

September 5, 2014

**To:** Town Clerk and/or Planning Commission, CVRPC, DEHCD

**From:** Jack Russell, Calais Planning Commission Chair  
(802) 229-1908

**SUBJECT:** Notice of Public Hearing for Proposed Town Plan

1. In accordance with 24 V.S.A Sect. 4441, I am notifying you of the proposed draft of the Calais "Town Plan" and to provide an opportunity for your review and comment. You may view draft sections at:  
<http://www.calaisvermont.gov> under "**Town Plan Draft 2014.**"
2. The Calais Planning Commission will hold a public hearing on Tuesday, October 7, 2014, 7:00 p.m. at the Calais Town Hall, Gospel Hollow, East Calais regarding the draft.
3. Please contact me if you have questions or comments.



**A. VISION**

**Calais Town Vision**

We envision Calais as a viable, sustainable community for people of all ages which will proactively adapt to environmental, economic and social changes. We envision a community that will continue to develop – upgrade, expand, and add homes, community centers, government buildings, and business structures -- while preserving our rural characteristics – agriculture, core forests, wildlife corridors, wildlife and other natural resources -- for the benefit of our current residents and future generations. Calais will continue to promote opportunities for:

1. A wide spectrum of housing needs through smart growth zoning, innovative architecture and landscaping design, village plans, and collaboration.
2. Local employment in a variety of occupations.
3. Sixty percent [60%] of residents will generate energy by renewable systems either individually or through small groups.
4. Producing, processing, storing and distributing food necessary to promote food security and sustainability for our population.
5. Senior citizens who desire to be able to remain in town to have many of their needs and interests met.
6. Residents to have increased ability for walking, biking, skiing, snowshoeing, snowmobiling and a variety of low-energy transportation modes
7. Programs that support remodeling existing buildings and constructing new buildings using the most energy efficient materials and techniques with an emphasis on renewable energy.
8. Residents to have access to high speed communications essential for economic development.
9. Small scale social financing and advice to property and business owners.
10. Our children from birth through high school to receive the care and education needed to be productive, healthy citizens.

**Importance of a Vision:** A vision is a general description of what our town looks like at some point in the future. It reflects our collective values – what is important to us as it pertains to our town. It reflects who and what we are, and what we want our town to be.

**Importance of a Town Plan**

1. An approved Town Plan enables the citizens of Calais to have significant influence over the future of their Town.
2. Any project subject to Act 250 must comply with the Town Plan and the Town Plan must comply with Act 250
3. A Town Plan provides guidance to Town boards and commissions in their review of:
  - Future development,
  - Natural resource conservation,

- Town governance,
  - Historic sites,
  - Economic development,
  - Roads and traffic,
  - Education,
  - Energy conservation,
  - Communication infrastructure,
  - Flood resilience
  - The overall general welfare of the community ,
1. The Town Plan serves as the basis for evaluating and revising the Town's Land Use & Development Regulations.
  2. The Plan works in conjunction with the Central Vermont Regional Plan.
  3. Having a Town Plan is often essential for obtaining different types of municipal grants.

**Plan of Action:**

A Town Plan is a blueprint – typically – for the growth and wellbeing of a Town. At this juncture of the 21<sup>st</sup> century, we are faced with the challenges and opportunities of our time: the increasing effects of climate change; the growing recognition of the dynamic, interconnected influence development has on every aspect of our town; and the need for increased self-reliance and sustainability as a community. There is a severe, adverse price the community pays for short-sighted, self-interest development and depletion of natural resources.

Each article throughout the Town Plan reflects the interdependence with other topics, addresses priorities, outlines goals that pertain to that article, and provides action plans for each goal. The Select Board and Town Commissions will initiate and coordinate the following three action steps to achieve the goals in this 2014 Town Plan:

- a. Develop and sustain community based, resident-friendly solutions in support of the town’s vision and goals, and promote information sharing
- b. Initiate and coordinate community action groups to focus on specific town challenges – to help define problems, gather information, research criteria for possible solutions, and propose suggested solutions with implementation tactics.
- c. Develop and maintain a list of willing resident leaders and local experts whose specific expertise would be helpful in attaining the vision and goals.

**B. A SHORT HISTORY OF CALAIS**

For thousands of years before European settlers came to the area, Native American inhabitants almost surely lived, hunted and traveled through what is now Calais. On October 1, 1780, the township of Calais was granted to seventy men by the General Assembly of the State of Vermont for 1479 Pounds 14 Shillings and 14 Pence. The majority of the "proprietors" were from Charlton, Rehoboth, and Brookfield, Massachusetts

In early 1787, Francis West settled just northeast of today's Adamant, however, he thought he was clearing land in (East) Montpelier. Abijah, Asa and Peter Wheelock arrived in June, 1787. They left their wagon in Montpelier where the road ended, cleared their land and returned to Massachusetts for the winter. They built the first house in Calais, southeast of Kents Corners.

In 1793, Colonel Davis built a sawmill in Gospel Hollow. He built a corn mill the same year and named the land around his mills "Calais Center." By 1828, there were nine sawmills, enterprises producing wooden clocks, axes, scythes, and bells, as well as blacksmith shops, corn and grist mills, a distillery, harness makers, shoe & boot makers, starch mills, and a wool carding factory.

By the middle of the 19th century much of the land had been cleared and turned to crops. Farmers were starting to use horses with mechanized equipment. Farms were larger and produced cash crops with hired hands. In 1850, the first Agricultural Census listed every farm in Calais, along with acreage, value, number of hands, number of milk cows, working oxen, other cattle, sheep, swine, value of the livestock, production of wheat, rye, Indian corn, oats, wool, peas & beans, potatoes, buckwheat, orchard butter, cheese, hay and maple sugar.

The population of Calais declined with the expansion of western United States. Gradually, Calais farmers turned from sheep to dairy cows and began producing cheese because it stored well. Later, butter was also made for sale. Buyers from the eastern cities came around to farms by wagon. Also, a market developed for maple sugar (syrup came later) and Calais exported such things as: potato starch, leather boots, granite, and even pianos. Walton's Directory of 1899 shows that Calais had 4 post offices, 2 creameries, 6 mills, 12 stores selling everything from feed to millinery, 1 hotel, 3 granite works, 3 active churches, and 2 doctors.

Around 1900, the refrigerated boxcar made it possible to ship milk to southern New England, but Calais roads were too poor to enable farmers to get their milk to the trains. In the 1930's, the state began improving roads so more milk could be shipped. After World War II, commuters required even better roads. In 1946, Route 14 was paved from East Calais to Hardwick. In 1959, Calais started paving the County Road in pieces from the East Montpelier line. East Montpelier also began paving the road from the Montpelier line. It took years to fill the gaps between Montpelier and Maple Corner.

Calais grew rapidly in the Sixties, Seventies and Eighties after nearly a century of population decline. Abandoned houses and camps were turned into year-round houses, and new houses were built. Over that period the Town's population more than doubled (122% increase) with an average of 28 people being added to the rolls each year. Since 1990, the Town's population growth has slowed dramatically. In fact, between 1990 and 2010, Calais added only 86 people to its population (4.3 per year). However, in that same period of time, the housing units in Calais increased from 679 houses to 786, a Housing unit growth of 24% (6.7 per year). Now, it is apparent that Calais is still changing. (Central Vermont Regional Planning Commission, *Calais, Vermont Development Potential and Buildout Analysis*, Dec. 2007.)

## **C. WHO WE ARE**

### **Who are we?**

With a population of 1,607 as of the 2010 census, our median age is 45.9 with 88% of the population being 64 years old and under; 925 are in the labor force; our median household income is \$60,313, and over 91.8% have completed high school or higher education. We work in a wide range of occupations, many requiring considerable skill. The largest number – 426 -- work in management, professional and related occupations. Although Calais residents of the past may have once earned their living from the land, less than 1% does so today.

Historically, Calais' population has lived and socialized within villages and hamlets -- North Calais, East Calais, Kent's Corner, Adamant, and Maple Corner -- which had small industries, schools, churches and stores. However, most of the rapid population growth and development since 1970 occurred in the rural residential district along roads, outside of the villages and hamlets.

**A Statistical Profile:**

*Calais is rural; population has been stable.* Calais is rural, both in appearance and according to statistical conventions. Throughout the 1980's, our rate of population growth exceeded the regional average by a factor of six and the State average by more than two and one half times. During the 1990's population growth slowed. Our population increased by only 86 people from 1990 to 2010. However we believe this pause in growth is temporary. **Table 1 Population 1960 - 2010** (Source: U.S. Census)

	Calais	Wash. County	Vermont
1960	684	42,860	389,881
1970	749	47,659	444,732
1980	1,207	52,895	511,456
1990	1,521	54,928	562,758
2000	1,529	58,039	608,827
2010	1,607	59,534	625,741

Our planning assumptions continue to be based on increases in population. Because of Calais' proximity to regional job centers, continued growth is likely. Population projections by the Central Vermont Regional Planning Commission ("CVRPC") suggest that the town will soon surpass the historical high. Since Calais' land area will not change, this means that our population density will continue to increase.

**Table 2 Age Distribution 1970-2010** (Source: U.S. Census)

Year	under 5 years	5-19 years old	20-64 years old	65 and over
1970	81 (11%)	218 (29%)	375 (50%)	75 (10%)
1980	105 (09%)	281 (23%)	720 (60%)	101 (08%)
1990	119 (08%)	353 (23%)	927 (62%)	122 (08%)
2000	70 (05%)	346 (23%)	958 (63%)	155 (10%)
2010	70 (04%)	300 (19%)	1,040 (65%)	197 (12%)

Despite low population growth in the past two decades, new and larger houses in Calais have continued to be built. The Town is among the fastest growing in the region in terms of new housing units and number of households. Of the 842 total housing units, 675 were occupied. The majority of vacant housing or 119 units were for seasonal, recreational, or occasional use.

<b>Table 3 Housing Units</b> (Source: U.S. Census)						
Percent Change 1990 to 2010						
	1970	1980	1990	2000	2010	
Calais	324	573	679	773	842	20%
County	16,258	22,113	25,328	27,644	29,941	15%
State	165,063	223,199	271,214	294,382	322,539	16%

Continued population and housing growth will present interesting challenges. Demands for municipal services and road management will increase as will impacts on natural resources. Careful planning will be needed for Calais to accommodate this growth while retaining its rural character and identity.

In earlier times, the Calais economy relied on the land and other natural resources. Until the second half of the 20th century, mill-powered manufacturing, agriculture, mining, and forestry were the town's employment mainstays and most residents made their living in town. Several retail establishments catered to the population. Now, with only a few retail establishments, and no large employers, Calais has evolved into a bedroom community.

<b>Table 4 Employment and Occupation 2012</b> (Source US Census, 2012 American Community Survey)				
	Calais		Washington Co.	
Labor force	925	100.0%	33,684	100%
<b>OCCUPATION</b>				
Employed 16 years and over	862		31,606	
Management, professional, and related occupations	426	49.4%	13,691	43.3%
Service occupations	106	12.3%	4,707	14.9%
Sales and office occupations	184	21.3%	7,676	24.3%
Natural resources, construction, & maintenance occupations	98	11.4%	2,994	9.5%
Production, transportation, & material moving occupations	48	5.6%	2,538	8%
<b>INDUSTRY</b>				
Agriculture, forestry, fishing and hunting, and mining	7	.8%	499	1.6%
Construction	70	8.1%	2,315	7.3%
Manufacturing	35	4.1%	2,715	8.6%
Wholesale trade	57	6.6%	1,007	3.2%
Retail trade	91	10.6%	3,374	10.7%
Transportation, warehousing, & utilities	15	1.7%	808	2.6%
Information	28	3.2%	876	2.8%
Finance & insurance, real estate, rental, & leasing	78	9%	2,164	6.8%
Professional, scientific, management, administrative, and waste management services	75	8.7%	2,606	8.2%
Educational, health and social assistance	265	30.7%	8,504	26.9%

Arts, entertainment, recreation, accommodation, and food services	51	5.9%	2,373	7.5%
Other services (except public administration)	50	5.8%	1,569	5%
Public administration	40	4.6%	2,796	8.8%

<b>Table 8 Median Family Income</b> (U. S. Census)			
	2000	2012	Percent
Calais	\$46,083	\$60,313	24%
Washington Co.	\$40,972	\$57,276	28%
State	\$40,856	\$54,168	25%

**Draft**  
**6/10/14**

## **D. LAND USE**

### **Introduction**

Calais has maintained its rural character despite the fact that the number of houses in town has increased from 324 in 1970 to 842 in 2010 or 162% increase. Although land in agricultural production continues to decrease, and residential growth is up, much of the town remains a patchwork of woods, fields, small villages, ponds, streams and wetlands. Our goal is to guide development in an informed, intelligent manner that preserves this rural character and minimizes impacts on natural resources and potential flooding. Instrumental to this vision is the protection of our town's working landscape and the natural resources (headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat and corridors, wetlands, endangered species, productive forest lands, and primary agricultural soils as defined in 10 V.S.A. Chapter 151) which residents place high value upon. It includes increased focus on our villages as vibrant centers in which people of all ages and income levels can live, work, and do business.

It is in Calais' long-term interest to sensibly govern the use of land through the Calais Land Use & Development Regulations so that the land may continue to provide opportunities for current and future generations. We categorize this approach as "smart growth." Smart Growth, to paraphrase VSA 2791. Definitions (Title 24: Municipal and County Government), means that as a town we:

1. Support existing and new housing that meets the needs of a diversity of social and income groups.
2. Promote the historic development pattern of our villages separated by rural countryside.
3. Develop compact mixed-use centers at a scale appropriate for the community.
4. Support a diversity of viable businesses in our villages.
5. Protect the town's important environmental, natural, and historic features, including natural areas, water quality, scenic resources, and our historic district.
6. Serve to strengthen agricultural and forest industries and minimize conflicts of development with these industries.
7. Balance growth with the availability of economic and efficient public utilities and services to include roads.
8. Enable choice in modes of transportation.
9. Reflect a settlement pattern that, at full build-out, is characterized by:
  - a. Development within compacted "urban" areas and village centers to limit scattered building that is excessively land consumptive;
  - b. development that incorporates alternate transportation options, especially for pedestrians and bikers;

- c. the safeguarding and protection of existing farm- and forest-land;
- d. development that does not require a municipal infrastructure or that requires the extension of municipal infrastructure across undeveloped lands in a manner that would extend service to lands located outside of our villages;
- e. Limiting linear development along well-traveled roads and highways that lacks depth, as measured from the highway.

## Current Conditions

Calais is a relatively small rural town in north-central Vermont. The Land Cover/Land Use Map, a copy of which is in the Appendix to this Plan, shows the current land use in town. Calais is hilly, but not mountainous. Elevations range from about 700 feet along North Montpelier Pond to almost 2,200 feet on Hobart Mountain in the northwest corner of Town. Its relatively gentle terrain has been conducive to the formation of agricultural soils, particularly along and east of Route 14 and the Kingsbury Branch. Although the amount of farming in Calais has declined, the landscape is still shaped by an agrarian history. Current land use pattern— a patchwork of fields and forests, interspersed with homes, and small villages, with several ponds, wetlands and streams – are very much in keeping with the bucolic image of Vermont.

The more fertile, lower elevations near Calais' streams and lakes have historically been the site of the most human activity. However, growth in Calais has been more widespread since the 1970's. Settlement patterns have been and continue to be primarily in the rural residential and upland districts, particularly along the upper County Road, Bayne Comolli Road, Jack Hill, Max Gray and Lightening Ridge Roads. Such growth may not be in the best interest of Calais' rural nature but is likely to continue if there are no incentives to alter the pattern.

### Check and update

Most of the land in Calais is forested or open. The Central Vermont Regional Planning Commission reports that actual land use breakdowns in Calais in 2007 were as follows: <b>Calais Land Use in 2007</b>		
Forest Land	17,737 acres	71.0%
Agriculture and Open Land	4,082 acres	17.0%
Scrub/brush	659 acres	3.0%
Residential	494 acres	2.0%
Other Developed Land	94 acres	.4%
Water and Wetland	1,641 acres	7.0%

This natural setting is partly responsible for the character of our community. The Calais landscape offers recreational activities, solitude, wildlife habitat, aesthetic enjoyment, as well as forestry, agriculture, and other economic opportunities. Accordingly, judicious use of natural areas, surface and groundwater, floodplains, primary agricultural lands, woodlands, core forests and other important wildlife habitats, and other vulnerable resources is necessary. (See the Natural Resources Section of this Plan).

The current land use policy in Calais is to preserve this rural character by applying the principles of smart growth, density averaging, and transfer of property rights and encouraging planned development throughout town.

## **Buildout Analysis**

The Central Vermont Regional Planning Commission (CVRPC) completed a buildout analysis for Calais in 2007. In that analysis, CVRPC found that the town had significant development potential of 1,252 total new housing units under zoning constraints at that time. Although it is hard to predict how much Calais will grow in the coming years, the number of housing units in Calais grew from 324 in 1970 to 842 in 2010 with the largest growth between 1970 and 1990. Housing projections made by CVRPC in 2007 indicated that the Town of Calais's "fair share" of regional housing needs would be approximately 306 new units by the year 2020. Currently, this mean an additional 118 homes between now and 2020.

While Calais's landscape still generally reflects the historic settlement patterns, the Town acknowledges that it is experiencing scattered residential growth which threatens to undermine community character. Alarmingly, the buildout modeling predicted an exacerbation of this trend absent any regulatory changes or large scale conservation efforts. It predicted little growth for Calais' Villages, while 78 % of future development is allocated to the Rural Residential zone. Accordingly, it is important for the Town to address issues of residential sprawl, incremental large lot development, resource protection, village vitality, and impact on roads, especially class 3.

The study continues to be useful insofar as it depicts the direction in which various areas of the Town may be impacted by future growth, and examines alternate development strategies. Though it is impossible to know the future in any precise way, it is probable that Calais' growth will continue for many years to come. The challenge for the community is how to respond to change in a way that affords citizens the highest quality of life possible, responds to human needs and environmental and natural resource imperatives, respects property owner rights, and determines the legacy for future generations.

The buildout analysis demonstrated that to avoid negative impacts on valuable natural resources and to better satisfy State statutes, we need, as a town, to have the will to explore, test and effectively apply the principles of smart growth. The challenges include how to:

1. Allow for development while ensuring the maximum protection of natural resources;
2. Encourage expansion and more diverse development in our villages;
3. Mitigate development in flood plains, around lakes, along designated roads, and on our school;
4. Coordinate development with town services and road management;
5. Change long standing beliefs concerning property rights among our citizens; and
6. Incrementally change zoning to reflect this shift and experience.

Most of the growth continues to occur in the Rural Residential District rather than in the Village Districts since the buildout analysis and our last Town Plan. Over the past five years, we have made incremental changes to zoning to encourage “smarter” development and to encourage development in our villages. We are faced with two primary challenges: (1) gaining support for smart growth from the public and town officials; and (2) learning how to implement it in a way that allows for development while preserving natural resources and mitigating impact of flooding.

## **Zoning**

The Calais Land Use & Development Regulations establish general requirements for development and subdivision, as well as regulations for specific land use districts, as discussed below. Current allowable densities in Calais range from approximately 4 lots per acre in the Village Districts, when conditions allow, to a 25-acre minimum lot size in the Upland Overlay District. Most of Calais (72% of land area) is in the Rural Residential District, which as of 2008 has a 3-acre minimum lot size.

***Rural Residential District*** (17,854 acres) – Purpose: to guide the development of residences, home businesses and other allowed uses in ways that minimize their impact on the working and natural environment, and are compatible with natural resources characteristic of the district, including: 1) water resources such as lakes, ponds, streams, wetlands, floodplains, and fluvial erosion hazard areas; 2) earth resources such as primary agricultural soils and mineral resources; 3) contiguous stretches of forest and undeveloped land and other significant wildlife habitat, rare, threatened and endangered species, and important natural communities; and 4) connecting habitat corridors of smaller forests which tie together the larger contiguous areas and are critical for the survival of many species of animals and plants. The protection of rural land and natural resources through the use of density averaging or PUD provisions for new subdivisions, and definition of building sites for other uses, is encouraged. Expansion of existing residences and small home businesses is allowed within this District.

To this end, development should be clustered at the edges of open spaces and agricultural lands in a way that leaves the open land available for farming, natural resource conservation, and/or recreational uses; oriented where feasible to gain optimal passive solar energy; and create a sense of community if appropriate. Development should be below rather than on ridge lines in order to protect the scenic quality of our rural landscape. Driveways should be shared when possible and located close to edges of open spaces to minimize visual impact, erosion and entrances onto the public road. Large buildings and parking lots, which are not in keeping with the scale of development in Calais, are allowed only when screened to minimize visual impacts.

A significant portion of the Town lies within this zoning district. Most of the development and subdivision in the past decade has occurred in this district.

**Village District** (660 acres) – The purpose of the village district is to encourage the development of our villages as compact, livable, socially and economically vibrant community centers surrounded by open, working landscapes. Villages should accommodate relatively high-density residential development as well as businesses and public buildings sized to provide services to the Calais community and environs, compatible with the needs of the town. Buildings should be designed and built at a scale and orientation that is compatible with the historic and existing development in the village.

The soils and the lack of sophisticated sewer and water systems do not enable the kind of village density that we might like to encourage. As septic technology advances, these areas should be developed more densely than current soil conditions allow.

Buildings in the village district should be built at a scale and orientation that is compatible with current development in the village. Multi-unit residential and non-residential development may be permitted as conditional uses if the development review board is assured that the general land use conditions will be satisfied. Such development, including any associated lights and signs, should be scaled and in keeping with the traditional social and physical character of the village. Lights will be LED for energy conservation. The district has no minimum lot size requirement, but does mandate frontage (64 feet) and setbacks, including a 40-foot front setback, that effectively make the limit just over ¼ acre (11,250 s.f.)

**Resource Recreation District:** (1,936 acres) - The purpose of the resource recreation district is to protect the natural resource value of those lands in Calais which are essentially undeveloped, are important wildlife habitat, could have high potential for commercial forestry use or other extractive enterprises, are unsuitable for commercial, industrial or higher density residential development, or are necessary to protect ground water and aquifers, a fragile ecology, or significant recreational or scenic resources. Low density residential, and limited outdoor recreation, conservation and forestry uses are allowed.

Low density residential development of no more than one family unit per 10 acres will be permitted. Limited outdoor recreation, conservation and forestry uses will also be permitted. No additional class 2 or 3 highways will be built in this district.

**Shoreland District:** (1,401 acres) – The purpose is to protect the environmental, ecological, and recreation value of our ponds, lakes and associated shore lands for existing and future generations by preventing and controlling sources of pollution and by minimizing developmental impact within the shoreland area. Sources of pollution and soil erosion include septic systems, run-off from roofs, roofs and other impervious surfaces, roads, ditching, and lawns. Developmental impact includes disturbance of the ecological buffer around the ponds and visual impact of any structure. This district generally consists of all land within 800 feet of the shoreline (mean water mark) of all lakes and ponds with a surface area of 20 acres or more (Bliss Pond, Curtis Pond, Nelson Pond, North Montpelier Pond, Mirror Lake or #10 Pond, and Woodbury Lake). District boundaries may vary, however, to reference physical landmarks such as roads or ridges or where there is

no surface or subsurface drainage into a pond or lake due to geological formations (see the official Calais Zoning District Map). Where a lot contains both Shoreland District and Village District, the portion of that property that does not border on the shoreline and that does not drain into the body of water, shall be considered part of the village district and not part of the shoreland district. (As they become law, new state statutes will impact this district)

***Upland District:*** (2,853 acres) - The purpose of this district, which includes all areas over 1,500 feet elevation above mean sea level within the Town of Calais, is to protect sensitive upland areas from the adverse effects of high-density and other inappropriate development. These areas are generally characterized by steep slopes, rock outcrops and shallow soils, and include important headwater and aquifer recharge areas, large tracts of unbroken habitat, valuable timber and recreation land, and scenic hills and ridgelines. They are also generally remote from public services and facilities and as a result are difficult and costly to access. Minimum lot size is 25 acres and development must be sited to avoid impacts to the extent feasible for all conditional uses, which includes single-family homes.

Only agriculture, forestry, public parks, and some uses of residential buildings such as home child care shall be permitted without review by the Development Review Board. Residential and seasonal dwellings, home industry and a few other low impact uses will be conditionally permitted if the Development Review Board is assured that the development will have minimal impact on this sensitive area.

***Kent's Corner-Old West Church Overlay District.*** The purpose of the Design Control District is to ensure the protection of the historic and architectural integrity of the Kent's Corner - Old West Church Historic District. This area is regarded as an important asset both to the town and the state. The design control overlay district includes a portion of the May 17, 2006 National Register Old West Church and Kents' Corner Historic District and the Kent's Corner-Old West Church Historic District designated by the Vermont Division for Historic Preservation Historic Sites and Structures in 1979, and some of the adjoining properties. The design control and review requirements of the Land Use and Development Regulations, including the most recent version of the design control guidelines, are hereby incorporated into this town plan.

***Flood Hazard Area Overlay District.*** The purpose of the flood hazard area overlay district is to prevent or minimize the loss of life and property, disruption of commerce, impairment of the tax base and extraordinary public expenditure from the results of flooding; to further insure that design and construction of development would eliminate or minimize the potential for flood damage; and to ensure that the flood-prone lands are managed in accordance with state and federal regulations and thereby ensure that property owners are eligible for flood insurance through the National Flood Insurance Program (NFIP).

***Subdivision.*** The Calais Land Use & Development Regulations also contain subdivision regulations intended to "to guide the subdivision and development process in a way that is consistent with the purpose of each zoning district. Density averaging is encouraged as a means to protect the development rights of landowners while also facilitating the conservation of valued natural resources for future generations and to satisfy the goals of the Calais Town

Plan.”

**The overarching goal is to move forward with implementing smart growth principles in zoning.**

**Goal 1 –Preserve Rural Character, Open Land and Natural Resources.**

Plan of Action:

- a. Continue to explore, test, and apply the principles of density averaging and transfer of development rights (TDR) in zoning. (PC; 2014-2019)
  - 1) Allow property owners greater flexibility in development while maximizing conserving natural resources. (PC & CC)
  - 2) Maintain the long-term viability of agriculture in Calais, consistent with the goals for agricultural land use and protection of agricultural soils set out in the Agriculture section. (PC)
  - 3) Encourage Planned Unit Developments, which allow more dense development while minimizing impacts on agricultural soils, open land, and other natural resources. (PC)
  - 4) Minimize scattered development patterns and protect open space, agricultural soils and other natural resources outside of village districts. (PC)
  - 5) Tie development in various districts to impact on town services and road management – maintenance, limited carrying capacity, and access by emergency responders. Seek legal opinion. (PC & SB)
- b. Explore possibilities of establishing additional Water Districts. (Water Quality Commission? & PC)

**Goal 2-Make zoning permit application process easier to understand and implement. (PC; 2017)**

- 1) Tie property information and natural resources together with permit application. More informal assistance to property owners and developers prior to submitting permit application.

**Goal 3 - Encourage More Dense Development in the Village Districts.**

Plan of Action:

- a. Revise zoning to allow and encourage greater density in the village districts. (PC)
- b. Seek more affordable and effective sewage treatment systems or water supply systems, or both, that would allow more dense development in the village districts. (PC, SB, Research for grants)
- c. Consider expanding current village district boundaries, as explored in the CVRPC buildout analysis. (PC)
- d. Provide more incentives to focus development in the villages, through zoning and other means. (PC &?)
- e. Improve quality of life in villages by encouraging mixed use development (buildings that have more than one use, for instance residence and general store) and redevelopment

as well as encouraging land conservation and recreational opportunities in immediate proximity to villages. (PC)

- f. Explore ways to provide incentives for more small-scale commercial development in village districts so villages are more vibrant and attractive places to live, shop and work.
- g. Consider creation of a new village district in the location explored in the CVRPC buildout analysis near Calais Elementary School, or elsewhere. (PC)

#### **Goal 4 - Encourage Planned Unit Development.**

Plan of Action:

- a. Provide information to developers concerning the benefits of Planned Unit Development through density averaging and transfer of development rights to achieve greater return on land investments and conservation of the Town's rural character, agricultural soils, open space and natural resources. (PC)
- b. Explore other ways to encourage Planned Unit Developments. (PC)

#### **Goal 5 – Promote Community Education.**

Plan of Action:

- a. Share with the community the function of the Town Plan and Land Use and Development Regulations to promote our collective values now and for future generations, and the diverse influences (court decisions, legislation, and regulatory agencies) that we need to consider in their development. (PC)
- b. Work collaboratively with landowners and experts to learn what best support our smart growth intent. (PC)

#### **Regulatory Guidance**

The rural character and natural resources of Calais shall be preserved wherever possible. Rural character means the historic development pattern of densely built village centers clearly delineated from the surrounding, low-density rural residential area. The village centers should contain a variety of uses, including residences, businesses and public buildings (grocery stores, hardware stores, service stations and recreational facilities) sized to provide services to the Calais community. The rural residential district should contain open spaces, farms and forests as well as residences, home-based businesses and a few small-scale commercial and industrial establishments built in a way that is in scale with and respects the scenic rural character and working landscape of Calais. Flood and surface and ground water contamination mitigation is essential.

Therefore, those designing new development sites and driveways outside of a village shall apply smart growth principles. Planned Unit Developments (PUDs), as discussed further in the Housing section, encourages and offers opportunities to minimize impacts of development in more rural areas, as well as in the village districts. Large-scale (**define**) residential, commercial or industrial development is not consistent with the rural character of Calais and is discouraged.

# FLOOD RESILIENCE (JUNE 18, 2014 DRAFT)

A **Flood Resilience** section is to be included in any Town Plan written or substantially rewritten after July 1<sup>st</sup>, 2014, as mandated by the state of Vermont (Act No. 16).<sup>1</sup>

For the purpose of this section, Flood Resilience is defined as the capacity of the Town of Calais to withstand flooding while reducing the risks to loss of life and/or property. This Flood Resilience section describes how and where the impact of flooding is expected to be most serious, and how and where these impacts can be addressed or, with some planning, avoided altogether.

## A Short History of Flooding in Calais

Like the rest of the state, Calais suffered from the great flood of 1927. Many roads were washed out and bridges destroyed. Fortunately, no lives were lost and no houses were swept off their foundations. Eleven years later, a tropical storm devastated timber stands and sugar bush; fallen trees smashed buildings. As it was with the '27 flood, there were no personal injuries. On June 6, 1984, a sudden summer storm dropped 5 inches of rain on already saturated ground, sending swollen streams over their banks. In Gospel Hollow, a culvert choked with vegetative debris caused the fast moving waters of Pekin Brook to jump Kent Hill Road and take out a length of the North Calais Road. The flash flood scoured a six-foot deep by thirty foot wide channel through the gravel and exposed the logs of the ancient corduroy road upon which the new road had been built.<sup>2</sup> The Town Hall was an island, surrounded by water over thirty six inches higher than the lower floor level. In August 2011, rain fall between 5"-7" brought by Tropical Storm Irene ravaged many Vermont communities, but did relatively little damage in Calais. Even a minor rain event can be destructive: in the early evening of May 9, 2010, a beaver dam across the southern narrows of Adamant Pond let go. Millions of gallons of previously impounded water swept over a manmade stone dam, overwhelmed a large culvert, and jumped the road. Center Road and several nearby buildings were damaged. Seven homes were evacuated.



Adamant. Water over the dam, May 9, 2010

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<sup>1</sup> Act 16 is included in its entirety as Appendix Article X

<sup>2</sup> Forever Calais. A History of Calais, Vermont., Weston A. Cate, Jr., 1999, Calais Historical Society

## What are the Flood Risks?

Flooding is the most serious potential natural disaster that Calais has to plan for. Though the history of flooding in Calais does not include accounts of serious personal injury, flood events in the past severely damaged our roads. Similar damage to our roads in a future rain/flood event is a very real risk. Roads rendered impassable to ambulances, fire trucks, utility workers, our road crew and other emergency responders by flood damage directly affects public safety. Even if our luck holds out and future flood events do not result in serious personal injuries, the potential dollar value to the town could be tremendous. Personal property loss in a worst case flood event is estimated in one report to be as high as \$76,690,500 just for Calais.<sup>1</sup>

The Calais Selectboard, with input from the town's Emergency Management Coordinator (EMC), the Calais Road Commissioner, and with assistance from the Central Vermont Regional Planning Commission (CVRPC), drafted a Local Hazard Mitigation Plan (LHMP) in July 2013. This LHMP was submitted to FEMA on October 16, 2013 for their acceptance (*pending as of June 18, 2014*) before it can be officially adopted by the town. The purpose of our LHMP is "to identify policies and actions that can be implemented over the long term to reduce risk and future losses. Mitigation Plans form the foundation for a community's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage."<sup>2</sup>

The discussion in this section of the "risks and future losses" and "disaster damage, reconstruction, and repeated damage" from flooding should, for the most part, be understood in the context of financial loss. Calais is not in a position to shoulder the burden of a \$76,690,500 bill for flood damage; it would rely on the state and the federal government for the greater part of the financial aid needed for damage recovery. And so it is that recommended mitigation strategy standards come down to the town from these two higher levels of government in the forms of an LHMP approved by both the state and FEMA, and this **Flood Resilience** section in the **Calais Town Plan**.

### **"1% Probability" Flood Event Risk**

With respect to mitigation planning, areas prone to damage caused by a "1% Probability" Flood Event" (also referred to as a "100-year flood event") have been identified in Calais. These areas are also referred to as **Special Flood Hazard Areas (SFHA)** and are graphically represented on the **Flood Insurance Rate Maps (FIRMs)** recently updated by the **Federal Emergency Management Agency (FEMA)**. These areas are defined by FEMA this way:

*The land area covered by the floodwaters of the base flood is the Special Flood Hazard Area (SFHA) on NFIP<sup>3</sup> maps. The SFHA is the area where the National Flood Insurance Program's (NFIP's) floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. The SFHA includes Zones A, AO, AH, AI-30, AE, A99, AR, AR/AI-30, AR/AE, AR/AO, AR/AH, AR/A, VO, VI-30, VE, and V.<sup>4</sup>*

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<sup>1</sup> **Local Hazard Mitigation Plan** (July 2013 update of 2005 Plan), prepared for Calais by the Town of Calais and the CVRPC. This Plan is included in its entirety as Appendix Article X)

<sup>2</sup> Vermont Emergency Management agency

<sup>3</sup> **National Flood Insurance Program**

<sup>4</sup> ANR's *Natural Resource Atlas* places all properties not in the SFHA in Zone "X" = (500-year flood area)

For Calais' **Local Hazard Mitigation Plan (LHMP)**, CVPRC overlaid building sites as they are represented on the state's E-911 database with the SFHA maps developed by FEMA and determined that 37 structures in Calais are situated in an SFHA. FEMA's NFIP Insurance Report (9/17/2013) to the state has on record that twelve NFIP flood insurance policies are in effect in Calais, and of those, six are for properties outside the SFHA. The Vermont Agency of Natural Resources' (ANR) *Natural Resource Atlas* (an online map currently available) provides ready access to graphic information describing the geographic extent of SFHAs and the E-911 building sites used in the CVRPC determination. Table 1 outlines only the Flood Zones that are applicable to Calais which are graphically presented in the ANR *Natural Resource Atlas*. Only "A" Zones are **Special Flood Hazard Areas (SFHAs)**.

"A" Zones = There are three "A" Zones types that apply to Calais:	
A	The 100-year or base floodplain. (No Base Flood Elevation data exists on Calais' FIRMs) (Also known as "approximate "A" Zones")
AE	The base floodplain where base flood elevations are provided.
AO	The base floodplain with sheet flow, ponding, or shallow flooding. Base flood depths (feet above ground) are provided
X	Area of moderate flood hazard, usually the area between the limits of the 100-year and 500-year floods.

Table 1, Calais Flood Zones<sup>1</sup>



Fig 1. Calais SFHAs Zone "A"s are yellow. Zone "AE" are red. (Those purple dots in Marshfield are their culvert locations.)

<sup>1</sup> A complete table of all Flood Zone types with descriptions can be found at: <http://www.fema.gov/floodplain-management/special-flood-hazard-area#0>

Figure 1 shows the extent of SFHAs in Calais. Areas in yellow are Zone “A”s. Area in red represent Zone “AE”. Structures within the SFHA must comply with construction standards set forth by FEMA to be eligible for Flood Insurance. An example on such one standard created by FEMA is entitled *Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe From Flooding.*

### Fluvial Erosion Risk

A second flood related risk to property is Fluvial Erosion. As defined by the **Watershed Management Division** of ANR, “Fluvial erosion is erosion caused by rivers and streams, and can range from gradual bank erosion to catastrophic changes in river channel location and dimension during flood events.” To safeguard property from the catastrophic impact of fluvial erosion, a “river corridor” has to be defined and understood to be an area within which there is a strong possibility for a change in a river channel location. The state of Vermont Department of Environmental Conservation has prepared Fluvial Erosion Hazard (FEH) area maps for use by the town. Currently, Calais has riparian buffer setbacks around its water bodies and wetlands<sup>1</sup>. Named streams are also protected by a fifty foot deep riparian buffer measured from the edge of the bank. River Corridors add these fifty foot buffers to Fluvial Erosion Hazard areas. The exact width of a river corridor is determined by the configuration of the stream meander or river course.

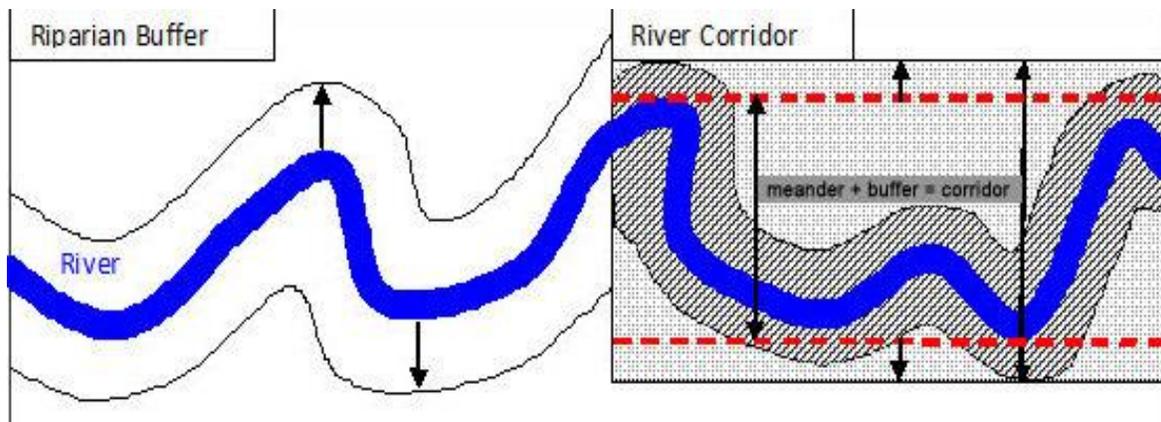


Fig. 2 Riparian Buffer and River Corridors

Figure 2 shows the difference between Riparian Buffers and River Corridors. The River Corridor width is determined, in this example, by the general width of the meander along a length of the river’s course plus the protective Riparian Buffer. River Corridor widths are variable, depending on the meander pattern. The Kingsbury Branch and the Pekin Brook are both meandering streams. And both have been identified as **Fluvial Erosion Hazard** (FEH) areas in our LHMP.

<sup>1</sup> *Land Use & Development Regulations for the Town of Calais*, adopted by the Calais Selectboard January 3, 2005, last amended March 4, 2014, Section 3.13

Figure 3 shows the Fluvial Erosion Hazard areas on Kingsbury Branch and Pekin Brook identified in Calais, as prepared by the Vermont Department of Environmental Conservation.

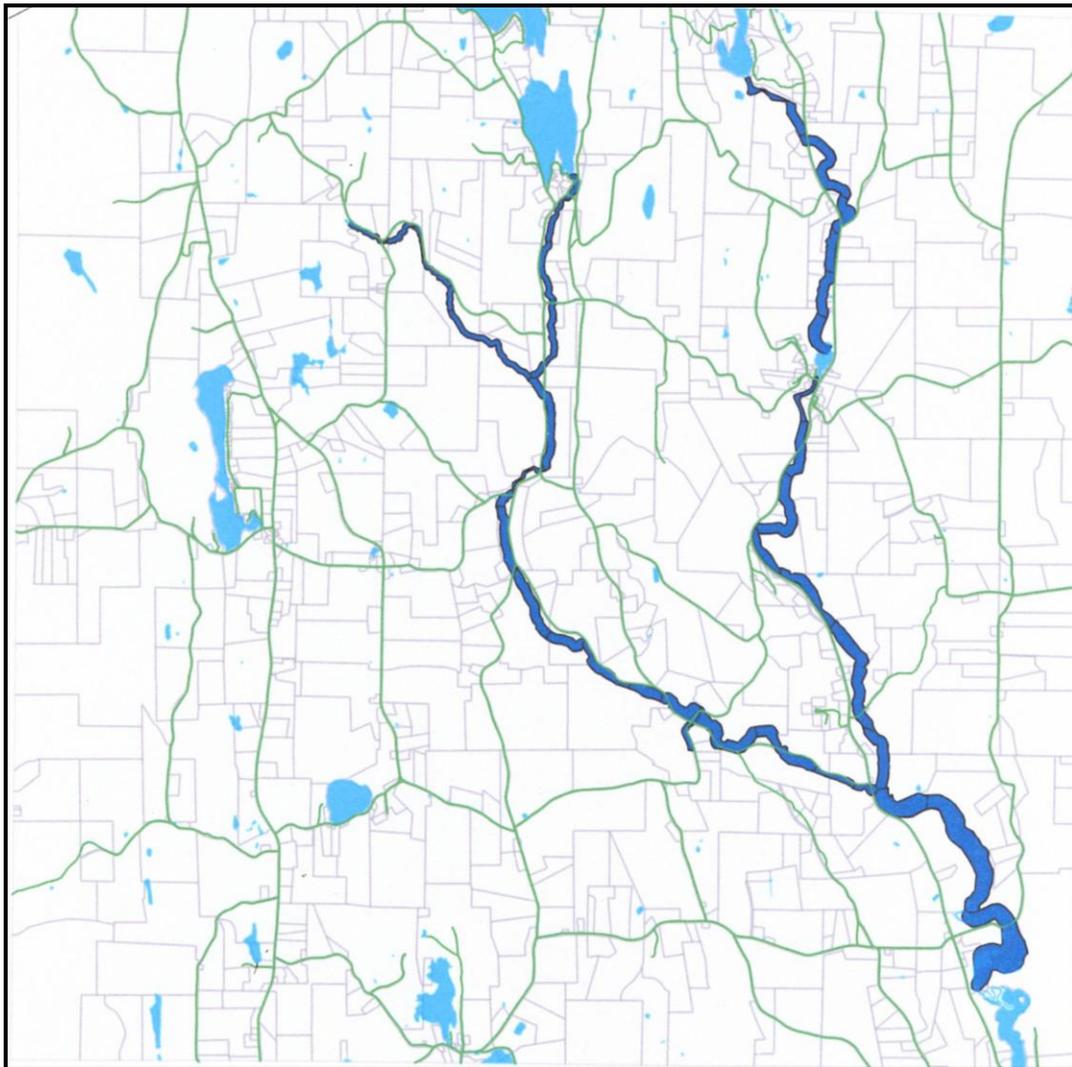


Fig. 3 Fluvial Erosion Hazard areas shown in dark blue

### Dam Failure Risks

The failing beaver dam on Adamant Pond (approx 41.5 acres) caused damage to roads and buildings in Adamant in 2010. Though the beaver dam wasn't particularly tall, it impounded (by one estimate) some 2,000,000 gallons (267,361 cft) of water which was suddenly released. This is the quantity of water that would be impounded in a 40 acre area behind a 2 inch high dam<sup>1</sup>. In contrast, the 19<sup>th</sup> century dry-laid stone dam on Curtis Pond (27 acres) is 14 feet high. In the event of a storm-day dam failure, peak discharge rates are estimated to be above 2000 cft/second.<sup>2</sup> The **Curtis Pond Engineering Analysis Report** prepared for Calais and the state of Vermont by DuBois & King, Inc.(Jan, 2004), estimates that 34 minutes from a catastrophic storm-day failure, the water level 2,400 feet downstream from the breach would rise over seven feet, flooding and knocking-out a power sub-station owned by Washington Electric Coop. "The Robinson Mill Dam at Kent's Corners and culverts along Pekin Brook upstream of Kents

1 Google Earth satellite photos clearly depict the beaver dam

2 **Curtis Pond Engineering Analysis Report**, DuBois & King, Inc., January 2004

Corners may have significant amount of damage as a result of the storm-day failure of the Curtis Pond Dam.”<sup>1</sup> Certain damage to the Worcester Road would impact direct access to parts of town west of the breach.

### **Landslide Risk**

Though not flood related in the context of rising waters, the subsidence of hillsides has resulted from rain events in Calais. In 2005, a section of Moscow Woods Road (part of the primary east-west corridor through town) “slipped” downhill 18 inches, rendering it impassable for several days. This damaged section was patched up by the town road crew, but remained as a one lane road until 2006.<sup>2</sup>

### **Water Contamination Risk**

A moderate threat (in terms of risk probability) to the community well-being is the contamination of drinking water sources as the result of a flooding and flash flooding. All waste treatment in Calais is by individual septic systems. Super-saturated soil over a disposal field can “short-circuit” a septic system and surface water run-off over the disposal field can combine with and carry off untreated effluent. A related concern is rainwater runoff that might carry chemical contaminants such as fuel stored in buried tanks. Calais has one water district which provides drinking water to 52 users. All other water supply sources are individual wells or springs.

## **Planning for Flood Resilience**

### **Emergency Preparedness**

The Calais LHMP ranks the likelihood of the afore-mentioned flood hazard risks as Low, Medium or High. A **Low** likelihood hazard is associated with a 100-year event, a **Medium** likelihood hazard with a 10-year event, and a **High** likelihood hazard has “a near 100% probability in the next year”.<sup>3</sup> Floods, Flash Floods, Fluvial Erosion and Dam Failures are ranked High; Landslides and Water Contamination hazards are ranked Low. There is no local flood related hazard ranked Medium.

Floods and flash flood hazards pose a threat to life and of personal injury. Floods and flash floods hazards have historically done severe damage to our roads, and they will do so again in the future, adversely affecting the response effectiveness of the emergency services on which we depend in a crisis. To the degree that it is possible to anticipate emergency responses to the contingencies that could arise in times of crisis, Calais has prepared a **Local Emergency Operations Plan**<sup>4</sup> (LEOP, updated 4/14/2014. LEOPs are updated annually after Town Meeting)). This LEOP:

- 1) Identifies the primary local emergency contact personnel.
- 2) Establishes a command structure
- 3) Identifies shelters to be used in times of emergency
- 4) Identifies high-risk sectors of our population
- 5) Identifies High Hazard sites in town (bridges, culverts, low-lying areas)
- 6) Identifies those town entities which lead or offer support in crisis response
- 7) Establishes and Emergency Contact and Mutual Aid Lists

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1 Curtis Pond Engineering Report, op.cit.

2 LHMP, op.cit.

3 LHMP, op.cit. There is confusing language regarding probabilities in the LHMP. A footnote states that Low-Likelihood hazards have a 10% chance of occurring in any given year. Probabilities, expressed as percentages, are also confusing with regard to Medium and High Likelihood Hazards.

4 The Calais **Local Emergency Operations Plan** is, essentially, a form filled out by local governments prepared by the **Vermont Emergency Management** (VEM) division of the **Division of Emergency Management and Homeland Security** (DEMHS) division of **The Vermont Department of Public Safety** (DPS).

In addition to the **Local Emergency Operations Plan**, Calais has an **Emergency Action Plan for Curtis Pond Dam** (DuBois & King, Feb 2004) which coordinates an emergency response in the event of a dam failure. While this **Emergency Action Plan** contains much interesting information regarding the hazard posed by the dam, based on its table of contents headings, it should also:

- 1) Define notification procedures & responsibilities with regard to a dam emergency
- 2) Define training & testing (of dam monitors?)
- 3) Describe local evacuation procedures
- 4) Record changes and additions to the plan

In the plan on record, the first item has out-of-date information. The other three are missing altogether. There does not appear to be a specific coordinated dam emergency response plan that deals with the type of flash flood hazard which imminent dam failure presents. It is presumed that in the event of a dam failure, coordination of emergency response would fall back on the **Local Emergency Operations Plan**. It is also presumed that the same **Local Emergency Operations Plan** would give direction to emergency personnel responding to the failure of a beaver dam. This is the extent to which Calais has prepared to respond to Flood Emergencies.

### **Mitigation - Water Sheds**

Storm water management starts in our water sheds. Effective water shed management reduces chances that the rapid runoff of surface water will carry with it eroded soils which can clog roadside ditches, and fill culverts, stream beds and ponds. Impervious surfaces such as roofs, driveways and parking areas which do not allow storm water to infiltrate the ground can increase the volume and velocity of surface water runoff, creating potentially destructive erosion conditions. Most of the surface water from a major rain event is eventually collected in roadside ditches and/or streams. Vegetative buffers along the banks of these streams can hold soils from the eroding effects of rapid water flow. Properly designed roadside ditches allow for storm water to continue its flow downstream without undue erosion. Water collected in streams and ditches flows through our culverts, under our bridges and eventually into our ponds and the larger brooks. The effect of Fluvial Erosion in our larger brooks has been discussed, as has the effects of the sudden release of impounded water by failing dams.

Calais has taken measures to protect the water shed. Calais has established an Upland Overlay District (all land 1500 feet above sea level) which controls the kind of development associated with poor watershed management. Most new construction requires a Conditional Use review by the Development Review Board (DRB). “The DRB may impose or increase required setback distances and buffer areas as may be reasonably necessary to protect adjoining properties, surface waters, wetlands, shoreland areas, and other natural and cultural features from incompatible development,”<sup>1</sup> and “storm water, erosion control and/or buffer management plans may be required as appropriate to mitigate long-term impacts.”<sup>2</sup> The maximum cleared area for any new building site in the Upland Overlay District is 1 acre. Forestry is a permitted use in this district, but only as defined in *Acceptable Management and Practices*, Vermont Commissioner of Forest, Parks and Recreation.

Additionally, with regard to water shed management, Calais has adopted language in our Zoning Regulations which addresses:

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<sup>1</sup> *Land Use & Development Regulations for the Town of Calais, sec. 5.3, (D), 4*

<sup>2</sup> *Land Use & Development Regulations for the Town of Calais, sec. 5.3, (D), 5*

- 1) Steep Slopes. Any development of slopes of 15% or greater require a DRB review. “The DRB may require the submission of an acceptable erosion and sedimentation control plan, prepared by an engineer licensed by the state, which provides detailed information regarding temporary and permanent erosion and sedimentation control measures to be used prior to, during and following construction.”<sup>1</sup>
- 2) Surface Water Protection. “A naturally vegetated buffer strip of at least 50 feet shall be maintained from the mean water mark of all lakes and ponds, and the top of the banks of all named streams and rivers, and at least 20 feet from all other streams and rivers, as identified in the Calais Town Plan or from current U.S. Geological Survey maps.”<sup>2</sup>

### Mitigation – Roads, Bridges & Culverts

By one estimate, 95% of storm related damage (federally declared disasters) was to public infrastructure: (for the most part) roads, bridges and culverts. Statewide, most of the existing culverts are too small to carry even the water from a “20-year” rain event.<sup>3</sup>

A fundamental component of a Flood Resilience Section would be citations referencing the town’s standards for roads, bridges and culverts, as they relate to flood hazard mitigation. ANR, in an online report on Flood Resilience planning, notes that acceptable standards can be found in the **VTrans<sup>4</sup> Orange Book, 2014-2016: A Handbook for Local Officials**. The Orange Book, in turn, makes reference to the **Vermont Better Back Roads Program<sup>5</sup> (VtBBR)**. The VtBBR Manual is written with the consideration of erosion control as a pollution mitigation issue, not flood hazard mitigation.<sup>6</sup> There are no references to using calculated probable flow rates from a major rain/water runoff event. Calais participated in the VtBBR program and reconstructed roadside ditches and culverts to VtBBR standards until February 10, 2014, at which time the Selectboard adopted alternate **Calais Road and Bridge Standards** (amended by the Selectboard April 14, 2014) developed by the Calais Roads Advisory Committee. This change was driven primarily by aesthetic issues resulting from construction to the VtBBR standards. **Regardless of which road standard a town uses, disaster recovery aid administrators will determine the replacement value for a damaged road, bridge or culvert based on the standards in place at the time of the disaster.**

While the accepted road standards that the town has in place at the time of a flood disaster are used to determine the cost of a repair, the proportions of that cost paid for by the town and by disaster recovery aid agencies depend on how well the accepted road and bridge standards mitigate flood damage. Disaster recovery aid money used for infrastructure repair is channeled through the **Emergency Relief and Assistance Fund (ERAF)**:

*“The Emergency Relief and Assistance Fund (ERAF) provides Public Assistance grants through the Federal Emergency Management Agency (FEMA) to Vermont cities and towns to repair damaged infrastructure after a presidentially declared disaster. The state typically contributes half of the required 25 percent non-federal match for approved projects. Under the new ERAF rule, which went into effect on October 23, 2012, municipalities have 24 months to adopt additional flood hazard mitigation measures to maintain the state cost share for FEMA Public Assistance grants. Municipalities*

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1 *Land Use & Development Regulations for the Town of Calais, sec. 3.13(A)*

2 *Land Use & Development Regulations for the Town of Calais, sec. 3.14(A),1*

3 ANR, online guide on Flood Resilience Planning, step 3

4 Vermont Agency of Transportation

5 **VtBBR Manual** was developed, in part, by VTrans and ANR, Dept. of Environmental Conservation

6 **The Orange Book 2014-2016**, , VTrans, page 7-1

*that adopt higher standards can achieve a higher percentage of state funding for post-disaster repair projects – from 12.5 percent to 17.5 percent. Municipalities that adopt the standard set of hazard mitigation measures will continue to receive state funds to cover half of the required non-federal match, or 12.5 percent. Municipalities that have not adopted the basic set of measures will see a decrease in the state match, from 12.5 percent to 7.5 percent. Thus, the state contribution toward the local match requirement will vary from 7.5 percent to 17.5 percent of the total project costs, depending upon the level of adoption of recommended mitigation measures.”<sup>1</sup>*

The “additional flood hazard mitigation measures” that must be in place by October 23, 2014, to receive half of the 25% non-federal recovery aid money from the state includes adoption of “*Town road and bridge standards consistent with or exceeding those listed under the most current version of **Town Road & Bridge Standards, Handbook for Local Officials**, published by the Vermont Agency of Transportation.*”<sup>2</sup>

The **Calais Road and Bridge Standards** has general language in its “*Guiding Principles*” addressing flood damage mitigation: “*All Road Work shall enhance flood hazard and inundation avoidance and shall protect the water quality of our lakes and ponds by the maximal use of innovative natural stormwater control mechanisms such as rainfall force attenuation (via tree canopies) and/or dispersion of stormwater to roadside verge shoulders, buffered areas and settlement structures.*”

The amended **Calais Road and Bridge Standards** has been reviewed with respect to flood hazard mitigation by VTrans Technical Services Engineer Alec Portalupi. In a correspondence (March 31, 2014) to the Calais Selectboard he writes: “*I believe you have addressed all of our issues and you could sign the Certification form that these standards meet or exceed the January 23, 2013 State-approved minimums.*”

### **Mitigation – Dam Failure**

Construction of a replacement for the ailing Curtis Pond Dam is the chosen option for mitigation of the flood hazard it presents. According to the **Calais Dams Task Force** report to the Selectboard (Feb 2005), several replacements have been designed: one of concrete and the other of stone. An early estimate for a concrete replacement was \$228,044. A new stone dam was estimated to cost \$175,588. Just who shoulders the financial burden for either is still being discussed. General concern from citizens has waned since the dam first became a critical issue.

There is also no record of procedures to check the progress of local beavers as they construct their own dams. Adamant Pond has had a “Beaver Baffle” installed, mitigating the flood hazard there from future a beaver dam failure. There is no monitoring system in place for reporting and following up on reports of other potentially hazardous beaver dams.<sup>3</sup>

### **Mitigation – Flood Plains and Floodways**

*Statistically, a homeowner in the 100-year floodplain has a 26% chance of being flooded during the life of a 30-year mortgage, and many owners are unaware that standard homeowner's insurance does*

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1 ERAF, as explained by Milley Archer, VLCT, *Flood Damage Mitigation Incentives for Municipalities under the New ERAF Rule*

2 ERAF, rules for state matching funds under the federal public assistance program, Vermont Agency of Administration

3 See *Best Management Practices for Resolving Human-Beaver Conflicts in Vermont*, Vermont Fish & Wildlife, for additional information on beaver dams as well as some delicious beaver recipes.

*NOT cover damages from a flood. That is why lenders generally require property in the floodplain to carry flood insurance. However, floods rarely follow the precise boundaries on a map, especially flash floods associated with sudden, heavy downpours. Flood damages can and often do occur outside the limits of the regulatory floodplain. Nationally, approximately one-third of all flood damages occur outside the mapped floodplain. In Vermont, two-thirds of flood damages occur outside of federally mapped flood areas.*<sup>1</sup>

Calais Zoning Regulations limit development in “flood plains” via a **Flood Hazard Overlay District (FHO)**, *“The purpose (of which) is to prevent or minimize the loss of life and property, disruption of commerce, impairment of the tax base and extraordinary public expenditure from the results of flooding; to further insure that design and construction of development would eliminate or minimize the potential for flood damage; and to ensure that the flood-prone lands are managed in accordance with state and federal regulations and thereby ensure that property owners are eligible for flood insurance through the National Flood Insurance Program (NFIP)”*<sup>2</sup>. Permitted Uses within the FHO are limited to Agriculture and Forestry (as defined by the state). Home Occupations and Home Child Care are permitted uses in existing Single Family Residences. All other development or Uses are subject to a **Flood Hazard Area Review** by the DRB. Flood Hazard Area Review standards include:

- 1) reference to **Flood Insurance Rate Maps (FIRMs)** and NFIP maps,
- 2) the involvement of state licensed engineers in determining Base Flood Elevations (BFE),
- 3) (the condition that) all (development) proposals are consistent with the need to minimize flood damage within the flood-prone area,
- 4) all public utilities and facilities, such as sewer, gas, electrical and water systems are located and constructed to minimize or eliminate flood damage, and that
- 5) adequate drainage is provided to reduce exposure to flood hazards

At the time of a Flood Hazard Area Review, documentation required to be provided to the DRB includes:

- 1) a completed Elevation Certificate prepared by a licensed surveyor, engineer or other state official who is authorized by the state to certify building elevation information,
- 2) ANR Project Review Sheet which shall identify all State and Federal agencies from which permit approval is required for the proposal
- 3) BFE and floodway limits provided by the National Flood Insurance Program and in the Flood Insurance Study and accompanying maps, and
- 4) In **Special Flood Hazard Areas** where base flood elevations and/or floodway limits have not been provided by the National Flood Insurance Program in the Flood Insurance Study and accompanying maps, it is the applicant’s responsibility to develop the necessary data. Where available, the applicant shall use data provided by FEMA, or State, or Federal agencies.

Specific construction design standards in the **FHO** are reviewed with respect to wiring, plumbing, gas, water systems, basements, construction materials, and overall design for flood prone areas. The full text

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<sup>1</sup> *Two Rivers-Ottawaquechee Regional Commission in cooperation with Vermont Law School’s Land Use Institute, and the Vermont Department of Environmental Conservation*

<sup>2</sup> *Land Use & Development Regulations for the Town of Calais, Table 2.7, (A)*

of all Flood Hazard Review Area criteria is found in Section 5.4, *Calais Land Use and Development Regulations*.

In developing the Calais **Local Hazard Mitigation Plan**, CVRPC found 37 building sites located within the SFHA. The E-911 MapBook showing these building sites begins with a disclaimer regarding the accuracy of the graphic information it contains. Similarly, the Flood Insurance Rate Maps (FIRMs) have a disclaimer which directs anyone interested to Flood Profiles and Floodway Data tables found in the Flood Insurance Study Report for “authoritative hydraulic data” which may differ from what is shown in the FIRMs. This being said, it is in Calais’ best interest to review the 37 building sites as part of a process to accurately identify all structures located within the **Special Flood Hazard Areas**. With an understanding of just what types of structures these buildings represent, the Town can then recommend and/or raise awareness of actions that these property owners can take to protect their properties. Hardcopies of FIRMs are available at the Town Office for viewing and .PDF and .PNG versions of the same are available on request. The Town Office also has information available with regard to FEMA’s Hazard Mitigation Grant Program. The Town Website can and should include web links directing anyone interested in Flood-proofing strategies to relevant governmental agency sites.

Some structures in Calais which are not in flood hazard areas have been represented as being on parcels which are. (Note that the current FHO District in Calais is based on FIRMs which have been superseded by newer maps.) With the exception of Mirror Lake and North Montpelier Pond, the FIRMs for Calais contain no **Base Flood Elevation** (BFE) data. Through a process called **Letter of Map Amendment** (LOMA), a property owner can, with the help of qualified professionals, verify that a specific structure is not in a Special Flood Hazard Area. Copies of LOMA applications and the requirements for a map amendment are available in the Town Office.

Calais has participated in the **National Flood Insurance Program** (NFIP) since 1975. Our participation has been, and continues to be, dependent on the town’s adoption of regulatory standards that meet or exceed standards set by the state and federal government (44 CFR 60). As a participating community, property owners in Calais can buy flood insurance through the NFIP. The cost of insurance premiums is variable, depending on the flood mitigation standards adopted by the town. FEMA supports communities that adopt higher standards through the **Community Rating System** (CRS) by offering incentives for safer development practices. Depending on the standards adopted, the town is rated from Class 9 to Class 1. Most communities enter the CRS program with a Class 9 or Class 8 rating. A Class 9 rating entitles residents to a 5% premium discount. Class 8 entitles residents to a 10% discount. Class 1 is 45%. In the CRS Program, a Class rating is achieved by accruing points:

*“A community accrues points to improve its CRS Class rating and receive increasingly higher discounts. Points are awarded for engaging in any of 19 creditable activities, organized under four categories:*

- *Public information*
- *Mapping and regulations*
- *Flood damage reduction*
- *Warning and response.*

*Formulas and adjustment factors are used to calculate credit points for each activity”.<sup>1</sup>*

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<sup>1</sup> National Flood Insurance Program (NFIP) Community Rating System (CRS) Fact Sheet, March 2014

It is in the best interest of Calais to review the benefits and consider participation in the CRS Program.

**Goal 1 Mitigate Dam Failure Hazards**

Catastrophic dam failures pose threats to life, safety and property. Implementation strategies to protect against such threats include:

Curtis Pond Dam

- 1) Reestablish an effective **Emergency Action Plan for Curtis Pond Dam. Selectboard(SB)**
- 2) Revisit Curtis Pond Dam replacement process
  - a. Get up-to-date cost estimates
  - b. Set a replacement schedule / timeline
  - c. Establish (re-establish?) dam replacement fund

Beaver Dams **Roads Operations Manager (ROM)**

- 1) Establish beaver dam reporting and monitoring mechanism to track large impoundments of water which have recognized destructive potential.

**Goal 2 Mitigate Risks in Flood Hazard Areas**

Major flood events pose threats to life, safety and property. Implementation strategies to protect against such threats include:

- 1) Redefine the Calais Flood Hazard Overlay district such that it is consistent with the most recent FIRMs. **Planning Commission (PC)**
- 2) Redefine the Calais Flood Hazard Overlay district to include the mapped FEH areas with a 50' buffer. **PC**
- 3) Inventory all known existing structures within an updated FHO district. **PC, LISTERS**
- 4) Review Zoning Regulation language with regard to septic and water systems in flood areas. **PC?**

**Goal 3 Storm Water Management ROM**

Uncontrolled storm water runoff poses threats to life, safety and property. Implementation strategies to protect against this threat include:

- 1) Prioritize Calais roadside ditching and culvert and bridge replacement schedule with regard to existing conditions which may impact access by emergency vehicles in a flood event.
- 2) Prioritize Calais roadside ditching and culvert and bridge replacement schedule with regard to existing conditions which have been determined to be inadequate to handle expected runoff and erosion in a flood event.

**Goal 4 Provide Ready Access to Flood Hazard Related Information Emergency Management Coordinator (EMC), PC, Town Clerk (TC), Town Website Webmaster**

The Town Office should serve as a “clearing house” for up-to-date federal, state and local emergency management information. The Town should consider an “Emergency Management” section on the Town Website. With regard Flood Resilience, information should include:

- 1) NFIP resources for property owners required to have Flood Insurance.
- 2) LOMA resources in town office.
- 3) Flood Resilience portal on Town Website with relevant ANR, FEMA NFIP links.
- 4) Calais Online Map updated to include graphic data with regard to SFHA and River Corridors.
- 5) Have FHO general construction standards available in Town Office and Town Website.
- 6) BFE information at Town Office as it’s developed.
- 7) LEOP, Emergency Action Plan for Curtis Pond, and LHMP on Town Website **(EMC)**
- 8) Review options with regard to FEMA’s Community Rating System. **(SB)**

# Energy: Energy Efficiency, Renewable Sources, Transportation

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**“To adopt patterns of production, consumption, and reproduction that safeguard Earth's regenerative capacities, human rights, and community well-being, . . . we will act with restraint and efficiency when using energy, and rely increasingly on renewable energy sources such as solar and wind.” Earth Charter**

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## **Overview**

As we write this section of the Town Plan evidence abounds that we as a nation are experiencing the consequences of climate change.

Vermonters care about this change and desire to do what we can to restore a harmony and balance with nature. The Vermont state government in 2007 committed to reduce greenhouse emissions by 50% of the 1990 levels by the year 2028; and by 2050 the reduction is to be at a 75% level. To attain this goal it was determined that between 30 – 50% of the emission reduction would have to come from efficiency measures. It was concluded that to increase energy efficiency we would need to improve the energy fitness of our homes. The Vermont Legislature established statewide goals that 20% of the state's housing stock would be energy efficient by 2017; by 2020, 25% of the state's houses would meet energy efficiency standards.<sup>1</sup>

Vermont also has a goal that 90% of our energy needs will come from renewable energy sources by the year 2050. Montpelier is working to become the first state capital to attain “net-zero” by 2030, meaning that all energy consumed will be from renewable sources.<sup>2</sup>

The Town of Calais and its residents are affected by climate change in diverse ways. Rain deluges, snow storms, and winds affect our roads and water ways. Intense cold snaps increase heating costs in the winter. Floods and damage from storm runoff affects our Town budget. The Flood Resilience section of this plan highlights some of the costly damages the Town would incur in the events of flooding. While the costs of mitigation and the costs of changing to alternative resource use may be high, the costs of repairing damages are higher.

## **VISION**

The Town of Calais, population of 1607, has a vision of living more sustainably. The definition we use of sustainable self-reliance could be stated as “the energy and living matter we use will be turned into food and material goods for all to use so that we will limit the pollution of the environment.” This means we as a town will commit to reducing our dependence on fossil fuels in three basic ways:

1. Become more energy efficient in our homes and public buildings saving long term energy costs
2. Increase our use of renewable sources of energy
3. Reduce as much as possible the amount of gasoline used by changing our modes of transportation
4. Make greater efforts individually and collectively to reduce the amount of electricity we use with greater emphasis on conservation techniques.

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<sup>1</sup> Energy Planning & Implementation Guidebook for Vermont Communities, April 2011, VNRC and VLCT; page 4

<sup>2</sup>

[http://publicservice.vermont.gov/sites/psd/files/Pubs\\_Plans\\_Reports/State\\_Plans/Comp\\_Energy\\_Plan/2011/Vol%20I%20Public%20Review%20Draft%202011%20CEP%201pg%20view.pdf](http://publicservice.vermont.gov/sites/psd/files/Pubs_Plans_Reports/State_Plans/Comp_Energy_Plan/2011/Vol%20I%20Public%20Review%20Draft%202011%20CEP%201pg%20view.pdf)

**CURRENT CONDITIONS**

**Energy Efficiency**

Any data used from any source may be questioned, since it is only as good as what was collected at the time. There are known deficiencies in the data that follows, *but it is the best we can find from official sources.*

Based on the data from the Renewable Energy Atlas of Vermont, <http://www.vtenergyatlas.com/> there are 2 sites that have had an energy audit, one of them being the Calais Elementary School, the other a private residence. Our recent survey indicates that over 60% of residents who took the survey want to learn more about energy efficiency. The education gap needs to be closed in order to improve household energy efficiency.

We used the 2010 census data from the US Census bureau to get an idea of the ages of the houses in Calais and what type of heat is used in the houses. The following data can be found on this website through American Factfinder.

[http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_12\\_5YR\\_DP04](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_DP04).

In brief: there are 842 housing units in Calais, 676 which are occupied year round. Of those 305 houses are over 75 years old. This confirms the need for energy audits.<sup>3</sup>

<b>HOUSING OCCUPANCY</b>	
Total housing units	842
Occupied housing units	676
Vacant housing units	166
Homeowner vacancy rate	1.8
Rental vacancy rate	19.6

<b>YEAR STRUCTURE BUILT</b>	
Total housing units	842
Built 2010 or later	0
Built 2000 to 2009	79
Built 1990 to 1999	87
Built 1980 to 1989	100
Built 1970 to 1979	115
Built 1960 to 1969	75
Built 1950 to 1959	44
Built 1940 to 1949	37
Built 1939 or earlier	305

**Alternative resource use**

**Heating and Cooling Houses**

How homes are heated is displayed in the following spreadsheet. Note how many use wood for heat, although it is unknown how many use combination heating such as propane and wood, etc. Apparently they did not allow for multiple combinations as a response. Even though these data are from the 2010 census, the solar line is inaccurate because the Renewable Energy Atlas of Vermont has at least 9 solar systems in Calais, [see the section on existing alternative systems in Calais]. Information is from US Census Bureau, American FactFinder,

[http://factfinder2.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml).

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<sup>3</sup> US Census Bureau: American Factfinder: [http://factfinder2.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml](http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml)

<b>HOUSE HEATING FUEL</b>	
Occupied housing units	676
Utility gas	8
Bottled, tank, or LP gas	78
Electricity	0
Fuel oil, kerosene, etc.	205
Coal or coke	6
Wood	364
Solar energy	0
Other fuel	15
No fuel used	0

There is a great potential for change in how we heat our houses.

**Electric Use**

The next set of data shows the amount of electricity used in Calais for the years 2005-2010. Data are from the Renewable Energy Atlas of Vermont <http://www.vtenergyatlas.com/>.

Electrical usage for Calais from 2005-2010

**Town:** Calais **County:** Washington

- Population: 1538 • % of Total Pop: 0.25% • Pop. Rank: 108 • Pop. Density: 39.8 • Pop. Density Rank: 114
- Area: 38.6 Square Miles • 99.9 Square Kilometers • 24704 Acres • % of Total Area: 0.4% • Area Rank: 152
- Number of Buildings: 851 • % of Total: 0.29% • Rank: 113 • Number of Households: 782
- » Electricity Consumption : 2005-2010 (MWh)

Type	2005	2006	2007	2008	2009	2010
Commercial & Industrial Consumption	376	386	356	375	373	542
Residential Consumption	3,910	3,776	3,814	3,709	3,611	4,445
<b>TOTAL</b>	<b>4,287</b>	<b>4,162</b>	<b>4,170</b>	<b>4,085</b>	<b>3,985</b>	<b>4,987</b>

The above information shows increased use of electricity between 2009 and 2010, after remaining fairly constant for several years.

**Existing alternative systems in Calais**

The Renewable Energy Atlas of Vermont reports there are 6 residences with solar roof systems, 2 thermal solar hot water systems, and 3 ground solar systems in Calais. In our recent survey, eighteen respondents out of 64 said they already use alternative energy sources for heating and cooling. Clearly we need a more accurate inventory of who has alternative systems in place.

**Transportation**

Calais is largely a bedroom community that commutes to work. The following tables show Calais workers have one person per car and have many cars available for transportation.

The table below lists commuting characteristics for Calais for 2008-2012 as taken from US Census Bureau and compiled by American FactFinder.

Subject	Calais town, Washington County, Vermont					
	Total		Male		Female	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Workers 16 years and over	806	+/-114	412	+/-68	394	+/-62
<b>MEANS OF TRANSPORTATION TO WORK</b>						
Car, truck, or van	84.7%	+/-5.0	84.0%	+/-6.4	85.5%	+/-5.7
Drove alone	79.2%	+/-5.5	76.7%	+/-7.5	81.7%	+/-6.4
Carpooled	5.6%	+/-3.0	7.3%	+/-5.1	3.8%	+/-2.9
In 2-person carpool	5.2%	+/-2.9	6.6%	+/-4.9	3.8%	+/-2.9
In 3-person carpool	0.4%	+/-0.7	0.7%	+/-1.3	0.0%	+/-4.9
In 4-or-more person carpool	0.0%	+/-2.4	0.0%	+/-4.7	0.0%	+/-4.9
Workers per car, truck, or van	1.03	+/-0.02	1.05	+/-0.04	1.02	+/-0.02
Public transportation (excluding taxicab)	1.5%	+/-1.8	2.9%	+/-3.5	0.0%	+/-4.9
Walked	1.2%	+/-1.2	0.7%	+/-1.0	1.8%	+/-1.7
Bicycle	0.0%	+/-2.4	0.0%	+/-4.7	0.0%	+/-4.9
Taxicab, motorcycle, or other means	1.7%	+/-2.2	0.7%	+/-1.0	2.8%	+/-4.4
Worked at home	10.8%	+/-3.5	11.7%	+/-5.5	9.9%	+/-4.9

Per the US Census Bureau, sixty-two percent [62%] of occupied Calais households have more than one vehicle per household.

VEHICLES AVAILABLE	
Occupied housing units	676
No vehicles available	4
1 vehicle available	256
2 vehicles available	309
3 or more vehicles available	107

The 676 Calais households have a total of 806 workers. Eighty-one percent [81%] or 653 workers have more than one vehicle available for transportation to work, and 99.5% [802 workers] have at least one car available.

VEHICLES AVAILABLE	
Workers 16 years and over in households	806
No vehicle available	0.5%
1 vehicle available	18.5%
2 vehicles available	54.5%
3 or more vehicles available	26.6%

While the above data reflect transportation for work, not addressed is the transportation for shopping. How many trips are made from Calais to stores in Montpelier, Hardwick, Plainfield, or Berlin/Barre? Is there a way to reduce that by shopping at our local stores in East Calais, Maple Corners, and Adamant? What would it take to shop at the local stores using bicycles or walking – reducing driving a car, and

thereby making those stores more economically viable? This is addressed in the Economic Development section.

If we desire to reduce use of fossil fuels in the transportation sector, we must change how we get to and from work, promote ride sharing for work and shopping and play, and make public transportation more available.

## **ISSUES**

The majority of residents [90%]<sup>4</sup> of Calais cares about their use of fossil fuels and wants to reduce their consumption, 92% are interested in reducing the amount of money spent on energy, and 66% desire to learn more about the incentives and services offered by Efficiency Vermont. The main issue is getting that information to the people so they can make informed decisions about how to proceed both technically and financially with making their homes more energy efficient.

Zoning regulations and the permitting process for new residential buildings will need to be adapted and changed so that new residential buildings comply with the latest Energy Standards.

Where to best locate solar arrays that can be beneficial to a group of residents is important and will need evaluation and review for zoning regulations. This applies for both solar hot water and solar electricity.

Other alternative sources of energy such as hydro power, biodiesel, small wind generators, and biomass that could be developed within Calais need further research.

For commuters – the issue of ride sharing, car sharing, where to park their cars and bikes, and having public transportation is of primary importance. The need to develop better and safer bike paths along the public corridors of Route 14 and County Road is of utmost importance and remains an issue to resolve.

Helping our local stores thrive to improve their business and promoting local food businesses [such as CSAs and small farm markets] as well as developing food processing entrepreneurial businesses as stated in the Agriculture section will make Calais residents desire to do more shopping locally, decreasing our reliance on cars.

Another issue relating to fossil fuel use and transportation is the type of fuel used in our cars, trucks and tractors. Because of our agriculture capability we have an opportunity to research the ability to grow and process local bio-fuel creating a local economy. This is addressed in the Agriculture Section of the Town Plan.

## **BENEFIT OF TAKING ACTION**

Why bother to do anything related to energy?

There are monetary savings to achieving greater energy efficiency in houses. This is an immediate short term reason. Most respondents to our survey expressed a desire to reduce their energy bills. That can come about by making homes more efficient thereby saving money on fossil fuel bills.

While there are expenses to converting to alternate resources, with wise financial advice and various tax and energy credits, the expenses can be reduced so that there is a greater return on investment.

The reason to do something today regarding the use of fossil fuels is for the long term and what we leave behind for future generations. Climate change is here and while what we do today may not reverse the effects of climate change, it will have an effect for the future.

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<sup>4</sup> Survey # 5 Energy by Planning Commission

**DEFINITIONS**

Energy conservation means to take the necessary steps to decrease the amount of energy we use. This might be as simple as always turning off power strips that computers and audio-visual components are plugged into or to turn off lights. It can also mean keeping a thermostat turned low.

Energy Efficiency means restraining the growth of energy consumption and demand. This may be using improved or alternate technology that will decrease energy demand. Something can be viewed as more energy efficient if it delivers more services for the same amount of input, or have the same services with less energy input. Converting to LED lights is an example of energy efficiency.

**ENERGY EFFICIENCY**

**GOAL: Reduce energy consumption in our private dwellings and public buildings**

Objectives to attain this goal are:

- Providing education seminars about energy audits and financing of efficiency work.
- To have at least 90%of homeowners complete an energy audit by 2020.
- To have all municipal buildings complete an energy audit by 2017.
- All municipal buildings will convert to LED lighting.
- All municipal buildings will follow through on energy audit recommendations by 2020.
- Once energy audits are completed assist in any way to implement the audits’ recommendations in both private dwellings and public buildings.

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Invite Efficiency Vermont to present to Calais residents what an audit entails [potluck recommended]	Select Board, Energy Committee, Efficiency Vermont	Once a year starting in the spring of 2015
Create ‘energy fairs’ with surrounding communities	Select Board, Energy Committee, CVRPC	Summer 2015
Maintain an inventory of residences that have an energy audit; provide a minimal rebate on taxes for an audit, with a larger rebate for completed energy efficiency measures <i>as certified by Efficiency VT</i>	Select Board, Bd of Civil Authority, Listers	2016
Provide an education session on pay-back for efficiency, and assist in getting information of how to finance weatherization projects	Select Board, Energy Committee, CVRPC, Efficiency Vermont	2015 and on going annually
Work in groups for buying power to get cheaper prices: example: 6 households in Maple Corner agree to start some kind of work to seal areas of air leakage. They combine how much sealant is needed and share in the cost to get a reduced rate. Publicize the buying groups	All residents, FPF, Energy Committee, Select Board	
Zoning regulations will encourage new buildings to comply with Vt. residential building energy code: Handbook will be provided to all applicants for new buildings.	PC, ZA	2015

**Alternative Resource Use**

**GOAL: Sixty percent [60%] of residents will increase use of alternative renewable energy sources for heating and cooling of homes, heating water, and for electric use, either individually or through small groups.**

**GOAL: All municipal and community used buildings will be heated with renewable energy sources by 2020**

Action Steps	Responsible Party	Time line
Work with various organizations and solar companies to provide education on how to finance and what the pay-back time is for switching to alternative energy.	Energy Committee, Select Board	Begin 2015 and as often as needed
Make solar capability easier by allowing permitted uses for ground based solar contingent that the placement meets all barriers based on the district.	Planning, Select Board	2016
Prepare zoning areas that allow for solar arrays in certain areas that will benefit neighborhoods and groups to share in the electrical output.	Planning, All residents	
Waive permit fees for any alternative energy resource.	Planning, Select Board	
Develop education seminars taught by residents who use alternative heating and cooling systems such as heat pump systems or compost powered water heating systems to assist others in obtaining and using alternative energy	Energy Committee	
Look into ability of developing hydropower		2018
Research feasibility of producing Calais biomass or bio diesel products; is it effective, what is the cost, what zoning changes need to occur	Planning, Select board, business development	2018

**TRANSPORTATION****GOAL: To reduce the amount of travel in cars thereby reducing GHG footprint****GOAL: To have alternate sources of energy for vehicles**

Action Steps	Responsible Party	Time line
Develop park and ride places in each of the villages and put in at least 1 – 2 charging stations in each Park and Ride lot for electric vehicles	Planning Commission, Select Board, Energy committee	Park and Ride by 2015; charging stations 2016
Develop a ride and share log based on areas of employment to increase rider share: post to Town Web site; use FPF	All residents, Energy committee	2015
Work with CVTA to develop bus routes along County road and Rt 14	Select Board, Planning	2015-2016
Promote Go VERMONT <a href="http://www.connectingcommuters.org/">http://www.connectingcommuters.org/</a> to promote ride share.		
Develop outreach to Car Share VT <a href="http://www.carsharevt.org/">http://www.carsharevt.org/</a>		
The town to purchase 2 cars for car sharing for a fee. Each user would have to have some insurance to cover for accidents.	Select Board	2017
Develop a plan to work with the state and county to develop safer bike paths on the main corridors into and out of Calais [e.g. Route 14 and Route 2 and County Rd.]		

Draft 6-22-14

Provide education seminars about electric vehicles; bring several car companies with EVs to a potluck for test drives	Energy Committee	2015
Research feasibility to grow the products locally and produce biodiesel fuel locally – Ag and Economic Development	Energy, Ag Committees, Planning and Select Board	2017

**Draft**  
**6/16/14**

## **Early Child Care & Education**

### **Introduction**

Quality and affordable early childhood care and education is an economic development and sustainability necessity. It benefits families by better preparing children for success in school while enabling parents to work and provide income. It benefits businesses' financial bottom line by being able to attract, expanding and retaining a quality workforce and creating more reliable, productive employees. Furthermore, early childhood care and education facilities are professional businesses themselves and their existence expands local and regional economies directly through the hiring of workers and purchase of goods and services. Despite the economic and social good created by quality childcare services, Calais currently has a shortage of such facilities.

### **Issues**

The Calais Elementary School, which is 5 STARS quality rated, provides a pre-school program for 3 year-olds two mornings a week from 9 to 12 a.m. and for 4 year-olds three mornings a week during the same times. Parents may opt and pay for after schools program from noon to 3:30 p.m. on the days their child attend morning pre-school. The program is available during the school year. This leaves families without child care during school vacations and summer months.

There are 3 registered providers in Calais and 7 in surrounding towns. There are no licensed providers except for the elementary school. There are only 7 "quality" providers (licensed with 4 or 5 STARS in the Vermont Step Ahead Recognition System and/or with national accreditation).

The demand for quality early childhood care and education has outpaced the supply for many years and is projected to continue. This is a critical unmet family and community need. The high cost of child care keeps some residents out of the workforce. Even moderate-income families needing child care often pay a large portion of their total income for these services and consequently struggle to get ahead.

Too many people continue to have the inaccurate perception that child care is a form of "babysitting." Quality early child care requires a high level of safe and enriching environments for children. The state does not have sufficient inspectors to ensure safe environments at all sites. Teachers need the same education, professionalism, and pay as elementary and high school teachers. Until we as citizens and employers value early child care and education and recognize the economic and social necessity for quality providers, we will continue come up short as a community for our youngest and most vulnerable citizens.

Goal: To ensure that registered and license home care providers and child care centers are encouraged in zoning.

Action: Review permitted activities in Village and Rural Residential districts. PC

Goal: To encourage the location of child care facilities in existing settlements, near residential clusters, schools, and along public transportation routes. Such locations can help reduce traffic, energy consumption, and the overall financial cost of child care for families.

Action: Review permitted activities in Village and Rural Residential districts and permitting. ZA, PC, DRB

Goal: To encourage registered and license providers to participate in STARS program.

Action: Provide STARS information to new providers when they apply for permit. ZA and Clerk

**Draft  
7/28/14**

## **ECONOMIC DEVELOPMENT**

### Current Conditions

A healthy and diversified economy is critical to maintaining quality of life in Calais. A healthy economy provides employment, stimulates social and cultural interaction, and provides resources for other community services.

The Calais economy consists of numerous small businesses that include retail, various forest and agricultural enterprises, furniture makers, insurance, financial services, food producers, cultural services, repair services, construction, carpentry, landscaping, plumbing, health and personal care, electrical, town services, and manufacturing. Many residents also work from their homes (113) as artisans, writers, insurance agents, consultants and similar activities. While it is apparent that many jobs are provided in Calais, most residents find employment outside of the community.

Large-scale commercial, industrial development, non-profit, and governmental employment is most likely to continue in other parts of the Central Vermont region that have the necessary infrastructure (power, water, wastewater, transportation, and internet) to support them. Approximately 76.6% of Washington County's employment is concentrated in Montpelier, Berlin, Barre City, Barre Town and Waterbury. Since most Calais residents leave town for employment, it is important that Calais continue to support these employment centers.

In 2013 three of our villages – Maple Corner, Adamant, and East Calais – received "Village Center Designation" by the Vermont Agency of Commerce and Community Development. This achievement will add to our ability to obtain municipal grants and commercial property owners to obtain tax credits for building improvements.

### **Challenges and Opportunities**

We must support those local economic initiatives that promote local employment to decrease transportation and energy costs and the negative impact on the environment. We need to be more proactive in our support of new and existing small businesses, including home-based professionals/businesses, telecommuting, and agricultural and forestry producers.

Access to high-speed telecommunications is essential for most all businesses and telecommuters to survive and thrive in Calais. Community and regional support through "buy local" initiatives, financing opportunities, supportive zoning, access to affordable housing, transportation systems, and childcare will also be needed.

## **GOAL 1 - PROMOTE MEANINGFUL LOCAL EMPLOYMENT FOR MORE CALAIS RESIDENTS.**

### **Plan of Action-**

The Selectboard should consider establishing a business support committee that would work to achieve this goal. Some possible activities the committee could undertake include:

- a. Expand the official Calais Town website to include links to businesses and services available in the community for informational purposes only; 2016
- b. Encourage the creation and expansion of Calais businesses that utilize natural resources and raw materials, with particular emphasis on value-added processing of agricultural and wood products; 2017

- c. Identify and help organize former and existing successful Calais entrepreneurs willing to mentor new and beginning businesses by providing guidance and technical advice; 2017
- d. Identify and facilitate networking and cooperative initiatives between Calais businesses , such as a tool rental cooperative, group purchasing cooperative for bulk supplies; 2018
- e. Identify ways to strengthen village centers as units of economic activity; 2016 and
- f. Focus on food production and other agricultural pursuits (see Agriculture Section). 2015

**GOAL 2 - ENSURE THAT ZONING REGULATIONS DO NOT IMPOSE ANY UNNECESSARY OR INAPPROPRIATE IMPEDIMENTS TO REASONABLE SMALL BUSINESS DEVELOPMENT, AGRICULTURAL ENTERPRISES, OR HOME BASED BUSINESSES.**

**Plan of Action -**

The Calais Planning Commission shall:

- a. Review and recommend appropriate changes in the conditional uses allowed in the rural residential and village districts of the zoning regulations; 2015
- b. Consider expansion of village districts and establishing an additional village district near the elementary school and adjacent to North Montpelier village; 2016 and
- c. Consider zoning and other changes to encourage rental and multi-family housing [see Housing section]. 2016

**GOAL 3 - CONTINUE SUPPORT OF REGIONAL BUSINESS DEVELOPMENT ORGANIZATIONS AND INITIATIVES.**

**Plan of Action -**

The Town should:

- a. Continue to provide financial support to regional economic development organizations through allocations decided upon at town meeting, e.g., responses to requests from such organizations as Central Vermont Economic Development Corporation and Central Vermont Action Agency;
- b. Encourage Calais residents to represent the town in regional economic and community development initiatives and organizations;
- c. Support the Central Vermont Workforce Investment Board (WIB); and
- d. Support with adjacent towns the development of a regional systems approach to quality, affordable, and reliable early childhood care and education centers and home care providers.
- e. Encourage Calais residents to represent the town in initiatives that serve the region.

**GOAL 4 - SUPPORT DEVELOPMENT AND PROVISION OF INFRASTRUCTURE TO SUPPORT CALAIS BUSINESSES.**

**Plan of Action -**

The Town should:

- a. Support and facilitate availability of high speed internet service to all areas of Calais [see Municipal Services section];
- b. Investigate decentralized wastewater systems or on-site system management to allow additional development, residential and business, within village districts; 2018 and
- c. Work cooperatively with neighboring communities when a multi-community solution is needed and feasible.

**Regulatory Guidance:**

The Planning Commission will review zoning to ensure that it promotes and not inhibits the start-up and sustainability of small, diverse businesses that support the town’s vision and values stated in the Town Plan.

# Municipal Services and Resources

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Municipal services are basic services such as fire protection, police protection, and road maintenance provided by the town in exchange for payment. The town must work and maintain good relationships with utility companies and in addition have policies in place to be sure that water sources are protected and sewage and waste regulations are maintained so as to assure healthy conditions for all Town residents. Resources for maintaining the cemeteries and the swimming program on Curtis Pond, to name a few, are provided under the auspices of the Town.

## **UTILITIES**

### **ELECTRICITY**

#### **Current conditions**

The Town of Calais is serviced by three electric companies: Green Mountain Power, Washington Electric, and Hardwick Electric. All three companies allow net metering for solar customers. Several residents who have solar panels live off grid having back-up generation capabilities.

#### **Issues**

One important issue with regard to electricity is the placement of utility poles such that they meet setbacks and buffers areas as required for each district. One of the electric companies has historically placed poles in fields [potential agriculture land] or in areas that crossed woodlands. They currently seek to place poles along roads decreasing the natural vegetation buffers set aside by our road commission, and desire to cut down trees that would destroy the rural character of Calais. It shall be the intent that Calais will follow VSA 24 Section 2502 for protection of our shade trees so that we will assure the preservation of the rural character and charm of the roads of Calais. We will work with all utility companies to achieve that goal.

Another issue that has had some discussion is the need for three-phase energy by some types of business. In the event that such a business requires this type of energy, the Town will evaluate what it can do to support the business and meet its needs.

Issues of energy conservation, alternate energy resources, and placement of solar panels and micro wind turbines<sup>1</sup> are addressed in the Energy section of the Town Plan.

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<sup>1</sup> Micro [wind turbine](http://www.ecowho.com/defn/m/micro+wind+turbine/24a86) is an umbrella term for small scale wind turbines that are typically deployed on or near buildings and used to generate electricity that is transmitted direct to the property. <http://www.ecowho.com/defn/m/micro+wind+turbine/24a86>

**Goal: To protect the scenic beauty and ridgelines of Calais**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Maintain ordinances and Right of Ways [ROW] such that utility poles are placed within the guidelines and outside the buffers as stated in the land use regulations	Select Board, Planning Commission	review every 18 months
Adopt a policy to preserve public shade trees using V.S.A. Title 24 section 2402 so that no trees will be cut by any company without consultation with the Tree Warden	Select Board, Tree Warden	2015
Work with all electric companies to negotiate appropriate location of new utility poles so they fit within the guidelines, and encourage co-use of poles with other communication companies	Select Board	As needed

**Goal: To provide appropriate electrical service to meet future business requirements**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Should any new business in Calais require three-phase power, Act 250 requirements will be met, and the Town will facilitate communication with the Public Service Board and the electric companies to find a best location for such power.	Select Board, Planning Commission	As needed

**WATER**

Clean water is our most precious commodity. Without it we would not survive. So it is important that we manage our groundwater with great care --- keeping what we receive from the earth as pristine as possible -- using it wisely and not wastefully, and preventing pollution of that ground water wherever and whenever we can. Thus the topic of protecting our water supply is also addressed in the Natural Resources section and a bit in Flood Resilience.

**Current Conditions**

Calais is fortunate to be in a place where water is abundant. We have a myriad of lakes, ponds, and brooks all fed from springs. Because of this there are only 2 official "public water systems" in the Town. All other residents in the town have their own wells or are supplied from their own springs.

**The Water Systems**

Calais Elementary School has a water system that is classed as Non-Transient, Non-Community Water System [NTNC]. The definition of a NTNC water system as defined by the Vermont Agency of Natural Resources [ANR] is a public water system that regularly serves at least 25 or more of the same persons daily for more than six months per year, <http://www.anr.state.vt.us/dec/dwgwp/ntnc.htm> The school must have a certified operator and must monitor water quality as scheduled by ANR with test results coming from certified labs.

The other public water system is the system operated by the East Calais Fire District #1<sup>2</sup> which is considered a Public Water System. The definition of a Public Community Water System is a public water system which serves at least fifteen (15) service connections used by year-round residents or regularly

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<sup>2</sup> Fire Districts are special purpose municipal districts sanctioned by the State. They carry all the powers of a municipality, including the ability to tax the residents and properties located within the district boundaries. Town governments do not regulate and are not legally responsible for the actions of Fire Districts.

serves at least 25 year-round resident, <http://www.anr.state.vt.us/dec/dwgwp/pcws.htm>. The water system must have a certified operator and must monitor water quality as defined by the ANR and State Health Department. Today the ECFD #1 system has 52 connections. Users of the system must live in the village, be on the Grand List, and are required to use the water from the system.

### Brief History

The East Calais water system started in the early 1900s. In the 1940's a local furniture factory purchased the water system and operated it as a private water company until 1968 when the East Calais Fire District #1 was formed to improve, operate, and maintain the water system. Since then, the ECFD#1 has operated and maintained the water system. Improvements to the distribution system were made in the 1970's. In 1996 the ECFD#1 obtained a Federal municipal bond of \$150,000 to replace the PVC water main from the reservoir to the village. They just recently refinanced that bond. Revenues are a flat fee charged quarterly. Meters are at each connection mostly to monitor water pressure and to check for leakage.

### Water Source

The unique feature of this water system is that the water is gravity fed and no electricity or pumping stations are required. The water source is from two springs: the most northeast spring [Bowen spring] has a pipe that feeds water into the #1 spring and reservoir. All water is stored in a two cell, poured in-place concrete tank reservoir. ECFD #1 has access and right of way to the reservoir. The Bowen spring produces about 25 gallons of water/minute; the #1 spring produces about 7-10 gallons of water/minute. Roughly the springs on average produce 30,000 gallons of water per day into the reservoir.

Water quality is monitored based on the requirements of the state. Samples of water are sent to certified laboratories for drinking water analysis. The top five tests are:

1. Coliform bacteria – monthly
2. Nitrate - yearly
3. Lead and copper - every three years
4. VOC - Volatile organic chemicals - every three years
5. IOC - Inorganic chemicals - every 9 years

A stand-by chlorinator can chlorinate the water as it enters the reservoir when needed. Routinely the system is flushed two times a year which is when the chlorinator is turned on.

### Issues

There are three driving issues around the water supply and system for the Town of Calais. They are:

- Protecting the ground water from any contamination, especially chemical, and assuring clean, potable water for all residents of Calais.
- Handling future growth in East Calais, other village districts, and the rural residential district
- Conservation of water

Protecting the ground water is of the utmost importance so that all potable water, whether in individual wells, small systems, or public systems, is safe. This means protection from all chemical pollutants, hazardous waste, sewage, and agricultural runoff. To protect the sources of water, we first must KNOW where the sources, also known as recharge areas, are located. We do have a mapped source protection area for the East Calais Fire District #1 water system. We do not have any mapped source protection area for other ground water sources that supply many of the wells for private households. That lack of knowledge is a detriment that needs resolution.

How can Calais and its villages meet the water demands for any future growth? The ECFD#1 water system cannot support any new connections without increasing the reservoir capacity. This means limiting new growth within existing village limits. The limitation is in the ability of the system to keep

water pressure up to state required levels for a public water system. New water sources have to be found and another reservoir made if new housing is to be developed within East Calais.

We must evaluate how to meet the water supply demand as a result of new development in other village districts or in the rural residential district.

Just because there is an abundant supply of water in the Calais area does not mean we should waste the water and use it needlessly. There are methods of collecting other sources of water to use for watering gardens, irrigating fields, washing cars, etc. Education of these methods is needed so that they become part of the residents' everyday life.

**Goal: To protect ground water sources [recharge areas] so that drinking water is safe for all residents**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Obtain grants to have ground water source maps developed for use by Town Officials	Conservation Commission	2015
Use source protection area maps to develop an overlay for future zoning/land use regulations	Conservation, Planning Commissions	2016
Develop, if needed, zoning guidelines for: the protection of water sources using buffer zones, removal of hazardous tanks, building containment buffers around hazardous tanks so that ground water is protected.	Select Board, Planning commission, DRB, Conservation Commission	Annual review
Use GIS maps by parcel to identify all buffer zones and setback areas so they can be easily seen and adhered to in all permits for new buildings, subdivisions. Buffer zones and setbacks will be reviewed based on new State requirements.	Planning Commission, DRB, Zoning Administrator	2015, Periodic review

**Goal: Assuring quality water in areas where new development will occur.**

Objective: To use source protection area maps to plan from where water will be supplied in new developments for cost effectiveness and efficacy.

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Adhere to all buffer zones as laid out in GMIS maps when reviewing multi-housing development	DRB, Zoning Administrator	On going
If major subdivision plans or PUD plans request a public water system or a shared water system, insure that all state regulations are complied with to assure quality water	Select Board, Planning Commission, DRB	As needed
Work with Federal and State resources to fund any public water system to mitigate property owners' costs.	Select Board Developer	As needed
Expand the village limits of East Calais to allow for development, and evaluate the costs of enlarging the reservoir or creating a new reservoir: or simply allow new wells that meet State ANR and Environmental Conservation regulations	Planning Commission Select Board DRB, Developer, ZA	As needed

**Goal: Encourage conservation of water methods such as alternate water storage**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Provide information sessions and workshops for instruction on collection of rain water and its uses and encourage other methods of water conservation	Select Board and various State Offices, Conservation	Begin in 2015
Allow rain collection units without requiring permits	Planning commission	2015
Evaluate the possibility of the Town to make bulk purchase of rain collectors for each village, so collected water may be available for area residents as needed.	Select Board, Conservation	2016

**Goal: There will be a permanent moratorium for extraction of water for commercial resale**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Establish zoning regulations to assure there is no extraction of water for commercial resale.	Planning Commission DRB	2015
Develop an ordinance that there will be no extraction of water for commercial resale.	SB	2015

**Goal: Groundwater resources must be conserved while allowing for local business needs**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Establish zoning regulations to assure there is appropriate for limited extraction of water for local commercial purposes	Planning Commission DRB	2015

**SERVICES**

**SEWAGE AND STORM WATER OVERFLOW**

Proper treatment of septic waste, agricultural waste, and storm water overflow is essential for a safe, healthy environment. Storm water overflow is also covered in greater detail in the sections on Flood Resilience and Natural Resources. Currently any new system being built must comply with the State and a permit for the same must be approved by the Department of Environmental Conservation.

**Current Conditions**

Because of the rural nature of the Town of Calais, all septic systems are on-site. No community wide septic system is desired at this time, with 69% of the residents being satisfied with each household having their own septic system.

**Issues**

In coordination with state regulations and funding, we need to continue to reduce storm water overflow and run-offs into our ponds, lakes, and streams. This goal is addressed in the Flood Resilience and Natural Resource sections. In regards to all septic systems, we need to continue to insure that our zoning regulations support state oversight and regulations.

**Goal: To make sure that all new buildings and replacement septic systems put in by Calais residents will comply with state regulations**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Maintain, develop, and change zoning regulations when needed to be sure all permits for new buildings and subdivisions are contingent on meeting state regulations and have had permits for them issued by the state	Planning Commission, DRB, ZA	Annual review
Evaluate if a permit application should be required for replacement of septic systems.	Planning Commission	2015
Review Septic regulations in conjunction with Zoning regulations	Planning Commission	Every 2 years.
Work with Conservation Committee to get source water maps to create buffer zones for source water and develop storm water run-off plans.	Conservation Commission	2015 -2020

**Goal: To provide education about a Green Infrastructure Plan<sup>3</sup> for surface water and storm water management**

The Vermont Watershed Management Division of the Agency for Natural Resources defines green infrastructure [GI] as “a wide range of multi-functional, natural and semi-natural landscape elements located within, around, and between developed areas of all spatial scales.”

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Create information and educational sessions for the residents of the Town in conjunction with State ANR	Conservation Commission, Select Board	2015
Provide incentives for residential and commercial property owners to install green infrastructure, spurring private owners to take action	Select Board, Conservation Commission	2018
Working with outside organizations provide demonstration projects and workshops with “how-to” materials and guides	Conservation Commission, Select Board	2017
Develop a full Green Infrastructure Plan	Select Board, Conservation, Road Commission	Begin 2016

For further reference see also this web site.

[http://www.watershedmanagement.vt.gov/stormwater/htm/sw\\_gi\\_planningandpolicy.htm](http://www.watershedmanagement.vt.gov/stormwater/htm/sw_gi_planningandpolicy.htm)

**SOLID WASTE MANAGEMENT**

As a state, Vermont has been unable to divert more than 36% of waste from the landfills. And the State only has two landfills, one of which may close soon. The question of how to handle waste is of concern. Does the state create more landfills, using up valuable land and potentially creating toxicity to the surrounding land and water? Or do we, as a state, try to divert more trash from the landfills through greater efforts and recycling and composting. Act 148 passed in 2012 is the response to this issue. This act makes recycling mandatory by July 1, 2014, bans yard and leaf waste from landfills by July 1, 2015, and all food scraps [compost] will be banned from landfills by 2020.

<sup>3</sup> [http://www.vtwaterquality.org/stormwater/htm/sw\\_green\\_infrastructure.htm](http://www.vtwaterquality.org/stormwater/htm/sw_green_infrastructure.htm)

**Current conditions**

Calais is a member of the Central Vermont Solid Waste Management District [CVSWMD]. CVSWMD mission is to provide services, education and leadership for residents and businesses to reduce and manage solid waste to protect public health and the environment.

CVSWMD was one of the first organizations to adopt Zero Waste Implementation Plan. Zero waste complements the Vermont tradition of thrift and conservation. We can manage the life cycle of goods by promoting reuse or encouraging recycling.

While it appears from our survey that almost 99% of the respondents recycle some amount of trash, what is still unknown is how much still goes to the land fill. In our survey of how trash was managed

- 71 % of respondents take trash to a management facility
- 29% of respondents have a trash management company pick up the trash.

Forty-six per cent [46%] took trash to the local recycle center on Moscow Woods Road available each Saturday. In addition a high percentage of Calais residents compost their own food scraps for use in their garden or chickens.

**Issues**

The primary issue is to educate the Calais Town residents in sorting properly those items for recycling, and for those who do not currently compost, learning how to compost and then what to do with compost if they do not use it themselves.

Second issue is to minimize the cost of managing solid waste. Not everyone can afford trash pick-up.

**Goal: To provide information seminars regarding recycling and composting**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Work with CVSWMD to provide a small 1 hour tutorial for proper sorting of recyclables – may be in conjunction with a potluck to get larger attendance; provide on-going information on FPF	Select Board, Planning Commission CVSWMD	One session each year
Solicit citizens who compost to provide education seminars on the various methods of composting. Work with CVSWMD	SB, PC	One session each year.

**Goal: To promote cost effective, efficient methods to manage recycled trash and compost.**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Conduct a study to evaluate if the town can have areas where recycling bins are available for central collection. See if there is a grant to help in this.	Select Board, Planning Commission	2015 –as needed
Change or adapt zoning to allow for areas of recycling.	Planning Commission	On going
Study possibility of having centralized composting areas for people who do not compost for themselves. This would provide a central compost to supply soil for those needing it for gardens.	Planning Commission, Agriculture Task Force	2016
Apply for a grant for centralized composting. Check with CVSWMD for a grant to do this.	Select Board, Planning Commission, Agriculture Task Force, CVSWMD	2017

**ROAD MAINTENANCE SERVICE**

The maintenance of the 83 miles of gravel roads is vitally important for the safety and livelihood of Calais citizens. Road maintenance accounts for a little over 59% of the towns budgeted expenses. The town has a full-time Road Commissioner, appointed by and reporting to the Selectboard, and a full-time Road Crew hired by the Road Commissioner. We also have a Highway Operations Manager (who is currently a Selectboard member).

The document "Calais Town Road and Bridge Standards", which govern the design, construction, reconstruction, maintenance and repair of all town roads and bridges was adopted by the Selectboard in February 2014. It appears as an addendum at the end of the Town Plan. The standards can be modified as appropriate for a particular project, in communication with VTrans, if any federal or state funding is involved. Underlying the Standards are Guiding Principles which mandate that road and bridge work enhance the rural character of Calais, mitigate/enhance flood hazard and protect water quality. Safety of road users is paramount, and non-motorized uses of our roads are taken into account and encouraged. The scope of road and bridge work shall be limited to the particular problem at hand. The importance of roadside trees both for their beauty and for their role in attenuating stormwater runoff is emphasized. Large, healthy trees shall not be removed without consultation with the Tree Warden and affected landowners must be notified of tree removal. The use of roadside ditching shall be handled conservatively. Erosion control and prevention will be practiced. Paving and grading practices are prescribed for gravel roads, and standards for many other road and bridge-related matters are articulated.

**Goal: To assure that Road Maintenance complies with "Calais Town Road and Bridge Standards"**

Action Steps	Responsible Party	Time line
Annual review of Standards	Road Commission Calais Roads Advisory Committee	Quarterly and every year.
Update Calais Town Road and Bridge Standards in keeping with State Standards and stay in contact with AOT of VT	Calais Roads Advisory Committee, Road Commission, SB	Review annually

**CALAIS CEMETERIES SERVICES**

There are six Town cemeteries (Ainsworth, Fairview, Janes, Old West Church, Robinson, and Shortt). Some interest exists in obtaining a new cemetery property. The Cemetery Commissioners manage the cemeteries, and are constantly seeking land donations to add additional cemetery space for the Town. There is a Calais Cemeteries trust fund, overseen by the Trustee of Public Funds, whose mission is to grow the fund's earnings for the future upkeep of the cemeteries. These funds are distinct and largely off-limits for routine cemetery maintenance; the latter funds are shown in the Town budget.

**Issues**

Key issues relate to land capacity for more cemetery space, financing to acquire more land, financing to operate all current and future cemeteries economically, and keeping plots affordable while maintaining beautiful sites.

**Goal: Establish a Cemeteries capital budget to plan for future expenses, including acquiring additional cemetery capacity if donated land does not materialize.**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Seek donations of land in Calais for additional cemetery capacity	Cemetery Commission	Ongoing
The Town must establish a capital budget to plan for future expenses of our cemeteries: <ul style="list-style-type: none"> <li>• keep cemetery plots affordable</li> <li>• strike a balance between affordability and cemetery costs and plot maintenance</li> </ul>	Selectboard, Calais voters at Town Meeting 2015	Early spring 2015

**SAFETY AND PROTECTION SERVICES**

**POLICE**

Calais has a three-tiered approach to police protection:

1. Two town constables
2. The Washington County Sheriff Department with whom the Town contracts to provide a part-time deputy for traffic enforcement and patrol of designated areas. The Sheriff Department has an agreement with the State Police in Middlesex that the Sheriff Department will be the first responder to serious complaints received by the State Police, **if** the Sheriff’s Department is patrolling in the area or is nearby and the State Police request to them [Sheriff Department] to respond. The Department also provides a snowmobile patrol.
3. State Police are available for full-time law enforcement.

**FIRE AND EMERGENCY SERVICES**

The Town of Calais contracts with the East Montpelier Fire Department and the Woodbury Fire Department for fire related emergencies. In addition the East Montpelier Fire Department is contracted for Emergency Medical Services [EMS] and related ambulance services as needed.

**OTHER SERVICES**

The Town has an Animal Control officer to assist residents for capturing and impounding dangerous or stray animals, and to investigate cases of reported animal cruelty and to enforce dog license laws.

The Town’s Game Warden is to enforce the Vermont hunting, fishing, and trapping laws as well a help solve problems with nuisance wildlife.

**RESOURCES**

**COMMUNICATION**

**Information Services**

The Town Website, <http://www.calaisvermont.gov> , is managed by a volunteer designee of the Selectboard. Currently this site lists the members of the committees serving the Town along with meeting schedules, agendas, and minutes. Important documents such as the Town Plan, Land Use Regulations [Zoning], DRB decisions can be found on the site. Instructions for filing permits and contacting the Zoning Administrator are also there.

**ISSUES**

With the recent changes to the State’s “open meeting law” the maintenance of a town’s web site becomes critical. Agendas must be posted publicly 24 hours in advance of the meetings; unofficial minutes of all official committees must be posted on the Town Web site within 5 days after the meeting. Once the minutes have been approved, all official minutes must be posted on the Town site. Calais has chosen to keep its site operational and comply with these requirements, though it may take more time to maintain the site.

Currently there is no way to have “on line” permits. The Planning Commission is moving from paper to comprehensive on-line permits through the town site. The intent is to make it easier for property owners to understand the permit process, seek guidance early on as needed, and to obtain required permits. And there is no way to get a petition or application on line if one wants to run for office or serve in any capacity.

Additionally there are great opportunities to post local businesses, ride and share schedules, and other communication that could be publicized. So some research is needed to see if the current site has limitations and if another site would be warranted for Calais public businesses.

**Goal: Improve and Enhance Calais web site to make it of greater service**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Establish a task force of 3 people to research the .gov site and find it’s capabilities and capacity– can this site be enlarged	Current site web master, SB	Jan 2015
Create ability on Town’s Web site to advertise local businesses without endorsing them	Web site master, all citizens	2015
Evaluate if town should hire a professional web site master to keep site active to meet Open Meeting Laws and provide expanded service. Check for costs of such a professional.	Web site master, SB	2015
Develop on line zoning permits with linkage to residential district maps with appropriate overlays	Planning Commission, Web site Master	2015

**INTERNET**

**Current Conditions**

Calais is served primarily by Comcast, Fairpoint, Sovernet and a few other companies. Results from our survey informed us that the types of connectivity used by Calais residents are:

DSL	62%
Cable	17%
Wireless	12%
Satellite Dish	5%
Modem	3%

A little over one percent (1.6%) of the survey respondents did not have internet connection. For the most part, residents are satisfied with their broadband connectivity and do not look to the Town to assist in getting faster services.

Cloud Alliance provides internet capability using a fixed-wireless broadband. It is a local Vermont service. <http://www.cloudalliance.com/>. This adds a competition to the existing companies and residents can research this service for themselves.

The Town leaders can support and promote any legislative initiative to provide speedier services.

**Intra-Town Communication**

Internet connectivity makes Front Porch Forum possible. Front Porch Forum is a free forum designed for communication between the residents of a community. Calais joined in October of 2010 and currently has 996 Calais residents as “members” of FPF. This represents 680 households in Calais. So far we have generated over 8,700 postings! This covers all the villages in our Town: Adamant, Maple Corner, East Calais, and North Calais. In addition, there are links to postings from our surrounding towns of Worcester, Woodbury, East Montpelier, and Plainfield. This has become an excellent method of communication, sharing goods for sale, events, education classes, meeting agendas, and minutes of meetings.

**CELLULAR COVERAGE**

**Current Conditions**

The ability to have cell coverage is critical in times of emergencies. Calais has limited cell coverage; when electricity goes down, or if telephone systems go down there is basically no means of communication. In our recent survey, 80% of those having cell phones were dissatisfied with the quality of cell coverage. Greater than 50% of the respondents with cell phones would like improved coverage. Around 60% of the respondents would support placement of cell towers near their property, provided it did not impinge on any natural beauty or ridgelines.

In April of 2014, we learned that the Vermont Telecommunications Authority [VTA] has selected Coverage Co. to expand the cellular network. They utilize small-cell technology on existing utility poles to improve coverage on previously underserved roadways as well as adjoining areas. Areas in Calais that will be improved with this endeavor are along the Route 14 corridor and Route 2 corridor in Marshfield. This work is expected to be completed sometime in 2015.

CoverageCo is not a retail cellular carrier, but leases wireless spectrum owned by Sprint and gets standard roaming agreements with other cellular companies to provide broader coverage. Current roaming agreements are held with T-Mobile and Verizon Wireless.

**Goal: Improve cell coverage**

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Find cell hot spot areas along our roads, and mark the spots and allow a small pull off for citizens to park and use their cell phone, and share information with public	Planning commission, All residents, Road Commission	2015 on
Maintain contact with legislative representatives so that Calais remains in the forefront to get coverage when the state issues new contracts	Select Board, All residents	
Any new cell towers must follow existing zoning regulations and towers shall first be collocated with other existing towers if possible.	DRB	

**Calais Town Plan, 2014 - Transportation section - 7/29/14**

**Introduction**

Our roads facilitate our being a community and enable townspeople to commute to jobs in the region. Because Calais is a bedroom community, the condition and quality of town roads affect most of us on a daily basis. Factors which affect transportation are the means used, as well as the affordability of fuel and the condition of traveling surfaces. Citizens of a town like Calais, which is interconnected and crisscrossed by more than 83 miles of gravel roads (see the Table 1 below), count on those roads to be well-maintained as efficiently and economically as possible.

**Table 1: Roads in Calais**

<u>Classification</u>	<u>Miles</u>
State Highway	6.9
Class II & III	72.4
Class IV	11.0

**Current Conditions**

Except for the seven miles of State Route 14, the Town has the responsibility to maintain all public highways in town. These Class II and Class III roads are maintained for year-round passenger car travel. Ninety-six percent of our workers commute to employment either within or outside of Calais (2010 Census). Despite this and the fact that many begin their commutes at about the same time each day, around 87% of all commuters drive alone, only 8% report that they participate in a carpool, and the remaining 5% use other means such as a bicycle, public transportation or walking. These statistics suggest that there are many opportunities for promoting ride-sharing, reducing carbon emissions and decreasing road traffic.

**Table 2: Raw 2010 Census Data, Calais, Vermont 2000-2010, Selected Economic Characteristics 2007-2011** (American Community Survey 5-Year Estimates)

**COMMUTING TO WORK**

<u>Subject</u>	<u>Number</u>	<u>Percent</u>
<u>Workers 16 years and over</u>	906	100.0
Car, truck, or van -- drove alone	692	76.3
Car, truck, or van -- carpooled	65	7.1
Public transportation (including taxicab)	13	1.4
Walked	9	.009
Other means	14	1.5
Mean travel time to work (minutes)	26.5	(X)
<i>Worked at home (did not commute)</i>	<i>97</i>	<i>100%</i>

**Workplace Locations of Calais Residents - 2000 Census**

<u>Workplace Locations</u>	<u>Count</u>	<u>% of Total</u>
Montpelier city Washington Co. VT	223	28%
Calais town Washington Co. VT	168	21%
Barre city Washington Co. VT	97	12%

Berlin town Washington Co. VT	78	10%
Waterbury town Washington Co. VT	31	4%
East Montpelier town Washington Co. VT	30	4%
Barre town Washington Co. VT	29	4%
Burlington city Chittenden Co. VT	24	3%
Northfield town Washington Co. VT	10	1%

(Source: VT Department of Employment and Training)

Carpooling

With increases in transportation costs outpacing income growth, the above data impel us to question how and under what circumstances we travel to work. If fuel costs continue to increase, people may adjust their work and transportation decisions, choose to move closer to work, decide to work from home or figure out how to afford to continue working at the same locations . There is a clear need to obtain land for commuter parking lots in Calais to encourage carpooling; it would also be useful for citizens to be able to connect with the regional rural commuter buses operated on Route 2 by RCTA and GMTA.

Calais Roads

According to current Calais Road policy, the Town will continue to support private maintenance of Class IV roads, and will, without obligation or undue expense, assist in that private maintenance at the Selectboard's discretion. Any permanent land use development must have access to the existing town highway network, and areas that are inaccessible because of excessive slope or other topographic features are excluded from permanent development. A developer receiving permission from the town to extend the road system in order to make inaccessible land accessible shall, at the developer's expense, build a road that is at least up to Class III standards. However, this policy shall not obligate the town to accept a developer's road easement. For the last sixteen years, it has been the policy of Calais not to accept new roads or to upgrade Class IV roads unless there is significant benefit to the town from such action. The State, and the Calais Selectboard, are responsible for reviewing curb cut permits for Calais roads in their respective jurisdictions. Curb cut permits are governed by state law (Title 19 Vermont Statutes Annotated, Section 1111), and Calais' curb cut ordinance. Members of the Selectboard take into consideration the location of a proposed new driveway in relation to the property and the road, as well as the safety of the passengers leaving the new drive and of potential travelers of the road when making their decision.

State roads and bridges within Calais need more maintenance than they are getting. It appears at this time that Route 14 in Calais is in somewhat better condition than in earlier years, perhaps due to federal Recovery/Stimulus funds available to communities since 2009.

Road Standards

The Calais Planning Commission has acquired several different forms of maps showing natural resources, wildlife habitat linkages, soil types, elevations and road building challenges which should aid in the decision making process of future infrastructure needs. These maps and overlays now exist in the form of an online GIS map of Calais, which will be available in the near

future for use by use by property owners, the Planning Commission and the Zoning Administrator. Questions of whether to widen or pave a road, or leave it tree-lined and unimproved will now defer to standards articulated in the document, "Town Road and Bridge Standards, Town of Calais, VT", prepared after three years of careful research by the Calais Roads Advisory Committee (CRAC), adopted by the Selectboard in January-February 2014 and appended to the Calais Town Plan \*\*. "Town Road and Bridge Standards..." conforms to comparable VT AOT and ANR standards and is subject to revision. It sets forth Guiding Principles for the conservative management of roadways, ditches, culverts, bridges, stormwater, erosion control and more. This new document will provide a factual basis for the care and maintenance of Calais roadways for years to come. Because the document went through a process of public review prior to formal adoption, it should be seen as expressing the informed view of the people of Calais towards their roads. The Scenic Roads committee exists as a subcommittee of CRAC. An Acting Calais Highway Operations Manager who works closely with the Calais Road Commissioner was added in 2014; roads that impose maintenance challenges and extended growth challenges have been identified.

## **Issues**

### Cost of Travel

Today's high gasoline and diesel prices pose challenges for traveling. We believe that we either need to find ways to reduce our individual expense of travel or we, as a community, need to find ways to help individuals to reduce travel by being able to purchase what they need locally and to find ways for members of the community to work locally. When travel outside of the community is necessary, we ought to find ways to use shared resources and to take advantage of car pool opportunities or public transportation. Increased fuel costs also affect local businesses, such as our local stores, as the cost of deliveries increases. This additional cost must be either absorbed in the price of products or by reducing the number of deliveries, and either scenario affects the Calais resident who is trying to increase her/his local spending. The State also feels the financial impact of the increase in cost of petroleum products. Because of highway \$\$ funding shortages, our state funded roads, such as Route 14, have been deteriorating. This poor condition puts on additional strain on motorists, whose vehicle repair and maintenance costs increase. Frequently encountered potholes decrease the safety of traveling these roads; they fill with water, snow and ice and are then more difficult to clear up.

### Need for Local Source of Road Material

The town does not have a sufficient supply of local road material to use in maintaining the roads without trucking in loads of sand, gravel, and slate from other towns. Travel over our roads with these additional heavy loads of material increases the maintenance needs of the roads and ultimately impacts our property taxes. Calais needs to make progress developing local sources of road materials, especially a replacement for the McCullough gravel pit.

### Implications for Calais

Will financial pressures - a tight state economy exacerbated by town expenses (roads, property taxes) - induce people to move closer to a nearby city, or impact the growth of Calais by

discouraging people from moving here? And might they change the reasons why people choose to live in Calais or change the type of people who desire to move here? We do not pretend to know the answers to these questions; however, we do believe that the impact of these challenges will be noticeable and that our goals (below) outline a reasonable attempt to do what we can to help minimize the impact.

In accordance with Goal 1 (d) [below], the "Town Road and Bridge Standards" document strongly endorses the replacement of deep roadside ditches with grader-ditches; reduction or removal of some existing roadside ditches would allow road widths to extend naturally, to the benefit of walkers, cyclists and non-motorized traffic. Greater traffic-calming on certain Class 3 roads would be achieved by maintaining existing tree canopies, making them safer for non-motorized uses as advocated in this document.

The Planning Commission believes that issues raised in earlier studies of town roads - largely concerning Route 14 intersections with Class 3 roads [Clauson Study, 1993, 2004] - are still valid. In recent years, some of the recommendations from the two studies have been implemented. Signs have been added and moved, speed limits have been reduced and approaches to intersections have been changed slightly. However, during the time period of this plan, the town should do what it can to address the two most serious problem intersections. There is widespread agreement that the Route 14 intersections with Lightning Ridge Road, and with Marshfield Road remain the most serious traffic problems in town.

#### EAST CALAIS VILLAGE STUDY AREA

- "The Marshfield Road intersection is characterized by the ambiguous layout around the church which impinges on safety and capacity, and sightlines and level stopping lines at Route 14 are poor." (Calais Town Plan - Transportation Element, 1993) [*May need updated CVRPC data if available.*]
- "The lack of pedestrian walkways in the East Calais Village Center produces undesirable conflicts between vehicular traffic and pedestrian traffic. Sidewalks and traffic calming should be considered."
- The Route 14 intersections with Marshfield Road and Moscow Woods Road should be reconstructed. Consideration should be given to establishing a park-ride lot on Route 14 in Calais. (-Central Vermont Regional Transportation Plan, CVRPC, 2003)

#### VT 14-LIGHTENING RIDGE ROAD-MAX GRAY ROAD INTERSECTION

- "At the Lightning Ridge Road intersection, there are poor sightlines and extra traffic due to the presence of the elementary school." (- Calais Town Plan-Transportation Element, 1993)
- "It is recommended that the intersection of Route 14, Lightning Ridge, and Max Gray Road be regraded and/or relocated to improve sight distance and motorist safety." - (Central Vermont Regional Transportation Plan, CVRPC, 2003)

What other transportation-related activities should the town engage in or encourage? It would be appropriate to explore how we might encourage carpooling or ensure that those without reliable transportation might be assisted. Currently, non-motorized uses of our roads can be hazardous because of their design and implementation, yet walking, biking, horseback riding, etc. are healthy outdoor activities naturally enjoyed by many of our citizens. How does the Town

create paths or utilize roadside margins which would make travel on foot or by bicycle safer on our roads?

**Goals**

Goal 1 - Promote a safe, year-round system of town roads.

Plan of Action -

a. The Town should consider the issues raised in the Clauson Study and the 2004 East Calais Village & VT Route 14 Transportation Study prior to granting development or curb-cut permits that are near the dangerous intersections.

	Who	When
	SB, ZA	As needed

b. The Town should advocate for improvements in the approach and sight distances whenever road construction is undertaken near the determined dangerous intersections. Since the state has long been aware of the hazard these intersections present (supported by traffic studies), the town should therefore request that flashing yellow caution lights be installed in both locations.

	Who	When
	SB, Hwy. Opr. Mgr.	Within the next 18 months

c. The Town should add crosswalks across VT 14 in front of the *General Store* and across *Moscow Woods Road* in East Calais village.

	Who	When
	SB, Hwy. Opr. Mgr.	Within the next 18 months

d. The Town should advocate for pedestrian and bicycle margins adjacent to the roads for some Class III roads and County Road. When roads are repaved and where feasible, consideration should be given to firming road margins (where ditches once existed) to allow for safer non-motorized traffic.

	Who	When
	SB, Hwy. Opr. Mgr., Road Commsnr.	As appropriate

f. The Town should continue to encourage tree canopies as a traffic-calming device where appropriate. Tree canopies slow traffic because of the perception of a narrower road.

	Who	When
	CRAC, SB	Spring 2015 and onward

Goal 2 - Develop support systems for alternate forms of commuting.

Plan of Action -

a. The Town should identify and promote appropriate alternate transportation options, including the development of park and ride lots, van-pooling and arranging connections to existing *GMTA* and *RCTA* Route 2 routes. The Town shall support the efforts of local, regional, and state organizations in providing/facilitating alternative transportation and will welcome opportunities to obtain land to be set aside for park-and-ride areas when such becomes available.

	Who	When
	SB in conjunction w/ CVRPC Calais townspeople	Within 3 years

b. The Town should develop recommendations for alternative forms of transportation to be included in the *Regional Transportation Plan*.

	Who	When
	PC, ZA (rep to CVRPC)	Within 2 years

c. The Town should identify any state programs that support carpooling and notify the Calais community of these programs.

	Who	When
	SB, Calais Rep. To Legislature	Within 2 years

Goal 3 - The Town should look for ways to obtain or produce road material locally when appropriate, and other ways to reduce the cost of transporting material long distances.

	Who	When
	SB, Hwy. Opr. Mgr., Road Cmsnr.	Spring-Summer 2015

Goal 4 - Finalize capital improvement planning for transportation.

Plan of Action -

a. The Town should continue to prepare annually the transportation element of the capital improvement and equipment plan, consistent with the *Town Plan* and the wishes of the voters (*Town Meeting 2014*), utilizing designated budget funds to implement the plan.

	Who	When
	Hwy. Opr. Mgr., SB	2014 and ongoing

Goal 5 - Encourage preservation of scenic roads and their historic and aesthetic qualities.

Plan of Action -

a. The Town should continue its process of inventorying of the town's scenic roads for inclusion

in the Vermont Scenic Roads Program or protection through local ordinance.

	Who	When
	Scenic Roads Comm., SB	2014 - ongoing

b. The Town should develop policies and programs which preserve and enhance the scenic beauty of town roads, such as programs to encourage the preservation of tree canopies and the planting of trees along appropriate stretches of town roads, private roads and pedestrian walkways, consistent with existing zoning, development and historic preservation guidelines. *[this goal is already articulated in the "Town Road and Bridge Standards" document.]*

	Who	When
	CRAC, SB, Road Cmsnr.	2014 - ongoing

c. The Town should continue to protect the public's interest in Town rights-of-way and trails, and will support appropriate private efforts to maintain this valuable public resource.

Goal 6 - Transportation Design

Plan of Action -

	Who	When
	SB, CC, Calais townspeople	2014 - ongoing

a. The Town should economically maintain its roads for general use of the public and continue developing a safe and efficient transportation infrastructure plan.

	Who	When
	SB, Hwy Opr. Mgr., Road Cmsnr.	ongoing

b. The Selectboard should have a policy for building and accepting new roads of proven, necessity.

c. Road design should support the character of the neighborhood or area.

	Who	When
	SB, Hwy. Opr. Mgr., Road Cmsnr.	2015 and ongoing

d. The Selectboard will identify Class 3 roads with trouble spots that limit traffic capacity and growth.

	Who	When
	SB, Hwy. Opr. Mgr., Road Cmsnr.	ongoing



# Agriculture

“The shorter the chain between raw food and fork, the fresher it is and the more transparent the system is.” – [Joel Salatin, \*Everything I Want to Do is Illegal: War Stories from the Local Food Front\*](#)

True food security is the historical normalcy of packing it in during the abundant times, building that in-house larder, and resting easy knowing that our little ones are not dependent on next week's farmers' market or the electronic cashiers at the supermarket.”

– [Joel Salatin, \*Folks, This Ain't Normal: A Farmer's Advice for Happier Hens, Healthier People, and a Better World\*](#)

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## **History**

Calais has a deep-seated agricultural history dating back to the towns founding in 1781. For generations, the Calais landscape has included livestock and dairy, sheep, produce, and grain farms. But over the last century such farming has declined.

## **Current Conditions**

The numbers of farms have dwindled with few people earning their income through farming and food production. As mentioned in the “Who We Are” in the Vision section of this plan, only 1% of Calais residents now earn their living off of the land. As a bedroom community almost 90% of town residents commute to jobs outside of Calais. However, Calais residents realize the value for locally grown foods that is nutritious and affordable. A grassroots agriculture task force, Calais Organization on Local Agricultural Support System, has been formed with the hope that through shared information we will increase an interest in growing and processing our own food to move towards food independence.

Surveys<sup>1</sup> show that 80% of the respondents have gardens and enjoy the seasonal bounty of their food. Using Front Porch Forum we stay in touch with people who are growing garlic, shitake mushrooms, maple syrup, raspberries and much more and sell or barter the food, or allow pick your own capability. There is a vibrant interest in growing food and learning how to expand knowledge on processing and storing the food grown. And there are small businesses not only here in Calais but in our neighboring towns that sell their produce through stands, the farmers market, or CSA. Finally, 90% of the residents who took the survey want to buy their food locally – meaning Calais and our surrounding adjacent towns - as long as it is at an affordable price.

Survey results also showed that 90% of the respondents felt that preserving the agricultural and forest landscape is important to them.

## **Vision**

Calais, in 20 years and in many ways, will more closely resemble the Calais of generations past. While modern housing and transportation will be abundant in the village districts, the rural residential areas will be laden with lands rich with produce, grains, and livestock. Owners of agricultural acreage who do not aspire to live the farming lifestyle will have financial incentives to lease land to food producers and biomass producers. A method of financial sharing in several food related businesses such as meat processing and butchering, process of hemp and biomass

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<sup>1</sup> Surveys conducted by Ag Task Force and Planning Commission: May 2013 and May 2014

fuels, as an example, between the owner and the municipality will result in revenue to the municipality such that there could be a decrease in property taxes.

With such strong interests in agriculture it is believed that Calais can in fact become self-reliant in not only food but potentially with the growing and processing of bio-mass fuels, locally grown and harvested wood using good forest management practices. Such capability will give us the resilience to face potential natural and economic disasters. Promoting the ability to grow, process, distribute, and store all of these agricultural related products provides an economic development opportunity, bringing jobs for local employment that bolsters our own town economy. A bi-product of this is a strengthening of the bonds of our community uniting the various villages in a common goal of self-reliance and sustainable living to insure the future for the next generations.

**Issues**

The primary issues for agriculture relate to land use, economics and food independence and security, while simultaneously influencing public thinking and behavior as to from where food comes and is purchased. Each of these issues will be discussed under the goals set forth.

**Goals related to Land**

**Conserve and reclaim agricultural lands and soils for improved and expanded production.**

**Objectives**

1. To achieve such a vision of agricultural sustainability, we must use its land wisely, and we must preserve existing agricultural land. This means using the concepts of smart growth, allowing development in corners and pockets where land is not as favorable for food production and making available the land that is conducive for producing food available to food growers.
2. To reclaim potential agricultural land that has become overgrown and fallow so that those wanting to start a food product business have available land. Owners of land need to be connected to those who want to work the land for leasing potential. This land rental can be an income used to offset property taxes.
3. Mapping of agricultural lands and then using those maps to determine areas of development potential and determining areas for protection. Mapping the types of soil in the Calais area in order to ascertain which kind of food will best grow in which kinds of soil. Maps will be based on the most current up-to-date maps that may be updated annually.
4. Improving existing soil. Some land may not be prime agricultural land; but with the use of good compost could become better, increasing food growth potential.

Action Steps	Responsible Party	Time line
Adhere to Land Use Regulations regarding expanding village districts, using smart growth methods. Refine regulations as needed	PC, ZA, DRB	Each year
Develop a land exchange program that connects usable land owners to those wanting to use land within the regions. Support and encourage residents to use UVM Land Link <a href="http://www.uvm.edu/newfarmer/?Page=land/index.html&amp;SM=land/sub-">http://www.uvm.edu/newfarmer/?Page=land/index.html&amp;SM=land/sub-</a>	CVRPC, PC, UVM	2015 with annual updates

<a href="#">menu.html</a>		
Maps from GIS and CVRPC that are updated annually will be used to identify Ag areas. Create an ag overlay to help identify appropriate places for housing development to preserve Agriculture land.	SB to support maps PC to use maps in zoning regs	2015 and annual updates
Obtain a grant to do soil mapping to ascertain what types of products will grow best in what types of soil here in Calais	AG committee	
Create a municipal composting center for use on surrounding ag lands that need soil enrichment and develop land use regs that apply to composting center	SB, CVSWMD, PC	2016

**Goals for Ag Economics and Independence**

- 1. Develop a Local Food System that encourages new businesses such as meat butchering, biodiesel fuel, grains, and the ability to process these products.**
- 2. Develop the distribution system to deliver foods locally helping current stores expand their businesses.**
- 3. Develop an open market exchange that allows food, grain, meat, milk producers to sell or barter or donate their products from their farms or places of business.**

**Objectives**

1. To create a local distribution system of locally grown food. Currently we rely on food that is delivered via trucks every few days to the stores. As fuel prices rise, the cost of this food will increase. Having a local food system would decrease the cost of food by eliminating the high cost of transportation.
2. To mitigate the effects of disaster. Having a local food system means we will not have to rely on typical food delivery that supplies food from outside sources, because we will have our food on hand. We can thus concentrate using our resources to the task of cleaning up the disaster.
3. To study ways to incentivize entrepreneurs to start small food related businesses in Calais.
4. To create incentives to encourage our existing stores to sell locally grown foods but they must pay a fair price to the food producers.

<b>Action Steps</b>	<b>Responsible Party</b>	<b>Time line</b>
Inventory agriculture lands in Calais to find where certain crops can be grown based on soil types. Inventory the types of products currently grown and find what is needed for self sufficiency.	Ag task force State Ag CVRPC	2015 on
Evaluate feasibility or possibility of creating a non tax related incentive to bring ag business here	Ag Committee SB	2015-2016
Once incentive is created advertise it in conjunction with available lands that can be leased for use based on various products [e.g. bio-diesel, grains, feed for animals]	Ag committee SB, PC [zoning if needed]	2016-2020
Evaluate <u>feasibility</u> of tax incentives for food and non-food related agricultural businesses for those residents or businesses that do not enroll in Current Use program.	Ag Committee	
Research possibility of getting a grant to study if municipality could go into a shared business with ag producers and generate revenues to the Town from ag business	Ag Committee	

Create a distribution matrix that outlines what food is grown where, and when and where it will be marketed and sold listing hours of operation if food is sold on the farm. Also listed if bartering is accepted in exchange for goods	Ag committee Small business group for distribution?	
Create a 'seed' library compiled from the various gardeners, growers, to share with each other --- library site TBD	AG committee	
Ensure proper zoning and land use regulations to encourage production, processing, storage, and distribution businesses	PC	

**Goal for AG Food Security**

The World Health Organization defines food security as “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”.

**Assure local foods are available at affordable prices with numerous distribution points so that all Calais residents have freedom from want.**

**Objectives**

1. No Calais resident should go hungry. We must build a food distribution infrastructure that assures everyone – regardless of income – will have access to food.
2. Encourage farmers and food growers to sell their vegetables, eggs, meats, from their homes while they assure their patrons of safe food. Encourage the State of Vermont to continue to allow more “on-farm” purchases and slaughtering.
3. People purchasing food from Calais growers will know what is in the food e.g. no GMO or other chemicals

Action Steps	Responsible Party	Time line
Establish a community wide set of gleaning [gathering leftovers after a harvest] with local CSAs, gardens, and other food production businesses	? Ag, Vermontivate group?	
Work with the state via our representative to allow greater flexibility in “on –farm” sales I	SB, PC, All residents	
Encourage farms and businesses to sign a guarantee they do not use GMOs in their seeds, feeds, etc. and post such a guarantee	Ag	
Establish a drop off station in each village for surplus produce grown by local growers for access at no cost to those in need.	Ag task force.	

**Responsibilities of farmers for natural resource conservation:**

Due to the fact that many of the prime acres of agricultural lands within Calais coincide with the location of aquifers and ground water recharge sources which provide potable water to the entire town, zoning and land use regulations must provide for mitigation of water contamination. State regulations require all fuel storage vessels above 1000 gallons to have a secondary containment vessel. In Calais, any business or farm that has tanks storing more than 500 [what should the limit be? 100 or 500?] gallons AND that have these tanks within a buffer area of 100 feet of a ground water recharge source will be required to have a secondary containment vessel on all liquid fuel tanks. Currently Calais only has water source maps for the East Calais Fire District #1; as the conservation commission gets more complete water source maps for the entire town, those maps will be used to define the buffer zones to be used for placement of secondary containment vessel of fuel tanks.

Additionally, farmers working agricultural lands which coincide with primary aquifers and ground water recharge sources must take responsibility for mitigating phosphate, nitrates, and other mineral contamination associated with organic (manure) or other crop fertilization.

This addendum is a strategic plan to be used as a guide to developing a local agricultural system that supplies food and non-food products for Calais residents to achieve a self-reliant, resilient community. We have a grassroots Agricultural Committee [COOLASS] and as momentum builds and more people volunteer to work on this committee, we endeavor that this committee will work to achieve the ideas behind this plan.

## **Agriculture Addendum**

### **Requirements to Create a Local Food System**

A local food system uses a Food Justice concept as the basis or foundation for its structure. Food justice is a broad subject that subscribes to the following ideals:

- All people are to have the opportunity to purchase affordable and nutritious food
- Inequalities in food access are to be eliminated
- Food production systems will be transparent
- Local municipal government food policy will benefit all Calais residents

We aspire to have the Calais Food System follow these ideals.

Certain issues included in a Food Justice undertaking may include diets for healthier living, better utilization of agricultural resources, establishing movements to assure living wages to farmers and farm workers, and how genetically modified organisms affect the health of our citizenry and shared environment. These issues may be incorporated into the local food system as it develops.

A community-wide, local [including neighboring towns] food system program that provides food security<sup>2</sup> for all consists of:

1. A Policy for providing food security for financially distressed community members
2. Farms
3. Community composting
4. Seed propagation
5. Processing facilities
6. Storage facilities
7. Distribution networks
8. Wild food gathering
9. Bee Keeping / Bat Conservation
10. Education

#### *1. Providing food security for community members experiencing financial distress:*

The aspect of economic viability must recognize that no matter how affordable food is, there will always be members of the community who cannot afford to meet their basic nutritional

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<sup>2</sup> The World Health Organization defines food security as "when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life".

needs. There are conditions and situations that occur, beyond the control of people, which will require community support to provide food security for all community members. Such conditions may include sickness or disability, death of a providing family member, elderly lacking in necessary savings or income, etc.

How we develop a program of security needs research. Possible approaches are:

- The implementation of a town administrated 501c3 organization to allow both local tax incentives for producers and distributors who make direct food donations in support of meeting the needs of community members in financial distress.
- To start a program so that our most needy citizens could have the opportunity of a food for labor exchange where appropriate. This would involve both private and municipal elements of our food security infrastructure (producers, processors, storage, and distribution facilities), who maintain appropriate liability insurance, finding tasks that fit the abilities of the people in need so they can work in exchange for food produced by the collaborative private and municipal food system.
- Establishing set times of the season for gleaning operations and publishing those times for any who may need food assistance could be an easy thing the Town could do.

But it is recognized that food entrepreneurs and farmers, while they may want to help those in need, may themselves be experiencing financial distress. In order to have full participation in this aspect of a food justice system there may need to be some initiatives or incentives to encourage participation in this. Such incentives might include but not be limited to;

1. Tax incentives for utilization based on a percentage of one's agricultural resources that are used for the needy. Such an initiative would function similar to the state's current use program, creating a local exemption to the municipal portion of the tax bill.
2. Tax deductions for participation in any and all aspects of a food security program. Establishment of a 501c3 organization could allow for income tax deductions for donations of food or other resources necessary to provide food aid to the needy in the community. Other tax incentive programs could be defined.

## *2. Farms:*

The term "farm" is broad and includes any land where growth of plant or animal products for the purpose of consumption or production of raw materials necessary for living takes place.

A local food system will require adequate operational farms to meet the nutritional needs of the current and future population of Calais. Additionally, farming also produces non-food products which should be included as an agricultural asset within a food security program. Necessary production includes fruit and vegetable produce, wine, grains, meats, eggs, dairy (milk and cheese), fish, healthy feed for livestock, maple sugaring, edible fungi production, shearing (for clothing production), down (for clothing and bedding production), flax [clothing], hemp, and herbs for medicinal purposes.

An inventory of the current farm resources available within Calais will need to be completed and include the willingness of private farmers to participate in a local food system. The town of Calais should never impinge on the private rights of farmers to export their produce. Calais should offer incentives for farmer participation and only include willing farmers in the resource inventory.

Upon completion of an inventory of current farm resources, a matrix would be established to determine the current and needed resources based upon population census and future growth projections.

Zoning and land use regulations shall encourage the development of needed farm resources determined by the inventory matrix.

### *3. Community Composting:*

Community composting means the collection of food and biodegradable wastes solely in Calais for use by the businesses and residents of Calais only. The benefits of community composting are two-fold.

1. It effectively aids waste management efforts. Good waste management using approved and proper methods protects water tables and waterways; improves air quality; reduces and controls infectious epidemic disease, blight, and fungus; protects natural landscapes; controls predatory wild animal conflict, nuisance insects and rodents because of central collection and less garbage strewn on open lands.
2. Compost of biodegradable waste produces excellent fertilization for growth of vegetation. Farms and gardens require composted material to constantly renew top-soil nutrients, an essential component to organic sustainable farming practices.

Calais may maintain, at each village center, a drop-off location for biodegradable waste. Biodegradable waste pickup may also be possible as a local service of standard trash pickup as long as suitable biodegradable waste containers are distributed. However such trash pickup will be started only after an analysis of how such trucks affect the condition of Calais roads.

Calais can utilize either municipal resources and/or collaborative partnership with private resources, to maintain one or more composting operations. Composting operations would utilize biodegradable waste collected at points within each village center but the operation center itself would ideally not be located within the village centers, but in rural residential districts. Composting is best suited to rural districts where natural odors produced (caused by methane production) would not be perceived as compromising air quality within the more densely populated village districts. Zoning may have to be evaluated as to placement of a compost operation and its proximity to any housing development that might be in the same district.

Methane produced by composting could also be a valuable source of energy if community composting were to be used in conjunction with energy or heating systems. In this scenario, composting operations would be best suited within the village districts where delivery of heat or power to residents could be accomplished. The trade-off for a municipal power or heat generating and delivery facility within the village centers would be the potential for

compromised air quality around the facility where any non-combusted methane released would carry an unpleasant odor.

There are several methods of composting which may be implemented. Among the most popular is the use of varieties of earthworms which convert the biodegradable waste into worm castings. Worm castings are among the best top-soil fertilizer available. Composting may also produce meal worms, a particular type of beetle larvae, which are a natural high protean food for chickens, ducks, and fish. Composting also involves ventilation systems to aerate the composting material which greatly speeds up the process but requires a small amount of electricity in order to operate fans.

Compost produced should be made available to home gardens. Citizens requiring composted materials for soil nutrient maintenance may register to receive composted material so that priority distribution may be assigned. All recipients of compost would be required to sign a liability waiver so that neither the town or any private individuals involved could be held liable, should any contaminated material make it through the composting process.

#### *4. Seed Propagation:*

Local agriculture depends on the ability to obtain seeds for the next generation of crops. In order to guarantee the ability to sustain a long-term food security program, Calais needs a community seed-bank to store and distribute seeds. A seed-bank does not require a large amount of space, but does require temperature and humidity control. All food producers will eventually need and desire local dedicated seeding resources assuring non-GMO seeds. Calais should provide additional incentives to farmers willing to produce an excess of seed beyond their own needs and to donate the excess seed to the town seed-bank. Tax incentives for seed propagation and donation are meant to offset the loss of income from the produce used to harvest seed.

Many fruits and vegetables produce mature seeds with mature fruit and require only the separation, cleaning, drying, and packaging of seeds. Some vegetables require allowing vegetables to mature beyond their edible harvest cycle to produce seed pods before seeds may be separated, cleaned, dried, and packaged. This process is called "bolting". Some vegetables require fermentation of seeds before the seeds are viable for germination.

All farms and home gardeners wanting to receive seeds from the seed bank would participate in a first come first serve matrix so that seeds will be picked up each spring prior to the start of each growing season. It is desired that those receiving seeds would then educate the skills of seed saving to others. Those beginners would then and be educated in seed preservation and all in the program would donate some of their seeds to the seed bank for the coming years.

#### *5. Food processing:*

Food processing is a broad topic that encompasses many procedures vital to bringing raw produced food to the table for consumption. Many processes can have a detrimental effect on the nutrition and digestibility of foods. Calais would encourage better processes designed to promote health, nutrition, and digestibility.

Processing facilities include slaughter and butchering houses for fowl, beef, pork, fish, and any other livestock, milking, washing and packaging of produce, milling of grains, fermentation in preparation for canning, sugaring, etc.

Calais will continue to support regulatory changes implemented by the State Government to allow for on-farm slaughtering and purchase of meats. Farms equipped with slaughter facilities may provide for-fee services for other farms. Traveling slaughter vans may also go from farm to farm providing slaughter services. Calais may encourage the opening of a trade butcher shop. An aggressive local food system, once advertized, and accompanied with business incentives, has the potential to attract an experienced and talented butcher to our community. Zoning regulations should encourage a commercial butcher to open shop and service Calais farms and our consumer community.

Facilities for the cleaning and packaging of vegetables and the milling of grains should be in each of the Calais village districts.

Canning, bottling, fermenting, etc. may require specialized equipment potentially with high temperatures and pressures. Calais would encourage private facilities in each of the village districts to operate under proper liability insurance and will be encouraged to provide for-fee service to the general public.

Calais will support increased effort by the State Government and instruct our representative to limit restrictions on locally produced and sold milk or milk products on the farm, at farmer's markets, or even provide for home delivery. Raw and pasteurized milk and cream will be encouraged so long as there is a market demand to sustain them.

#### *6. Storage:*

Root cellars provide the best long-term storage for food that has been properly processed. Root vegetables such as potatoes, carrots, and onions should be packed in sand. Canned and bottled goods may be crated or stored on shelving.

Calais needs to encourage private root cellars in and around all of the village districts. Those residents with private root cellars will be encouraged to provide free or inexpensive storage for those community members who do not have, but could use, such storage capability. Every household will have access to affordable long-term food storage. A local food system that guarantees food security for all depends on the ability to provide food for all members of the community through the winter months when food production is limited to specialized greenhouse operations.

Ideally, root cellars may be combined with vegetable processing and canning facilities so that fresh produce may be cleaned, packaged, and stored at one location at an affordable price.

### *7. Distribution Network:*

Calais has several stores that residents support and would like to see succeed. Not every store is currently equipped for or interested in selling farm produce. A Calais centric food system will encourage these markets to more readily handle fresh locally produced produce, meats, and dairy product, and assist them as needed to be better equipped to manage such produce and goods.

Farms have the resources to transport their goods to local points of sale.

Each village district will determine one location where food may be dropped off and picked up daily for community sharing. Persons or families in financial distress will have access to food resources from these locations. These locations may be maintained as private or municipal facilities. Where home delivery is necessary [example for elders without cars] for food assistance, volunteer delivery service may be utilized.

### *8. Wild Food Gathering:*

Calais has many experts on wild edible and medicinal plant gathering. Educational and productive walks are done frequently and open to any member of the community. Calais residents possess many thousands of acres of forest land which is largely unused. How we use our wild food is instrumental for survival in the event of emergencies or disasters. A cooperative local food system will encourage private citizens to open their land to organized educational and productive walks for the purpose of identifying and collecting edible and medicinal plants and fungi.

### *9. Bee Keeping / Bat Conservation*

Bees and bats provide invaluable service to the ecology and environment. Both are pollinators while bats also control harmful night time insects. The natural populations of both bees and bats have been rapidly declining in recent years. Lacking conclusive evidence for population declines, scientists speculate that climate change, invasive development of natural habitats, wide-spread use of pesticides (such as Round-up), and GMO crops (which are genetically altered to produce neurotoxins) are responsible.

In order to combat population decline, keepers are needed to breed bees and bats. Bat houses should be maintained in deeper forested areas and around ponds. Bee keepers can be anywhere outside of the village districts. Both honey bees and bumble bees need to be encouraged. Bumble bees are better pollinators and function better in greenhouse situations. Honey bees produce honey, which is a valuable commodity. Ideally, several farms could be encouraged to engage in bee keeping and continue to grow and split their hives so that bees could be widely introduced into all the rural areas of Calais.

### *10. Education:*

Education is a primary tool in establishing a local food system that supports food justice and security. Education for members of the community could include, but not be limited to; farming and gardening, food processing and preparation, nutrition and diet, seed propagation, long-

term food storage techniques, soil science, entomology, livestock raising, aquaculture, dairy production, sugaring, bee keeping, and wild food gathering. Education programs could be offered within a collaborative environment utilizing private and municipal facilities and expertise. Education could be offered for free, at cost, or on a donation basis as appropriate.

**Draft**  
**8/12/14**

## **D. LAND USE**

### **Introduction**

Calais has maintained its rural character despite the fact that the number of houses in town has increased from 324 in 1970 to 842 in 2010 or 162% increase. Although land in agricultural production continues to decrease, and residential growth is up, much of the town remains a patchwork of woods, fields, small villages, ponds, streams and wetlands. Our goal is to guide development in an informed, intelligent manner that preserves this rural character and minimizes impacts on natural resources, agriculture and potential flooding. Instrumental to this vision is the protection of our town's working landscape and the natural resources (headwaters, streams, shorelines, floodways, rare and irreplaceable natural areas, necessary wildlife habitat and corridors, wetlands, endangered species, productive forest lands, and primary agricultural soils as defined in 10 V.S.A. Chapter 151) which residents place high value upon. It includes increased focus on our villages as vibrant centers in which people of all ages and income levels can live, work, and do business.

It is in Calais' long-term interest to sensibly govern the use of land through the Calais Land Use & Development Regulations so that the land may continue to provide opportunities for current and future generations. We categorize this approach as "smart growth." Smart Growth, to paraphrase VSA 2791. Definitions (Title 24: Municipal and County Government), means that as a town we:

1. Support existing and new housing that meets the needs of a diversity of social and income groups.
2. Promote the historic development pattern of our villages separated by rural countryside.
3. Develop compact mixed-use centers at a scale appropriate for the community.
4. Support a diversity of viable businesses in our villages.
5. Protect the town's important environmental, natural, and historic features, including natural areas, water quality, scenic resources, and our historic district.
6. Serve to strengthen agricultural and forest industries and minimize conflicts of development with these industries.
7. Balance growth with the availability of economic and efficient public utilities and services to include roads.
8. Enable choice in modes of transportation.
9. Reflect a settlement pattern that, at full build-out, is characterized by:
  - a. development within compacted "urban" areas and village centers to limit scattered building that is excessively land consumptive;
  - b. development that incorporates alternate transportation options, especially for pedestrians and bikers;

- c. the safeguarding and protection of existing farm- and forest-land;
- d. development that does not require a municipal infrastructure or that requires the extension of municipal infrastructure across undeveloped lands in a manner that would extend service to lands located outside of our villages;
- e. limiting linear development along well-traveled roads and highways that lacks depth, as measured from the highway.

## Current Conditions

Calais is a relatively small rural town in north-central Vermont. The Land Cover/Land Use Map, a copy of which is in the Appendix to this Plan, shows the current land use in town. Calais is hilly, but not mountainous. Elevations range from about 700 feet along North Montpelier Pond to almost 2,200 feet on Hobart Mountain in the northwest corner of Town. Its relatively gentle terrain has been conducive to the formation of agricultural soils, particularly along and east of Route 14 and the Kingsbury Branch. Although the amount of farming in Calais has declined, the landscape is still shaped by an agrarian history. Current land use pattern— a patchwork of fields and forests, interspersed with homes, and small villages, with several ponds, wetlands and streams – are very much in keeping with the bucolic image of Vermont.

The more fertile, lower elevations near Calais' streams and lakes have historically been the site of the most human activity. However, growth in Calais has been more widespread since the 1970's. Settlement patterns have been and continue to be primarily in the rural residential and upland districts, particularly along the upper County Road, Bayne Comolli Road, Jack Hill, Max Gray and Lightening Ridge Roads. Such growth may not be in the best interest of Calais' rural nature but is likely to continue if there are no incentives to alter the pattern.

### Check and update

Most of the land in Calais is forested or open. The Central Vermont Regional Planning Commission reports that actual land use breakdowns in Calais in 2007 were as follows: <b>Calais Land Use in 2007</b>		
Forest Land	17,737 acres	71.0%
Agriculture and Open Land	4,082 acres	17.0%
Scrub/brush	659 acres	3.0%
Residential	494 acres	2.0%
Other Developed Land	94 acres	.4%
Water and Wetland	1,641 acres	7.0%

This natural setting is partly responsible for the character of our community. The Calais landscape offers recreational activities, solitude, wildlife habitat, aesthetic enjoyment, as well as forestry, agriculture, and other economic opportunities. Accordingly, judicious use of natural areas, surface and groundwater, floodplains, primary agricultural lands, woodlands, core forests and other important wildlife habitats, and other vulnerable resources is necessary. (See the Natural Resources Section of this Plan).

The current land use policy in Calais is to preserve this rural character by applying the principles of smart growth, density averaging, transfer of property development rights, conservation easements, and encouraging planned development throughout town.

**Definitions:**

**Density Averaging:** A method to give landowners increased flexibility in designing a subdivision (development) in response to the specific geological and natural resource characteristics of their property. It gives flexibility to protect important resources and removes some of the disincentives in identifying and conserving those resources.

**Transfer of property development rights:** Seeks to preserve a landowner's property development value by moving the right to build a house in an area where development is discouraged to another landowner where development is encouraged.

**Sustainable development:** Property development and the use of resources in a manner that meet landowners' needs and wants while preserving natural resources and the environment for the landowner, broader community, and for future generations.

**Conservation easements:** A legal agreement between a landowner and a land trust or government agency that permanently limits the development of the land in order to protect its natural resources. It allows the landowner to continue to own and use their property and to sell or pass it to their heirs.

**Buildout Analysis**

The Central Vermont Regional Planning Commission (CVRPC) completed a buildout analysis for Calais in 2007. In that analysis, CVRPC found that the town had significant development potential of 1,252 total new housing units under zoning constraints at that time. Although it is hard to predict how much Calais will grow in the coming years, the number of housing units in Calais grew from 324 in 1970 to 842 in 2010 with the largest growth between 1970 and 1990. Housing projections made by CVRPC in 2007 indicated that the Town of Calais's "fair share" of regional housing needs would be approximately 306 new units by the year 2020. CVRPC has modified this number to 118 new units between now and 2020.

While Calais's landscape still generally reflects the historic settlement patterns, the Town acknowledges that it is experiencing scattered residential growth which threatens to undermine community character. Alarming, the buildout modeling predicted an exacerbation of this trend absent any regulatory changes or large scale conservation efforts. It predicted little growth for Calais' Villages, while 78 % of future development is allocated to the Rural Residential zone. Accordingly, it is important for the Town to address issues of residential sprawl, incremental large lot development, resource protection, village vitality, and impact on roads, especially class 3.

The study continues to be useful insofar as it depicts the direction in which various areas of the Town may be impacted by future growth, and examines alternate development strategies.

Though it is impossible to know the future in any precise way, it is probable that Calais' growth will continue for many years to come. The challenge for the community is how to respond to change in a way that affords citizens the highest quality of life possible, responds to human needs and environmental and natural resource imperatives, respects property owner rights, and determines the legacy for future generations.

The buildout analysis demonstrated that to avoid negative impacts on valuable natural resources and to better satisfy State statutes, we need, as a town, to have the will to explore, test and effectively apply the principles of smart growth. The challenges include how to:

1. Allow for development while ensuring the maximum protection of natural resources;
2. Encourage expansion and more diverse development in our villages;
3. Mitigate development in flood plains, around lakes, and along designated roads;
4. Coordinate development with town services and road management;
5. Change long standing beliefs concerning property rights among our citizens; and
6. Incrementally change zoning to reflect this shift and experience.

Most of the growth continues to occur in the Rural Residential District rather than in the Village Districts since the buildout analysis and our last Town Plan. Over the past five years, we have made incremental changes to zoning to encourage "smarter" development and to encourage development in our villages. We are faced with two primary challenges: (1) gaining support for smart growth from the public and town officials; and (2) learning how to implement it in a way that allows for development while preserving natural resources and mitigating impact of flooding.

## **Zoning**

The Calais Land Use & Development Regulations establish general requirements for development and subdivision, as well as regulations for specific land use districts, as discussed below. Current allowable densities in Calais range from approximately 4 lots per acre in the Village Districts, when conditions allow, to a 25-acre minimum lot size in the Upland Overlay District. Most of Calais (72% of land area) is in the Rural Residential District, which as of 2008 has a 3-acre minimum lot size.

***Rural Residential District*** (17,854 acres) – Purpose: to guide the development of residences, home businesses and other allowed uses in ways that minimize their impact on the working and natural environment, and are compatible with natural resources characteristic of the district, including: 1) water resources such as lakes, ponds, streams, wetlands, floodplains, and fluvial erosion hazard areas; 2) earth resources such as primary agricultural soils and mineral resources; 3) contiguous stretches of forest and undeveloped land and other significant wildlife habitat, rare, threatened and endangered species, and important natural communities; and 4) connecting habitat corridors of smaller forests which tie together the larger contiguous areas and are critical for the survival of many species of animals and plants. The protection of rural land and natural resources through the use of density averaging or PUD provisions for new

subdivisions, and definition of building sites for other uses, is encouraged. Expansion of existing residences and small home businesses is allowed within this District.

To this end, development should be clustered at the edges of open spaces and agricultural lands in a way that leaves the open land available for farming, natural resource conservation, and/or recreational uses; oriented where feasible to gain optimal passive solar energy; and create a sense of community if appropriate. Development should be below rather than on ridge lines in order to protect the scenic quality of our rural landscape. Driveways should be shared when possible and located close to edges of open spaces to minimize visual impact, erosion and entrances onto the public road. Large buildings and parking lots, which are not in keeping with the scale of development in Calais, are allowed only when screened to minimize visual impacts.

A significant portion of the Town lies within this zoning district. Most of the development and subdivision in the past decade has occurred in this district.

***Village District*** (660 acres) – The purpose of the village district is to encourage the development of our villages as compact, livable, socially and economically vibrant community centers surrounded by open, working landscapes. Villages should accommodate relatively high-density residential development as well as businesses and public buildings sized to provide services to the Calais community and environs, compatible with the needs of the town. Buildings should be designed and built at a scale and orientation that is compatible with the historic and existing development in the village.

The geology and the lack of sophisticated sewer and water systems do not enable the kind of village density that we might like to encourage. As septic technology advances, these areas should be developed more densely than current soil conditions allow.

Buildings in the village district should be built at a scale and orientation that is compatible with current development in the village. Multi-unit residential and non-residential development may be permitted as conditional uses if the development review board is assured that the general land use conditions will be satisfied. Such development, including any associated lights and signs, should be scaled and in keeping with the traditional social and physical character of the village. Lights will be LED for energy conservation. The district has no minimum lot size requirement, but does mandate frontage (64 feet) and setbacks, including a 40-foot front setback, that effectively make the limit just over ¼ acre (11,250 s.f.)

***Resource Recreation District:*** (1,936 acres) - The purpose of the resource recreation district is to protect the natural resource value of those lands in Calais which are essentially undeveloped, are important wildlife habitat, could have high potential for commercial forestry use or other extractive enterprises, are unsuitable for commercial, industrial or higher density residential development, or are necessary to protect ground water and aquifers, a fragile ecology, or significant recreational or scenic resources. Low density residential, and limited outdoor

recreation, conservation and forestry uses are allowed.

Low density residential development of no more than one family unit per 10 acres will be permitted. Limited outdoor recreation, conservation and forestry uses will also be permitted. No additional class 2 or 3 highways will be built in this district.

***Shoreland District:*** (1,401 acres) – The purpose is to protect the environmental, ecological, and recreation value of our ponds, lakes and associated shore lands for existing and future generations by preventing and controlling sources of pollution and by minimizing developmental impact within the shoreland area. Sources of pollution and soil erosion include septic systems, run-off from roofs, roofs and other impervious surfaces, roads, ditching, and lawns. Developmental impact includes disturbance of the ecological buffer around the ponds and visual impact of any structure. This district generally consists of all land within 800 feet of the shoreline (mean water mark) of all lakes and ponds with a surface area of 20 acres or more (Bliss Pond, Curtis Pond, Nelson Pond, North Montpelier Pond, Mirror Lake or #10 Pond, and Woodbury Lake). District boundaries may vary, however, to reference physical landmarks such as roads or ridges or where there is no surface or subsurface drainage into a pond or lake due to geological formations (see the official Calais Zoning District Map). Where a lot contains both Shoreland District and Village District, the portion of that property that does not border on the shoreline and that does not drain into the body of water, shall be considered part of the village district and not part of the Shoreland District. (As they become law, new state statutes will impact this district)

***Upland District:*** (2,853 acres) - The purpose of this district, which includes all areas over 1,500 feet elevation above mean sea level within the Town of Calais, is to protect sensitive upland areas from the adverse effects of high-density and other inappropriate development. These areas are generally characterized by steep slopes, rock outcrops and shallow soils, and include important headwater and aquifer recharge areas, large tracts of unbroken habitat, valuable timber and recreation land, and scenic hills and ridgelines. They are also generally remote from public services and facilities and as a result are difficult and costly to access. Minimum lot size is 25 acres and development must be sited to avoid impacts to the extent feasible for all conditional uses, which includes single-family homes.

Only agriculture, forestry, public parks, and some uses of residential buildings such as home child care shall be permitted without review by the Development Review Board. Residential and seasonal dwellings, home industry and a few other low impact uses will be conditionally permitted if the Development Review Board is assured that the development will have minimal impact on this sensitive area.

***Kent's Corner-Old West Church Overlay District.*** The purpose of the Design Control District is to ensure the protection of the historic and architectural integrity of the Kent's Corner - Old West Church Historic District. This area is regarded as an important asset both to the town and the state. The design control overlay district includes a portion of the May 17, 2006 National Register Old West Church and Kents' Corner Historic District and the Kent's Corner-Old West

Church Historic District designated by the Vermont Division for Historic Preservation Historic Sites and Structures in 1979, and some of the adjoining properties. The design control and review requirements of the Land Use and Development Regulations, including the most recent version of the design control guidelines, are hereby incorporated into this town plan.

***Flood Hazard Area Overlay District.*** The purpose of the flood hazard area overlay district is to prevent or minimize the loss of life and property, disruption of commerce, impairment of the tax base and extraordinary public expenditure from the results of flooding; to further insure that design and construction of development would eliminate or minimize the potential for flood damage; and to ensure that the flood-prone lands are managed in accordance with state and federal regulations and thereby ensure that property owners are eligible for flood insurance through the National Flood Insurance Program (NFIP).

***Subdivision.*** The Calais Land Use & Development Regulations also contain subdivision regulations intended to “to guide the subdivision and development process in a way that is consistent with the purpose of each zoning district. Density averaging is encouraged as a means to protect the development rights of landowners while also facilitating the conservation of valued natural resources for future generations and to satisfy the goals of the Calais Town Plan.” Large-scale residential, commercial or industrial development is not consistent with the rural character of Calais and is discouraged.

**The overarching goal is to move forward with implementing smart growth principles in zoning.**

**Goal 1 –Preserve Rural Character, Open Land and Natural Resources.**

Plan of Action:

- a. Shall continue to explore, test, and apply the principles of density averaging and transfer of development rights (TDR) in zoning. (PC; 2014-2019)
  - 1) Allow property owners greater flexibility in development while maximizing conserving natural resources. (PC & CC)
  - 2) Maintain the long-term viability of agriculture in Calais, consistent with the goals for agricultural land use and protection of agricultural soils set out in the Agriculture section. (PC)
  - 3) Encourage Planned Unit Developments (PUD’s), which allow more dense development while minimizing impacts on agricultural soils, open land, and other natural resources. (PC)
  - 4) Minimize scattered development patterns and protect open space, agricultural soils and other natural resources outside of village districts. (PC)
  - 5) Impact on town services and roads shall be considered for new subdivisions and especially for major subdivisions. (PC & SB)
- b. Explore possibilities of establishing additional Water Districts. (Water Quality Commission? & PC)

**Goal 2-Make zoning permit application process easier to understand and implement. (PC; 2017)**

- a. Tie property information and natural resources together with permit application.
- b. Provide more informal assistance to property owners and developers prior to submitting permit application.

### **Goal 3 - Encourage More Dense Development in the Village Districts.**

#### Plan of Action:

- a. Revise zoning to allow and encourage greater density in the village districts. (PC)
- b. Seek more affordable and effective sewage treatment systems or water supply systems, or both, that would allow more dense development in the village districts. (PC, SB, Research for grants)
- c. Consider expanding current village district boundaries, as explored in the CVRPC buildout analysis. (PC)
- d. Provide more incentives to focus development in the villages, through zoning and other means. (PC &?)
- e. Improve quality of life in villages by encouraging mixed use development (buildings that have more than one use, for instance residence and general store) and redevelopment as well as encouraging land conservation and recreational opportunities in immediate proximity to villages. (PC)
- f. Explore ways to provide incentives for more small-scale commercial development in village districts so villages are more vibrant and attractive places to live, shop and work.
- g. Consider creation of a new village district in the location explored in the CVRPC buildout analysis near Calais Elementary School, or elsewhere. (PC)

### **Goal 4 - Encourage Planned Unit Development.**

#### Plan of Action:

- a. Provide information to developers concerning the benefits of Planned Unit Development through density averaging and transfer of development rights to achieve greater return on land investments and conservation of the Town's rural character, agricultural soils, open space and natural resources. (PC)
- b. Explore other ways to encourage Planned Unit Developments. (PC)

### **Goal 5 – Promote Community Education.**

#### Plan of Action:

- a. Share with the community the function of the Town Plan and Land Use and Development Regulations to promote our collective values now and for future generations, and the diverse influences (court decisions, legislation, and regulatory agencies) that we need to consider in their development. (PC)
- b. Work collaboratively with landowners and experts to learn what best support our smart growth intent. (PC)

# HOUSING

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Housing is a complex and dynamic challenge involving many different factors. We recognize that a diverse range of housing alternatives is essential for Calais to be a more viable, sustainable community able to meet economic and environmental challenges while simultaneously providing for our “fair share” of Central Vermont regional housing needs.

The aspirations of Calais residents expressed in a survey 25 years ago hold true today.

- To have the ability, in spite of forces beyond our control, to continue to live here.
- The hope that our children will want to and be able to live here also if they desire.
- Living in Calais will be affordable for senior citizens and for the young who are just starting out in life.
- To have enough housing available either for sale or rent for those wanting to move here.

## **CURRENT CONDITIONS**

### **Housing**

Calais currently has 4 village districts separated by large tracts of forested and agricultural lands and landscapes with many wildlife corridors. East Calais, Maple Corner, and Adamant are “Designated Village Centers” meaning there is a better chance for obtaining grants to develop economic growth or housing. East Calais and the Kents Corner areas are on the US National Register of Historic Places. The historical overlay district is in the center area of Calais anchored by the Old West Church, Robinson Cemetery, Calais Town Hall and Maple Corner Village. The village districts house 14% of Calais residents along with most of Calais’s businesses (excluding home businesses and agricultural operations). The resource recreation (shore-land) districts house 24% of Calais residents. The remaining 62% reside in the rural residential districts.

The 2010 U.S. Census the Town of Calais has 842<sup>1</sup> homes of which 99 are rented, and 167 are vacant. We assume that most of the vacant homes are camps and second homes. The combined total of homes in Calais makes up 2.8% of the housing in Washington County. 25,027

Further breakdown of the 842 units show: <sup>2</sup>

767	single unit dwellings
23	2 unit dwellings
10	3-4 unit dwellings
42	Mobile homes

In the 2000 U. S Census, the Town of Calais had 773<sup>3</sup> homes of which 93 were rented, and 157 were vacant. In the decade between 2000 and 2010, Calais added 69 homes or almost 7 new houses per year. As far as we can tell from the data, none of the new buildings were multi-family units, all being single family dwellings.

The median value of owner occupied homes in the 2010 census was \$250,000.

### **Economics**

According to the 2010 U.S. Census American Factfinder<sup>4</sup>, 43.2% of Calais’ population earns an income equal to or less than \$49,999; 32.1% between \$50,000 and \$74,999; and 24.7% over \$75,000- One hundred thirty-six [136] households have incomes under \$25,000 annually.

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<sup>1</sup> <http://www.census.gov/popfinder/?s=50>

<sup>2</sup> [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_12\\_5YR\\_DP04](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_12_5YR_DP04)

<sup>3</sup> [http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC\\_00\\_SF1\\_QTH1](http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_00_SF1_QTH1)

<sup>4</sup> [http://factfinder2.census.gov/faces/nav/jsf/pages/community\\_facts.xhtml#none](http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none)

Median monthly housing costs of owner occupied homes are \$1,085 and 144 households pay greater than 30% of their income for housing. Those that rent here in Calais pay a median rental of \$950 per month; 28 households use more than 30% of their income for rent.

## **Issues**

### **Location of new housing**

Any new homes, planned unit developments [PUDs], and clustered subdivisions must be placed so that we protect our valuable natural resources and wildlife corridors, preserving the beautiful rural landscape and making it so agriculture land is productive and economically sustainable. To achieve this desired balance "smart growth" development, as defined in the Land Use section (pg. XX), will be used.

Placement of all development must consider not only the number of new housing units but the affect additional population will have on the maintenance of our roads. Thus it might be that placement of housing complexes will have to occur in the Village districts along main thoroughfares. Evaluation is needed.

We see in the near future where building in defined flood plains will be prohibitive due to federal and state regulations and ability to obtain mortgages and insurance. As a town the zoning regulations must reflect these realities.

### **Housing Mix**

There needs to be a better mix of housing types in more affordable price ranges so that families of diverse incomes can find housing in Calais. This mix would include:

- smaller size houses,
- rental units,
- duplexes
- multi-family units housing 3 or more units
- clustered housing units developed that include multi-ages but cater to senior citizens

Such a diversity in house types and sizes may make it possible for Senior citizens to sell their larger homes, purchase a smaller house in a clustered complex, or rent a place and still be able to afford to live here in Calais.

As more people look into shared housing the zoning regulations need to allow any change of use for sharing easy to accomplish.

Clustered housing plans must allow for common water and septic systems along with alternative energy generation, making cost of building and cost of utilities more affordable.

### **Conversion of large houses to multi-family units**

There are many older houses that could be converted to multi-family units. This could become an income generating potential for senior citizens. By developing a community of mixed ages and experiences we make Calais more self reliant. This allows those who want to move to Calais as well as those who wish to remain to be able to do so. Zoning regulations will be reviewed to allow for easier change of use from single to multi-family dwellings.

**GOAL: DEVELOP A TOWN WIDE SITE PLAN FOR PLACEMENT OF PLANNED UNIT DEVELOPMENTS , CLUSTERED SUBDIVISIONS, AND ASSISTED LIVING UNITS**

Action Steps	Responsible Party	Time line
Hire a professional site planner to design placement sites for multi unit development in keeping with Smart Growth techniques.	Selectboard	2015 - 2017
Zoning regulations, current district maps will be used by all developers so that any PUDs or assisted living or special community housing will be placed in locations with adequate year-round access to emergency services, local businesses, etc.	Zoning Administrator, DRB, Planning Commission	2016 - 2020
All PUD's and clustered development with shared water and sewage systems will meet the most current state ANR requirements in effect at the time of building. If local restrictions are more stringent than the state's regarding buffer areas the local restrictions will prevail.	????	

**GOAL: ENLARGE VILLAGE CENTERS TO ACCOMMODATE MULTI-UNIT AFFORDABLE HOUSING**

Action Steps	Responsible Party	Time line
Expand village centers	Planning Commission	2016 - 2018
Through zoning allow for solar arrays and micro wind turbines for alt energy resource in any district with emphasis in the village district to accommodate multi-family units.	Planning Commission	2015-2018
Evaluate the septic and water requirements for any PUD that it meets state regulations.	Zoning Administrator, Planning Commission, Selectboard	On-going

**GOAL: ALLOW OF EASY CHANGE OF USE PERMITTING TO CHANGE SINGLE DWELLING TO MULTI-FAMILY DWELLING.**

Action Steps	Responsible Party	Time line
Review zoning regulations and permitting process	Planning Commission	2015

**GOAL: ASSURE THAT THOSE DESIRING TO BUILD NEW HOUSES USE DENSITY AVERAGING TO BALANCE CONSERVATION AND NEW DEVELOPMENT**

Action Steps	Responsible Party	Time line
Consider revising zoning regulations that no new building or development will be allowed in flood plains	Planning Commission	2015
Overlay maps for natural resources, agricultural lands and flood plains will be made available to all residents and future residents for guidance regarding the placement of new houses and development so that smart growth concepts are applied to all new building.	Select Board [to approve maps], Planning Commission, Zoning administrator	2015 and ongoing for map updates.
Density averaging and property development transfer rights will be used to accommodate new development		