of land in a defined flood hazard area adjacent to streams and ponds. These bylaws can be established to ensure that design and construction activities within the limits of the 100 Year Flood Plain are designed so as to minimize potential for flood damage and to maintain use of agricultural land in flood-prone areas. As noted in the Natural Resources 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 Tunbridge unless the Town has in effect a Flood Hazard Bylaw which, at present, Tunbridge has.

Sewage Ordinance - In addition to zoning, subdivision, and flood hazard bylaws, Tunbridge may, through its Selectboard, adopt an ordinance to regulate the design and installation of on-site sewage systems. Under this ordinance, prior to the installation or replacement of a system, the landowner would first need a permit from the Tunbridge Board of Health (Select Board and Town Health Officer). However, this ordinance may be redundant as the state will regulate all new septic installations. (See Appendix B, Natural Resources)

Highway Ordinances - Tunbridge has in effect a Highway Ordinance setting forth the standards and conditions for the maintenance, improvement, discontinuance, laying out and acceptance of Town
highways. In addition, the ordinance includes provisions related to the reclassification of town highways (Classes 2, 3 and 4).

Lastly, Tunbridge does have, through its Selectboard, the ability to regulate private access to municipal roads through the issuance of "curb cut" permits to landowners. "Curb cuts" are places where a private driveway or road connects to a town highway. In granting a cut onto town roads, the Selectboard can give consideration to safety issues such as adequacy of sight distance and proximity to intersections as well as conformance with this Plan.

**Capital Budget** – A capital budget and program is a financing approach that benefits the town greatly in the selection, prioritization and costing of capital projects. 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 2006). Collectively these capital projects make clear when public facilities will be placed to accommodate projected growth. 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 District 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 Plan.

While both Tunbridge and the school district have an informal system of capital programming, it is recommended that a Capital Budget Committee be established to work with the Select Board and School Directors in the development of a list of capital needs and expenditures, and to formally present a Capital Budget and Program for adoption.

**Vermont Community Development Program** – Since the mid-1970's, the Vermont Community Development Program (VCDP) has made grant funds available to towns for community projects. Historically, the major focus of the program has been on housing rehabilitation and affordable housing projects benefiting low and moderate-income families.

Tunbridge should investigate the Vermont Community Development Program and its potential to assist the community in addressing its housing needs. The Regional Commission and the Vermont Agency of Commerce and Community Development are resources available to assist. (PH: 802-828-3217).

**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 one acre of land; construction of 10 or more units of housing; subdivision of land into 6 or more lots; construction of a telecommunication tower over 20 feet in height; and development over 2,500 feet in elevation qualifies.

Prior to these activities being commenced, a permit must first be granted by the District Environmental Commission. In determining whether to grant a permit, the Commission shall evaluate the project in relation to ten specific review criteria. (See [http://www.nrb.state.vt.us/lup/statute.htm#ten](http://www.nrb.state.vt.us/lup/statute.htm#ten) Appendix B)
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 Tunbridge, through the Planning Commission and Selectboard, the State, and the Regional Commission. One criterion that needs to be addressed is whether the project is in conformance with the Tunbridge Town Plan. If a project were determined not to be in conformance with the plan, the District Environmental Commission would have a basis to deny a permit. As such, 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 Tunbridge and to offer testimony, as appropriate.

**Coordination of Private Actions** - Citizens and private enterprise have a vested interest in the well-being of Tunbridge. 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 as set forth in this Plan.

It is in the interest of Tunbridge, 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 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 Tunbridge.

**Conservation Activities** - Conservation programs are an effective means of securing protection of valuable farm and forestland or significant natural resources. Techniques available involve voluntary direct work between non-profit 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 and the Nature Conservancy are particularly well-recognized organizations. Several organizations are also involved in water quality protection. It is the intent of this Plan to implement its policies through coordination and the involvement of these organizations and others dedicated to public purposes.

**E. Guidelines for Growth**

The following guidelines are intended to help town officials, residents and developers work together to plan and design developments consistent with the goals and policies of this plan. These guidelines are suggested ways to implement the plan. They are not mandatory and are not intended to be strictly adhered to in every case. They are offered to give landowners and officials a common, but flexible framework for preparing plans and making decisions.
Siting New Development - New development should be sited to

1. Be compatible with the historic settlement pattern;
2. Maintain functional integrity of deer wintering yards and wildlife corridors;
3. Be cost efficient for municipal services; and
4. Conserve the agricultural potential of primary agricultural soils by
   a. Keeping primary agricultural soils available for agricultural production unless the only economically viable use of the land would be from incompatible uses;
   b. And utilizing creative planning and design to minimize the reduction of agricultural potential.

Designing New Development - Landowners should design and phase new development, particularly large residential development to

1. Avoid overloading public facilities and services;
2. Protect and promote the harmonious balance between buildings and useful, well-defined open space, and a human-scaled character of structures and settlements;
3. Be compatible with desired habitat condition and public outdoor recreation;
4. Take advantage of opportunities to enhance and/or restore habitats by establishing native vegetative diversity or provide other wildlife benefits;
5. Mitigate the effects of proposed actions on identified archeological sites;
6. Be compatible with the qualities that make historic areas, structures or sites significant;
7. Protect the community trail system from activities which would unduly compromise desired trail experiences and uses;
8. To promote the design, siting and construction of buildings and structures that are energy efficient and minimize the need for costly sources of energy. See Appendix B for additional information on energy efficient building; and
9. Incorporate the following visual elements:
   a. Unobtrusive heights of buildings;
   b. Vegetative screening;
   c. Preservation of native vegetation;
   d. Unobtrusive location of utilities; and
   e. Minimal alterations to topography.

Public Facilities and Services - Major new developments should pay a proportionate fair share of the increased cost of providing public facilities or services to the development.

Roads - New roads, private or public, should be designed and constructed to

- Minimize impacts to large woodlands and wildlife corridors (if roads and trails are desired, locate them along the outer edge of the areas and limit trail use to low-impact activities compatible with the habitat objectives);
- Meet town road standards; and
- Minimize impacts on desired habitat conditions, water quality and other ecological functions.

Landowners requesting upgrades of Class 4 roads to Class 3 should pay the costs of the necessary improvements. [See 19 V.S.A., Section 711].
New private development of roads and ongoing plowing and maintenance, should remain the responsibility of the landowners.

If stream crossings are necessary for new development, efforts should be made to minimize their impacts on aquatic life.

**Water and Sewer Systems** - Prospective developers should demonstrate the ability to provide an adequate supply of potable water for their developments without impairing the quality or quantity of existing water supplies.

Developers should protect the quality and yield of groundwater by limiting land use activities within recharge areas.

**Vegetation Management** - Timber harvesting should be consistent with the Vermont Forest, Parks and Recreation's Acceptable Management Practices.

Deer wintering areas should be managed according to the Vermont Department of Fish and Wildlife's Management Guide for Deer Wintering Areas in Vermont, (1990).

When managing timber along streams designated as important wildlife corridors, avoid harvesting trees within 100 feet of a stream.

**Energy** - New development should reduce energy used for transportation by

- Minimizing unnecessary lengths and widths of new roads in order to reduce energy used for trips, materials, construction, and maintenance;
- Laying out new roads to allow clustering of structures, unit orientation for optimum solar gain, and location of structures in wind shadows;
- Locating development to facilitate creation of public and pooled transportation and promote pedestrian access to activities and facilities within and among settlements;
- Using local materials and labor in construction to reduce transportation energy costs; and
- Providing appropriate opportunities for jobs, retail goods and services within villages and neighborhoods in order to reduce the need for travel.

**Involvement with the Regional Economy** - Ideally, a new or expanding business affecting Tunbridge should:

- Create community pride and have a positive effect on the community's image;
- Strengthen and preserve the community's assets, particularly those identified in the Town Plan as important;
- Provide fiscal revenues that exceed direct and indirect costs;
- Invest in the community (e.g., sponsor groups and activities, allow community use of land and buildings, build affordable housing, provide day care);
- Help keep money circulating in the community (e.g., be owned by local residents; hire local people; use local resources or products; provide services or products presently obtained from outside community);
- Produce products or services that meet community needs and will benefit the community;
• Add value to a local renewable resource or product (e.g., dairy, cheese factory, furniture manufacturer);
• Be committed to reducing negative environmental impacts; and
• Minimize traffic impacts.

**Preservation of Historic and Scenic Areas** - Ideally, future development will include recognition of and consideration for historic and scenic areas including the following:

**Historic:**

• Tunbridge Village, listed on the National Register of Historic Places,
• 20 cemeteries, many containing graves of Revolutionary War soldiers, Indian raid victims, and original settlers,
• Indian raid sites,
• Five covered bridges,
• Old grist and saw mill complex,
• Several other historic mill sites, some with dams,
• Brocklebank quarry site,
• Foundry site,
• Four church buildings,
• Original fairgrounds in North Tunbridge
• 12 old one-room schoolhouses still exist, (of 18 existing at one time),
• Birthplace of Joseph Smith’s brother,
• Site of original town meeting house and parade ground (adjacent to site of Rowell covered bridge),
• Site of first settlement (Gilley farm),
• Whitney octagonal barn,
• Town Farm, and
• Numerous historic houses.

**Scenic:**

• Tunbridge Mountain and western view,
• Sunnyside and peat bog,
• View from top of Strafford Road
• View of Town from the Cilley Bridge, from the Spring Road, from Potash Road,
• Tuttle Hill,
• Strawberry Hill,
• Bicknell Hill, and
• Numerous places along VT Route 110.

“**You can always amend a big plan, but you can never expand a little one.**
I don’t believe in little plans. I believe in plans big enough to meet a situation which we can’t possibly foresee now.” ~ Harry Truman
MAPS

Map 1 – Transportation
Map 2 – Current Land Use
Map 3 – Utilities, Facilities and Education
Map 4 – Future Land Use
Map 5 – Farming in Tunbridge
Map 6 – Natural Resources
APPENDIX A

REPORT FOR THE TUNBRIDGE AGRICULTURAL AND FOREST LANDS SURVEY

APRIL 2006

Submitted by Daniel Ruddell
on behalf of the Tunbridge Planning Commission

Introduction

The Tunbridge Planning Commission, in conjunction with Two-Rivers Ottauquechee Regional Commission (TRORC), Mike Fiorillo’s seventh grade students at the Tunbridge Central School, and a number of volunteers, conducted a survey of working lands in Tunbridge during 2005. Judie Lewis of the Tunbridge Listers office provided critical assistance at several stages of the project, which was greatly appreciated.

Input was strictly voluntary, and collected for informational purposes only. The hope was to have this information increase understanding of the current state of our working landscape, and to inform the updating of the Tunbridge Town Plan. The aim was to collect baseline information about working agricultural and forest lands in our town at the beginning of another century. Preliminary project materials including maps and photos were displayed at the Tunbridge Fair in September 2005, and we hope that a more full representation of the results will be similarly presented at next year’s Fair. However, the primary purpose of the Survey was documentation of our relationship to the land and contributions to Tunbridge historical archives.

Methods

Based on a brief review of similar projects (which turned up surprisingly few precedents) and discussions by the Tunbridge Planning Commission and Two Rivers-Ottauquechee Regional Commission, an interview form was designed for the Tunbridge Agricultural and Forest Lands Survey 2005. Rob Howe, a dairy farmer in town, was kind enough to come for the first interview, conducted in class with the seventh grade at the Tunbridge Central School. This session gave us our initial inputs for the survey and also allowed us to revise the survey based on the interview process. A modified survey form that emerged from this process is listed as Appendix A.

The students, along with a number of adult volunteers, then traveled to a number of other farms to conduct on-site interviews. These interviews, and several others conducted by Planning Commission members and other volunteers, covered the majority of full-time farms in town. Additional interviews with part-time farmers, and people working lands in Tunbridge who do not consider themselves farmers, were conducted either in person or over the phone with the survey form as a guide.

Information from the surveys was entered into a geographic information system (GIS) utilizing both ArcView 3.2 and ArcGIS 9.0 platforms (Environmental Systems Research Institute, Redlands, CA). This permitted further analysis and display in conjunction with digital parcel maps maintained by the Town of Tunbridge (Fig. 1), as well as other “layers” of maps and information available through the Vermont Center for Geographic Information (VCGI).
Results

Remotely-sensed land use information from VCGI (LCLU2002) indicates that, as of 2002, approximately 73.6% of the land in Tunbridge was forested, while roughly 14.2% was in agricultural use. In comparison, records maintained by the Tunbridge listers office indicate a lower percentage of wooded land (66.7%) and a higher percentage of agricultural lands (24.0% in combined “pasture” and “crop” categories) when broken out on a per parcel basis (Figure 2).

It should be noted that linking of spatial information and lister records was incomplete, with acreage for this report calculated for only 812 parcels (Table 1, “Parcel count”). Records are maintained for 866 properties in Tunbridge, including utility locations, cemeteries, and unlanded properties. In total, acreages for 54 of these properties (including two wooded parcels of approximately 125 and 10 ac, plus one parcel of approximately 12 ac with roughly 10 of those in pasture) were not applicable or not obtained by the time of this report. Though acreage calculations from the lister records for 2006 had been entered, these figures had not been finalized and town parcel maps had not yet been updated to reflect property transfers, subdivisions, and other transactions. In addition, “other” or “miscellaneous” land classifications are sometimes applied to wooded and pasture lands as well as quarries, pits, and other settings. Thus, acreage calculations should be considered rough approximations only, based on best available information. Given these caveats, it is still helpful to get a rough assessment of these lands. Figure 3 offers a visual representation of wooded, crop, and pasture lands as a percentage of total parcel size throughout Tunbridge, based on 2005-2006 lister records.

![Figure 22. Lister records of land use category as percentage of total acreage, Tunbridge, VT, 2006.](image-url)
Public records available through the VT Department of Property Valuation and Review and maintained by the Tunbridge Listers office indicate that, as of the April 2006-2017 annual update, there were 456 Tunbridge parcels enrolled in Use Value Appraisal (UVA). UVA, also known as “current use”, is a program designed to encourage maintenance of working lands through taxation of enrolled properties at use value rather than market value. The cumulative UVA-enrolled acreage in Tunbridge accounts for roughly half the land base of the town (Table 1)
Table 1. Land use category acreage statistics based on lister records, Tunbridge, VT, May 2006.

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Total ac</th>
<th>UVA ac</th>
<th>Wooded</th>
<th>Pasture</th>
<th>Crop</th>
<th>Other</th>
<th>Homestead site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum</td>
<td>27591.31</td>
<td>14360.47</td>
<td>18403.38</td>
<td>5587.58</td>
<td>1010.44</td>
<td>1087.24</td>
<td>1429.67</td>
</tr>
<tr>
<td>Pct. of total</td>
<td>100.0%</td>
<td>52.0%</td>
<td>66.7%</td>
<td>20.3%</td>
<td>3.7%</td>
<td>3.9%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Parcel Count</td>
<td>812</td>
<td>156</td>
<td>464</td>
<td>282</td>
<td>58</td>
<td>167</td>
<td>749</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std. Dev.</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Minimum</td>
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<tr>
<td>Maximum</td>
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<td></td>
</tr>
</tbody>
</table>

As of May 2015, working lands survey interviews and data entry were completed for 80 landowners in Tunbridge. Twenty-four of the landowners interviewed were not enrolled in current use, and fourteen of these were engaged at least part-time in agricultural activities. The 56 interviewed that were enrolled in the Use Value Appraisal program included all landowners enrolled under the Farm (12 parcels) category. Additional interviewees participating in current use were enrolled in the Miscellaneous (6 parcels), Woodland (7 parcels), Residential 1 (1 parcel), Residential 2 (49 parcels), and Vacation 2 (3 parcels) categories. Town-wide UVA enrollment by category (not just those interviewed) is shown in Table 2.

Table 2. UVA program enrolled properties by category, Tunbridge, VT, May 2015.

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm</td>
<td>12</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>30</td>
</tr>
<tr>
<td>Woodland</td>
<td>15</td>
</tr>
<tr>
<td>Residential 1 (less than 6 ac)</td>
<td>1</td>
</tr>
<tr>
<td>Residential 2 (more than 6 ac)</td>
<td>89</td>
</tr>
<tr>
<td>Vacation 2 (more than 6 ac)</td>
<td>9</td>
</tr>
</tbody>
</table>

There currently are 13 dairy farms working land in Tunbridge. Nine of the primary farm families working these lands reside in Tunbridge; this figure does not include other individuals or families employed on these farms. Generally, these farms employ one or two other individuals on a relatively full-time basis.

These farms work approximately 60-70% of the open lands in town. This is primarily for grass/legume production, both hay and pasture, with roughly 10% of Tunbridge’s open land devoted to corn production (this figure includes areas in rotation, so actual corn land would be a lower figure in any given year).

The majority of the remainder goes to grass production for beef cattle, sheep, horses, and other livestock. Vegetables and other specialty items (flowers, Xmas trees, nursery stock) account for roughly one percent of the open land in agricultural use. Table 2 indicates the primary endeavor on parcels owned or worked by those interviewed, with dairying representing the leading endeavor in town and grass clearly being the dominant agricultural crop. Efforts were made to indicate when grasslands, in particular, were actually being worked by one of the 13 dairy farmers working land in Tunbridge.
At least 14 families in town have at least one member of the family working full-time in a farm endeavor. At least 13 more families or individuals are involved in part-time agricultural endeavors. At least 50 individuals or families in town keep animals, while no fewer than 40 keep home gardens.

Neither should we ignore our forested landscape. Euclid Farnham’s wonderful books on the history of Tunbridge amply depict a change from 80% open land during the height of the sheep craze in the late 1800’s to roughly 70% forested today. Vermont produces some of the finest sugar maple and other high-value hardwoods in the world and very few places see the kind of maple regeneration, in particular, that we get here in Orange County. Tunbridge sugarmakers can surely attest to the value of this resource, and survey results indicated there are at least 20 sugarmakers of varying scales in town; this does not include the folks that help in those operations. Generally, sugaring is integrated with other operations, with only 4 sugarmakers in town listing this as their primary endeavor.

**Conclusion**

The working landscape of the town should not be taken for granted. Repeatedly, interviewees emphasized that if we want our relationship to this land to remain strong, we have to figure out ways to make it profitable. Deputy Agriculture Commissioner David Lane, speaking at an ag issues forum hosted by the Planning Commission, emphasized that the economics of farming require ingenuity, creativity, and perseverance. The fact that there are as many active farms as there are in Tunbridge, where the landscape to some extent dictates a small-scale approach, is testament to these qualities in the hard-working folk who maintain that landscape. The ensuing discussion at the ag issues forum also clarified that farmers farm; land doesn’t farm itself. Efforts to conserve working lands are most successful when those efforts are tied to capitalization of viable operations and fostering the creativity and efficiency of the people involved in them. Several speakers noted that efforts focused solely on protection of land can actually work to divert capital away from working lands if careful attention is not paid to these connections.
Agriculture in Tunbridge at the beginning of the twenty-first century presents a microcosm of transitions in agriculture throughout Vermont and the region. The number of active dairy operations in town has declined to a current level of nine actually located in Tunbridge, with four others in neighboring towns working lands in Tunbridge. David Lane noted that average dairy herd size in Vermont is approximately 120 milkers, while Tunbridge herds are primarily in the 40-50 cow range. These operations are representative of long-standing traditions in the area, where efficient operations, careful economies of scale, sales of breeding stock, diversification strategies and creative business practices have maintained the viability of dairying as a central component of Tunbridge’s agricultural economy even given the challenges of the local topography and relatively low amount of “prime” agricultural lands. The steady decline of dairies in town, however, is also indicative of the pressures exerted by rising, development-based land values in the area and the vagaries of regional and national markets. The high level of participation in Use Value Appraisal programs by Tunbridge landowners is indicative of the success of that program in helping to maintain the natural resource base underlying our working landscape. We should remain aware, however, that this system is subject to the dictates of the political process and dependent on funding generated from taxes raised elsewhere.

Agricultural sector services require the maintenance of a critical mass to support related industries, and we are lucky to be in an area that still maintains many of these services. Local sugarmakers felt the impacts of another local equipment supplier closing up shop in the last year, and it doesn’t take many half-to-full days fetching supplies and equipment to begin to appreciate having an intact agricultural economy in all its facets. The small stream-based mills of our past have largely gone by the wayside, and agricultural infrastructure is largely invisible to much of our population.

There are several thriving vegetable operations in town, and a strong tradition of home gardens continues to flourish. Small-scale Christmas trees, specialty greenhouses, a thriving horticultural enterprise (which provides the basis for the bulk of annual fundraising for the town Library), and a strong barter economy indicate just some of the more intensive uses of Tunbridge lands that comprise a less visible but no less vibrant face of Tunbridge agriculture. As noted frequently at community-wide meetings, however, the pastoral qualities of the Tunbridge landscape are strongly tied to the open land-base of animal-based agriculture. Tunbridge farmers have diversified operations to involve beef cattle, horses, sheep, llamas, goats, and poultry, primarily at a small scale and utilizing local and creative marketing opportunities. However, one dairy farmer interviewed noted that, with the transition of another farm out of dairying in Tunbridge in the last year, it was the first time in his memory that there appeared to be more hay land available in town than farmers to hay it. Additionally, it was noted at one of the 2005 Tunbridge community–wide planning input meetings that a common scenario in town is that marginal pasture lands are reverting to forest, while marginal haylands are now being pastured.

As is common in Tunbridge, this scenario has been perceived as both challenge and opportunity. It is notable that several voluntary efforts have been initiated to re-establish riparian buffers along the First Branch of the White River, contributing to farsighted and difficult decisions to help stabilize stream banks, provide cover to help lower elevated water temperatures, and improve water quality by reducing sedimentation. These are much less visible water quality issues, and thus require more foresight, understanding, and commitment, than some of the more obvious land use and sewage impacts to fisheries and stream health that presented an easier starting point for remediation efforts in the past. Several farms in town have undertaken organic growing and marketing practices. Farmer’s markets currently operate in Chelsea on Wednesday afternoons and in South Royalton on Thursday afternoons. Cooperative markets in South Royalton and White River, in particular, have begun to emphasize and strengthen efforts to support local agriculture by “putting our money where our mouths are” and keep
money circulating within the local economy. Surrounding communities have embarked on efforts to increase connections between school lunch programs and local growers. Many of these efforts dovetail well with current discussions being initiated within Tunbridge to assess the implications and opportunities associated with coming changes in global oil production and energy supply shifts.

One farm family working lands in Tunbridge has recently purchased a local sawmill, helping diversify their operation and create value-added products from their lands as well as providing opportunities for others to do the same. Several other farmers similarly operate or maintain access to mills that have added to self-sufficiency over the years. Maple pest outbreaks and residual stress effects of drought years in the early 2000s saw some sugarmakers choose to rest their trees in the past couple years, indicating the kind of flexibility and wide vision that has kept Tunbridge working lands viable. While “prime” agricultural land may appear to be a precious commodity in Tunbridge, there is an understanding that the rich soils, ample water, and favorable bedrock that Tunbridge is founded upon offer sufficient opportunities for providing sustenance and well-guided enterprise.

It is clear that a working landscape embodies the character of Tunbridge that we hold dear. The maintenance of that character will require the same qualities of ingenuity, creativity and perseverance at a community level as David Lane noted is required at an individual level, and the best encouragement we can offer to all engaged in the continuation of these traditions. We hope that this survey might contribute in some small way to those efforts.

“There is a sufficiency in the world for man’s need but not for man’s greed.”

~ Mohandas K. Gandhi
APPENDIX A.1
SURVEY FORM, TUNBRIDGE AG AND FOREST LANDS SURVEY
2005

Owner/Interviewee(s):
Interviewers:
Date:

How many acres of working lands do you have or use?
   A. Land that you own:
   B. Land that someone else owns:

Other landowners whose land you work (Please indicate rent, lease, other arrangement and approximate acreage):

Do you farm? FT (full time) PT (part time) N (no)
Any off-farm income? Y N
Do you plan to farm? Y N
Anyone in line to farm? Y N
Any plans to keep working lands in use? (Please specify)

Primary farm/woodlands endeavor(s) (e.g., dairy, vegetables, sheep, timber, Xmas trees)

Animals---type, how many

Agricultural lands. Please circle any that apply.
Row crops: Corn Vegetables Other Hay Pasture
Crop, other (please specify) Rotations (Please specify)

Value added products? (e.g., yogurt, cheese, bottled milk, salsa, tinctures, vinegar, juice)

Any markets? (Please specify)

Estimated annual sales (use an appropriate scale, e.g., lbs. of milk, no. of CSA customers, lbs. of meat or vegetables):
Is your land owner-worked? Y N
If not: Rented Leased
Other arrangement (please specify)
Worked by who?

Organic? Y N
Home garden? Y N

**Forest lands**
Do you have a forest management plan? Y N
Forester:
Primary management objective(s):
  Timber Wildlife habitat
  Recreation Biodiversity Other (please specify)
Sugaring? How many taps?

Value-added products (e.g., sawn lumber, furniture, birdhouses, bowls, etc.)

**Forest types**: Please circle any that apply.
White pine Red pine Spruce/fir Northern hardwoods
Hemlock Oak Cedar
Mixed (please specify) Other (please specify)

Crop trees. Please indicate if the owner has (had), apples, butternuts, chestnuts, or other fruit or crop trees that are utilized (please specify).

**THANK YOU!**

Please feel free to record additional comments on the reverse side of this sheet.
APPENDIX B
FURTHER RESOURCES

**Agriculture:**

Agriview
Vermont Agency of Agriculture, Food and Markets
116 State St., Drawer 20
Montpelier, Vermont 05620
www.vermontagriculture.com/agriviewonline.htm

Consulting Foresters of Vermont
www.cfavt.org

Country Folks newspaper
www.countryfolks.com

Farm Journal
www.farmjournal.com

Miner Agriculture Research Institute
1034 Miner Farm Road, PO Box 90
Chazy, New York 12921
518-846-7121
518-846-8445 (fax)
www.whminer.com

Northeast Farmer Magazine
www.northeastfarmer.com

Northeast Organic Farming Association – Vermont
PO Box 697
Richmond, VT 05477
802-434-4122
802-434-4154 (fax)
www.nofavt.org

Northeast Organic Dairy Producers Alliance
30 Keets Rd
Deerfield, MA 01342
www.organicmilk.org

Orange County Forester - David Paganelli
5 Perry Street
Barre, VT 05641-4265
802-476-0173
david.paganelli@state.vt.us

Small Farmer’s Journal
www.smallfarmersjournal.com
Smartwood
65 Millet Street, Suite 201
Richmond, Vermont 05477
802-434-5491
802-434-3116 (fax)
info@ra.org

USDA Natural Resources Conservation Service
28 FarmVu Drive
White River Junction, VT 05001-6001
802-295-7942
802-296-3654 fax

UVM Agricultural and Environmental Testing Lab (soil testing)
219 Hills Building
Burlington, VT 05405
802-656-3030

UVM Center for Sustainable Agriculture
63 Carrigan Drive
Burlington, VT 05405
802-656-5459
802-656-8874 (fax)
Sustainable.agriculture@uvm.edu

Vermont Agency of Agriculture
116 State Street
Montpelier, VT 05620
802-828-2416
www.vermontagriculture.com

Vermont Agency of Natural Resources
Division of Forests, Park and Recreation
www.vtfpr.org/htm/forestry.cfm

Vermont Beef Producer’s Association
http://www.vermontbeefproducers.org/

Vermont Farm Bureau
2083 East Main Street
Richmond, VT 05477
802-434-5646
www.vtfb.org
Vermont Farm Service Agency
356 Mountain View Drive Suite 104
Colchester, VT 05446
802-658-2803
802-660-0953 (fax)

Vermont Land Trust
8 Bailey Ave
Montpelier, VT 05602
802-223-5234
info@vlt.org

Vermont Pasture Network/Vermont Grass Farmers Association
UVM Center for Sustainable Agriculture
63 Carrigan Drive
Burlington, VT 05405
802-656-5459
802-656-8874 (fax)
pasture@uvm.edu

Vermont Vegetable and Berry Growers Association
University of Vermont Extension
11 University Way
Brattleboro, VT 05301-3669
802-257-7967 ext. 13

Vital Communities
104 Railroad Row
White River Junction, VT 05001
802-291-9100
802-291-9107 (fax)

WDEV, 96.1 FM and 550 AM
Across the Fence

Women’s Agricultural Network
617 Comstock Road, Suite 5
Berlin, VT 05602
802-223-2389
802-223-6500 (fax)
wagn@zoo.uvm.edu
**Demographics:**
Center for Rural Studies
University of Vermont
207 Morrill Hall
Burlington, VT 05405
Home page - http://crs.uvm.edu/
Agriculture - http://crs.uvm.edu/agriculture.htm
Human Services and Education - http://crs.uvm.edu/education/
Rural Community and Economic Dev. - http://crs.uvm.edu/economic.htm
VT State Data Center (U.S. Census Bureau info. and data - http://crs.uvm.edu/census/estimates/town/

**Efficient Building/Housing:**
BuildingGreen
http://www.buildinggreen.com/

EPA’s Green Building Workgroup
http://www.epa.gov/greenbuilding/

Energy Star
http://www.energystar.gov/

Green Building Resource Center
http://www.globalgreen.org/gbrc/index.htm

Green Building Resource Guide
http://www.greenguide.com/

Greenhomebuilding
http://www.greenhomebuilding.com
Housing resources

SustainableABC.com
http://www.sustainableabc.com/

What’s Working Inc.
http://www.greenbuilding.com/

**Energy:**
Efficiency Vermont
http://ww.efficiencyvermont.org/pages/

Institute for Energy and the Environment, Vermont Law School
P.O. Box 96
South Royalton, VT 05068
802-831-1217
Michael Dworkin, Director; Jane D’Antonio, Institute Administrator
Sustainable Energy Resource Group
432 Ulman Rd., Thetford Center, VT 05075
802-785-4126
www.SERG-info.org

**Land:**
Act 250 Statutes, Title 10, Chapter 151: State Land Use and Development Plans
http://www.nrb.state.vt.us/lup/statute.htm

Land Use Institute, Vermont Law School
P.O. Box 96
South Royalton, VT 05068
802-831-1217
Kinvin Wroth, Director; Jane D’Antonio, Institute Administrator

Upper Valley Land Trust
19 Buck Road
Hanover, NH 03755
603-643-6626
www.uvlt.org

Use Value Appraisal (UVA, also known as Current Use) Program
802-828-5869
vttaxdept@tax.state.vt.us (e-mail)

Vermont Land Trust
8 Bailey Avenue
Montpelier, VT 05602
802-223-5234 or 800-639-1709
www.vlt.org

**Natural Resources:**
Conservation Reserve Enhancement Program
802-828-1289
http://www.vermontagriculture.com/CREPwebsite/Home/Home.htm
Laura Hanrahan, Statewide CREP Coordinator - laura@agr.state.vt.us

Consulting Foresters Association of Vermont
http://www.cfavt.org/

Vermont Agency of Natural Resources
http://www.anr.state.vt.us/index.cfm
Vermont Wetlands Section Homepage - http://www.anr.state.vt.us/dec/waterq/wetlands.htm
(River Corridor Management, Flood Hazard Management, Geomorphic Assessment)
Vermont Department of Environmental Conservation
103 South Main Street
Waterbury, VT 05671-0401
802-241-3808
802-244-5141 (fax)
http://www.anr.state.vt.us/dec/dec.htm

Vermont Department of Environmental Conservation
Water Quality Division
103 South Main Street, Building 10 North
Waterbury, VT 05671-0408
802-241-3770 or 802-241-3777
802-241-3287 (fax)

Vermont Fish & Wildlife Department
103 South Main Street
Waterbury, VT 05671-0501
802-241-3700
http://www.vtfishandwildlife.com/

Vermont Department of Forests, Parks & Recreation
103 South Main Street
Waterbury, Vermont 05671-0601
802-244-1481 (fax)
http://www.vtfpr.org/

The Vermont Geological Survey
103 South Main St., Logue Cottage
Waterbury, VT 05671-2420
802-241-3608
802-241-4585 (fax)
http://www.anr.state.vt.us/dec/geo/vgs.htm

Vermont Rural Water Association
20 Susie Wilson Road, Suite B
Essex Junction, VT 05452-2827
802-660-4988 or 800-556-3792
866-378-7213 (fax)
http://www.vtruralwater.org

Vermont State Department Divisions & Offices
Business Office - 802-241-3650
Commissioner’s Office - 802-241-3670
Conservation Education - 802-241-3651
Forestry - 802-241-3678
Lands - 802-241-3693
State Parks - 802-241-3655
White River Basin Plan
http://www.anr.state.vt.us/dec/waterq/planning/docs/pl_wrbplan.pdf

The White River Partnership
99 Ranger Road
Rochester, VT 05767
(802) 767-4600
http://www.whiteriverpartnership.org/

**Transportation:**
National Center for Safe Routes to School
One National Life Drive, Drawer 33
Montpelier, VT 05633-5001
1-866-610-SRTS / 802-828-0059
http://www.saferoutesinfo.org/
John Kaplan, VT Safe Routes to School Coordinator, e-mail: john.kaplan@state.vt.us

Stagecoach Transportation Services, Inc.
P.O. Box 356
Randolph, VT 05060
802-728-3773
http://www.stagecoach-rides.org

Statewide Transportation Improvement Plan
One National Life Drive, Drawer 33
Montpelier, VT 05633-5001
http://www.aot.state.vt.us/planning/STIPgeneral.htm
802-828-5578 Matthew Langham, Improvement Program Coord., e-mail:
Matthew.Langham@state.vt.us

Upper Valley Rideshare
P.O. Box 1027
Wilder, VT 05088
802-295-1824
http://www.uppervalleyrideshare.com/

Vermont Agency of Transportation
221 Beswick Drive
White River Junction, VT 05001
http://www.aot.state.vt.us/
802-295-8888 David E. Lathrop, AOT Manager District #4, e-mail: dave.lathrop@state.vt.us
802-828-9959 Tom Urell, Rte. 110 District Mgr, e-mail: tom.urell@state.vt.us

Vermont Park and Ride
One National Life Drive, Drawer 33
Montpelier, VT 05633-5001
http://www.aot.state.vt.us/parkride/
802-828-5609 Wayne Davis, Project Supervisor, e-mail: Wayne.Davis@state.vt.us
As for the future, your task is not to foresee it, but to enable it. -Antoine de Saint Exupery