DHCD Municipal Plan and Bylaw Intake

Submitted by: Anonymous user

Submitted time: Feb 19, 2025, 6:55:03 PM

Municipality

Calais

Regional Planning Commission

Central Vermont Regional Planning Commission

Submitter Details

Submitter's Name

Jarrod Weiss

Submitter's Title

Chair, Calais Planning Commission

Submitter's Email

jarrodcweiss@gmail.com

Select your Submission

Municipal Plan

Type of Municipal Plan Submission

Proposed

Date of Public Hearing

Mar 18, 2025

Upload Public Hearing Notice

PDF Calais Town Plan Public Meeting March 18_ 2025.pdf
73.1KB

Upload Municipal Plan

PDF Calais Town Plan Final Draft_ Feb 2025.pdf
4MB

Have you submitted the Municipal Plan to your Regional Planning Commission?

Yes

CALAIS PLANNING COMMISSION AGENDA

March 18th, 7 p.m. In-Person and Zoom

https://us02web.zoom.us/j/82164247973?pwd=eUZWWlAxazEwVDlOKy9pRVdFWXNGUT09

****

AGENDA

- ☐ Welcome
- ☐ Explanation of Town Plan Process
- ☐ Review of Town Plan Updates
- ☐ Public Questions/Comments

****

For more information email: calaisvtpc@gmail.com

April, 2025

CALAIS TOWN PLAN

Calais Planning Commission

CONTENTS

DECLARATION OF INCLUSION

The Town of Calais condemns racism and welcomes all persons, regardless of race, color, religion, national origin, sex, gender identity or expression, age, disability, or socioeconomic status, and wants everyone to feel safe and welcome in our community. As a town, we formally condemn all discrimination in all of its forms, commit to fair and equal treatment of everyone in our community, and will strive to ensure all of our actions, policies, and operating procedures reflect this commitment. —Calais

Selectboard - June 26, 2023

VISION

We will foster a community that thrives through continuous development and enhancement while safeguarding our rural essence—preserving our agricultural lands, core forests, wildlife habitats, and natural resources for the well-being of current and future generations.

To realize this vision, Calais will support

- development of diverse types of housing
- local businesses
- local employment
- renewable energy systems
- energy-efficient and low-carbon producing transportation options
- food security and sustainability
- town services and opportunities that are equally accessible to all
- opportunities for active transportation and recreation
- access to high-speed and reliable communication networks
- comprehensive childcare and education, birth through high school
- conservation of natural resources and working lands

Members of Calais Planning Commission

Jarrod Weiss, Chair
Term expires 2025
jarrodcweiss@gmail.com
802-552-8492

Gary Root, Vice Chair
Term expires 2025
garyroot2749@gmail.com
802-793-4100

John McCullough, Clerk
Term expires 2026
john@artichokedesign.net
802-829-1613

Victoria Arthur
Term expires 2026
vicky.arthur18@gmail.com
301-509-3806

Kathy Hentcy
Term expires 2026
knh1@proton.me
802-477-2512

Melanie Kehne
Term expires 2028
mkehnevt@gmail.com
802-752-9138

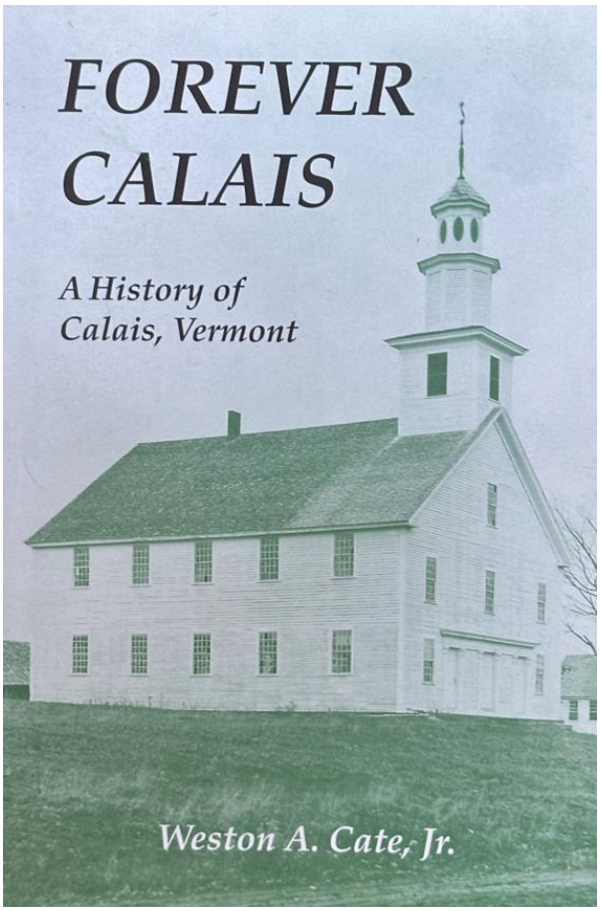
Rachel Seelig
Term expires 2027
rachel.seelig@gmail.com

Cover photo: Curtis Pond
Photo by Willa Farrell

The Planning Commission has reviewed the surrounding town plans and that of the Central Vermont Regional Planning Commission to ensure our plan is compatible with the development trends and plans in our region. Our Town Plan is compatible with our neighboring towns.

History and Demographics[1]

1,000 years before there was a Vermont, a Canada or a United States the lands of the northeast North America were occupied by indigenous peoples. In what is now Vermont, for the most part, these were bands of the Abenaki Nation. The first Europeans visited Vermont in the early 17th century.



The township of Calais was chartered in 1781. In the spring of 1787, Francis West, mistakenly believing that he was settling in East Montpelier, is said to have cleared land for himself somewhere in Calais just northeast of Adamant. Later that summer, Abijah, Asa and Peter Wheelock built the first house in Calais southeast of Kents Corner.

In 1791, Vermont became the 14th state in the Union. In 1793, Colonel Jacob Davis (5th Worcester County Regiment, February 7, 1776), built for himself a sawmill in Gospel Hollow. That was immediately followed by a grist mill. Thirty-five years later, there were nine sawmills in Calais, as well as enterprises producing wooden clocks, axes, scythes, and bells, as well as blacksmith shops, corn and grist mills, a distillery, harness makers, shoe and boot makers, starch mills and a wool carding factory. Calais grew steadily at a fast average rate of 36 people annually for the following 50 years. The 1840 census shows Calais had grown to its peak population of 1,709.

By the year 1850, the population dropped to 1410, reflecting America's western expansion in the mid-19th century. For the next 100 years, even while agricultural practices evolved to whatever yielded the greatest economic benefit, the population continued to decline. By 1960, Calais' population had fallen to 684. In the mid-1960s and '70s, owing in parts to the paving of the County Road and Route 14 between Montpelier and Calais, the northward exodus of newcomers from large cities to the south, and the new north/south Interstate Highway that passes through Montpelier, the population began to increase. Calais was becoming a bedroom community of Montpelier and Barre. By 2010, it had grown back to 1607, closing in on its 19th century high.

---

[1] Most of this condensed history excerpted from previous Town Plan. Other data source is U.S. National Park Service. The reader is directed to Forever Calais, A History of Calais, Vermont, Weston Cate, Jr., 1999, Calais Historical Society and Vermont Historical Gazetteer, Anna Maria Hemenway, 1871 (self-published) for more entertaining information.

Since 1990, the rate of growth has been slowing. For the 20 years between 1990 and 2010, Calais added only 86 people to its population: a rate of 4.3 people/ year. But, during that same period, new housing stock grew at a rate of 6.7 houses/annually. The **2020 Decennial Census** now sets the town's population at 1661, a growth rate of 5.4 people /year over the preceding 10 years. (see Fig 1.)

In the sixty years between 1960 and 2020, population growth was shared across the state: Vermont saw a 165% increase, Washington County 139% increase and Calais a 142 % increase.

Figure 1 POPULATION OVER 230 YEARS

Calais is a rural community of 38.6 square miles (24,704 acres). Town-wide, we know that:

- The average population density in 2020 was **.06725 persons/acre** (1661 persons/24,700 acres).
- Based on 2020 E-911 data, Calais has 982 total Building Points, or locations in town with either a house, apartment, church, commercial or other building on it.
- Of these, 710 are listed as Single-Family Dwellings (SFD) and 110 are either seasonal camps or vacation homes (some of which are Mobile Homes).
- In total, there are about 820 dwelling units in Calais, which translates to an average of 2.026 persons/ dwelling unit.
- The remaining E-911 Building Points are Churches, Commercial, Community, Educational, Government, fishing accesses, cemeteries, utilities' properties, RV hook-ups, apartments, accessory structures, barns, etc.

Calais has four zoned Village Districts: Maple Corner, East Calais, Adamant and North Calais. Wastewater disposal requirements and insufficient water supply limits development potential in these villages and hamlets. Overall, the number of dwelling units in Calais has remained steady. Building types in our Villages based on 2020 E-911 data:

Table 1 E-911 Addresses in Calais' Villages Only

Village/ hamlet	E-911 Addresses	Single family	Camps	Commercial	Apts	Other	Density (dwellings/acre)	Density (persons/acre)
Maple Corner	102	72	25	1	3	1	.2207/ac	.4471/ac
East Calais	54	46	0	2	3	4	.4655/ac	.9343/ac
Adamant	20	15	0	3		2	.2666/ac	.5401/ac
North Calais	27	25	2			1	.2195/ac	.4447/ac
Total	203	158	27	6	6	8		

Comparing the average Town-wide population density of .**06725 persons/acre** to the population densities in our Villages (assuming 2.026 persons/dwelling unit), it is seen that the population density in our Villages varies between 6.6 to 8 times the town average in North Calais Maple Corner and North Calais, respectively.

The E-911 data shows that the Villages account for 191 dwelling units (single family, camps and apartments). At 2.026 persons/ dwelling unit, the population of our Villages is 387, or 23.3% of the town's population.

Since the 2016 Town Plan was published, three major subdivisions have permitted the development of 13 clustered houses or house lots. All other permits for the new construction of single-family dwellings have been one unit/parcel at a time. Most population growth and development continues to occur in the Rural Residential Calais Land Use & Development Regulations District along roads, outside the villages and hamlets.

An exception to the Rural Residential District growth pattern of single-family dwellings is the number of early 20th century seasonal shoreland summer camps which have been converted to year-round use over the past 25-40 years. The map (Fig. 2) shows areas of year-round use along the eastern shores of Curtis and Sabin Pond and the south shore of Nelson Pond.

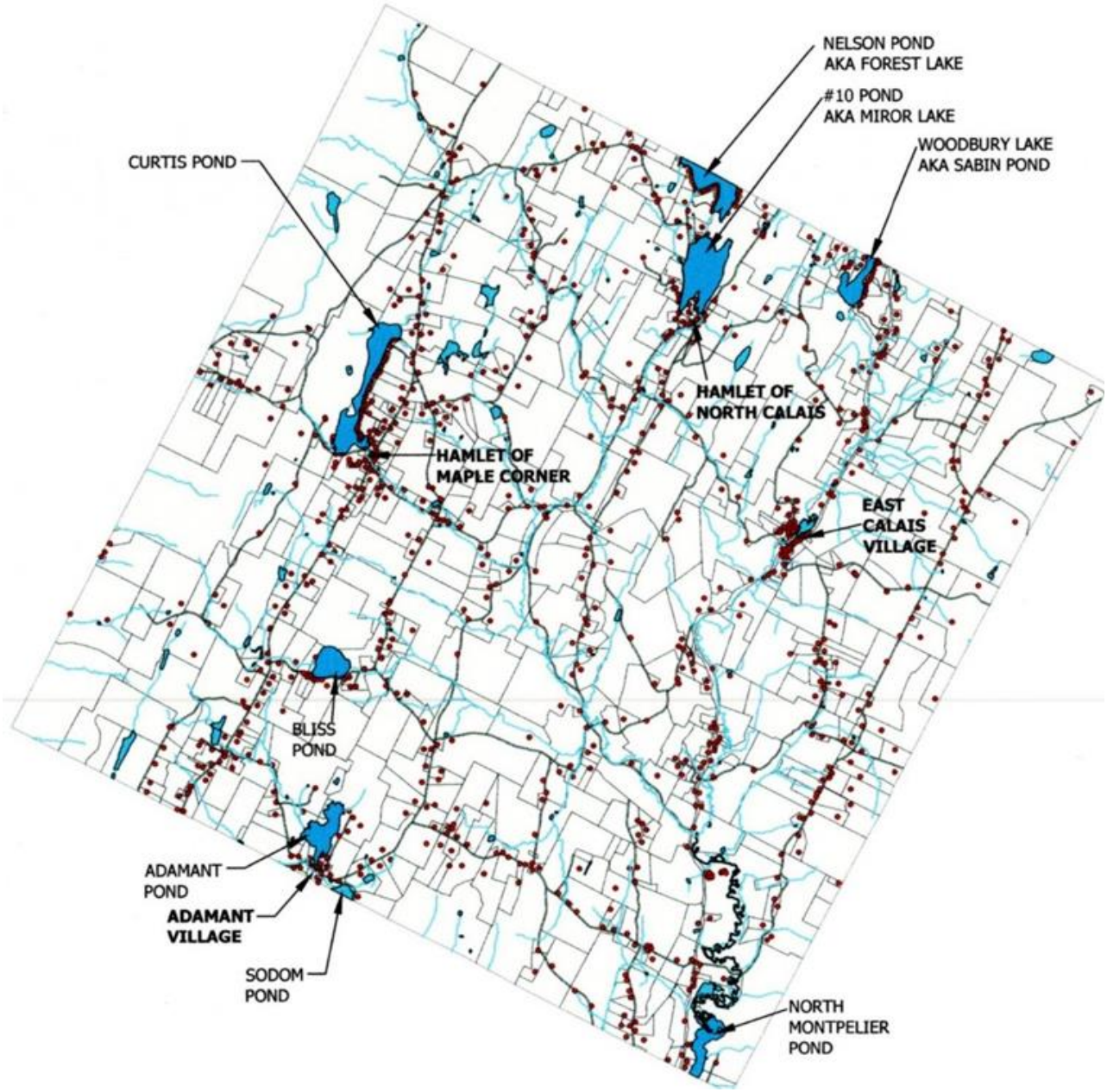


Figure 2 Building points town-wide as of 2020

The Calais Grand List has six categories for dwelling unit types:

R1 = Residential on less than 5 acres

R2 = Residential on 5 acres or more

MHU = Mobile Homes Unlanded

MHL = Mobile Homes Landed

S1 = Seasonal on less than 5 acres

S2 = Seasonal on 5 acres or more

F = Farm

Table 2 Calais dwellings according to Grand List categories

	Grand List Year											
Dwelling Type	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
R1	289	295	298	300	304	306	306	311	308	310	312	318
R2	364	366	364	366	364	364	369	373	382	387	387	387
MHU	6	6	4	4	4	3	2	2	2	2	1	1
MHL	31	31	30	29	31	32	35	35	34	33	33	33
S1	76	75	77	77	76	75	75	75	76	74	73	73
S2	18	16	16	16	16	15	15	14	13	14	14	14
Farm	9	9	9	9	9	9	9	9	10	9	9	8
TOTAL	793	798	798	801	804	804	811	819	825	829	829	834

With respect to total Dwelling Units, the 2020 E911 Building Point data is consistent with the 2020 Grand List which shows a total of 819 Building Points.

This Grand List data shows that Calais accommodated 49 new year-round dwelling units (R1+R2+MHU+MHL) over a 12-year period, averaging four units per year.

Figure 3 Calais Town Hall

Historic Resources

The agricultural landscape and historic architecture still common in town are important aspects of the physical character of Calais. The clusters of buildings which grew up around the water-powered sawmills and grist mills shaped our villages and hamlets beginning in 1781 when the town charter was signed.

Four districts in Calais are recognized in the *National Register of Historic Places* (NR): Kents Corner/Old West Church (KCOWC) district, Adamant Village, East Calais village, and North Calais village.

Figure 4 Kent Museum

Significant work has been completed over the past 15 years to restore the usefulness and prolong the lives of what are regarded as Calais' three Big White Buildings: The Old West Church (1823), the Calais Town Hall (formerly the Davis Church, 1864) and Memorial Hall (1885).

Figure 5 Memorial Hall

The Future of Historic Preservation

Calais' cultural landscape and historic architecture create a sense of place and remind us of our historic forebears. The work of citizen groups like the Old West Church Association, the Friends of the Kent, the North Calais Memorial Hall Association, the Adamant Community Club, the Calais Historic Preservation Commission and the Town of Calais itself deserve credit for responsible stewardship.

Goal

1. Calais's historic buildings and cultural landscape are firmly integrated in the town's identity, for children and adults alike, foster a deep sense of pride among residents and provide visitors with an enriching and educational experience.

Action steps

1. Notify the State that Calais desires to have the right of first refusal should the State wish to divest itself of Kent Museum
2. Establish a working relationship with local schools as part of an ongoing program to foster the interest of young people in the history of the cultural landscape.
3. Ask the Calais Historic Preservation Commission to consider coordinating functions to demonstrate the relationships of the buildings to each other.

Figure 5 Calais Old West Church

Managing Land Use with Smart Growth Principles

Calais has maintained its rural character while experiencing modest growth.

Although land in agricultural production is decreasing and residential growth increasing, 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, thoughtful manner that preserves this rural character while minimizing impacts on natural resources and agriculture and mitigates the potential for flooding. Integral to this vision is the protection of our town's working landscape and the natural resources (headwaters of streams, streams, shorelines, floodways, river corridors, forest blocks, rare and irreplaceable natural areas, wildlife habitat and connectors, wetlands, endangered species, productive forest lands, and primary agricultural soils as defined in 10 V.S.A. Chapter 151[2]) on which residents place high value. 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.

By planning for denser development in our villages, and maintenance of rural land and natural resources in the rest of town, Calais can ensure that the land may continue to provide opportunities for current and future generations. This "smart growth" approach to development is consistent with state planning goals and requirements. (24 V.S.A. § 4302(C)(1)(d[3]).

Smart Growth, to paraphrase its definition in statute, (24 V.S.A. § 2791 Definitions (Title 24: Municipal and County Government[4]), means that as a town we support

- housing that meets the needs of a diversity of social and income groups,
- the historic development pattern of our villages separated by rural countryside,
- the development of appropriately scaled compact mixed-use centers,
- a diversity of viable businesses in our villages,
- protection of the town's important environmental, natural, and historic features, including natural areas, water quality, scenic resources, and our historic district;
- strengthening agricultural and forest industries and minimizing conflicts of development with these industries,
- balancing growth with the availability of affordable, efficient public utilities and services, including roads;
- enabling choice in modes of transportation,
- development that incorporates alternative transportation options, especially for pedestrians and cyclists,

[2] https://legislature.vermont.gov/statutes/section/10/151/06001

[3] https://legislature.vermont.gov/statutes/section/24/117/04302

[4] https://legislature.vermont.gov/statutes/section/24/076A/02791

- clustered development located and designed to limit impact on road infrastructure (limited curb cuts) and prevent undue adverse impact on natural resources.

Current Conditions

Calais is a relatively small rural town in north-central Vermont. The Land Use Map[5] 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 farming in Calais has declined, our agrarian history can still be seen in our landscape. The current land use pattern– a patchwork of fields and forests, interspersed with homes, and small villages, with several ponds, wetlands and streams – is 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 most development activity. However, growth in Calais has been more widespread since the 1970's, with most new development occurring primarily in the Rural Residential District. 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.

Calais Land Use

Calais' natural landscape offers recreational activities, solitude, wildlife habitat, aesthetic enjoyment, forestry, agriculture, and other opportunities. Accordingly, development of natural areas, surface and groundwater, flood hazard areas, river corridors, primary agricultural soils, woodlands, forest blocks, habitat connectors and other important wildlife habitats, and other vulnerable resources, the town should carefully consider whether development in these areas may be avoided, minimized or mitigated. (See the Natural Resources Section of this Plan).

Over the past decade, we have made incremental changes to the Calais Land Use and Development Regulations to encourage development that supports our long-term goals, including in our villages. However, we face several challenges, including water supply and wastewater infrastructure in our village centers.

Calais Land Use & Development Regulations

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. The most recent edition of the Calais Calais Land Use & Development Regulations Land Use and Development Regulations and Calais Land Use & Development Regulations District Maps[6] shall apply. Calais has four Calais Land Use & Development Regulations districts and several overlay districts, described below. Most of Calais (72% of land area) is in the Rural Residential District, which as of December 2024 has a 3-acre minimum lot size.

---

[5] https://www.calaisvermont.gov/?SEC=CE1A6257-3E83-4901-97E0-ACCC18BDFD04

[6] https://www.calaisvermont.gov/?SEC=CE1A6257-3E83-4901-97E0-ACCC18BDFD04

Rural Residential District (RR1) (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 using 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 maximizes the available for farming, natural resource conservation, and/or recreational uses; oriented where feasible to gain optimal passive solar energy; and creates a sense of community if appropriate.

Development should be below rather than on ridge lines 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 Calais Land Use & Development Regulations district. Most development and subdivision in the past decade has occurred in this district.

Village District (660 acres)

Purpose: 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.

Calais has four village districts: North Calais, East Calais, Maple Corner, and Adamant. Each contains a state-designated Village Center, which brings benefits such as grant priority. Like many Vermont villages and downtowns, our villages contain some combination of flood hazard areas, state-identified river corridors, protected shoreland areas, and other areas that are not suitable for development. Such protected areas limit the development potential within our Village Districts There is no minimum density in the Village Districts and the required road frontage is only 64'. Yet the goal of making the developable areas of our villages more vibrant and densely developed is limited by the lack of water and wastewater infrastructure. Multi-unit residential development is a Permitted Use in the Village Districts, Uses other than residential

also require DRB review and approval. Non-residential 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.

These and other Village District Calais Land Use & Development Regulations regulations should be reviewed carefully and revised where appropriate to better support the town's smart growth goals.

Resource Recreation District (RR2) (1,936 acres)

PURPOSE: 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.

To maintain low density of development, there is a 10-acre minimum lot size and 10% maximum lot coverage in the Resource Recreation District. To discourage fragmentation, conditional use review is required for any development that is not within 40-200' from the centerline of the road, including otherwise permitted uses outside that zone. Such development must be clustered to minimize fragmentation and impacts on natural resources.

Shoreland District: (1,401 acres)

Purpose: 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 Calais Land Use & Development Regulations 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 have surface or subsurface drainage 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 Overlay District: (2,853 acres)

Purpose: to protect sensitive upland areas from the adverse effects of inappropriate or high-density development. This district includes all areas over 1,500 feet above mean sea level within the Town of Calais. These areas are generally characterized by steep slopes, rock outcrops and shallow soils, and they include important headwater and aquifer recharge areas, large tracts of unbroken wildlife habitat, valuable timber and recreation land, and scenic hills and ridgelines. They are also generally distant 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 existing residential buildings such as home childcare and home occupations 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

Purpose: to ensure the protection of the historic and architectural integrity of the Kents Corner-Old West Church Historic District. All development within this district, including development otherwise exempted from permit requirements as specified under Section 1.5, shall be required to obtain design approval from the Calais Design Advisory Board prior to the issuance of a Calais Land Use & Development Regulations permit in accordance with Section 5.5.

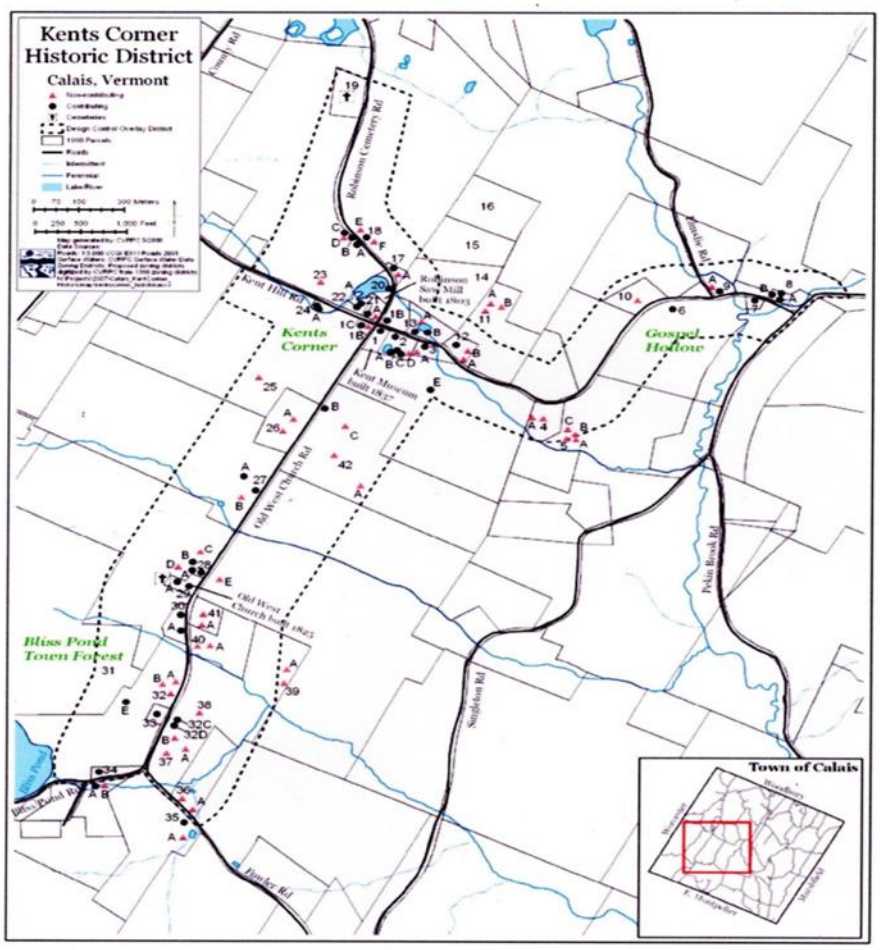


Figure 6 The Kents Corner-Old West Church Historic District

Almost 50 years ago, Calais created the Kents Corner/Old West Church Design Advisory Overlay District (Historic District) which requires special consideration for any proposed development in the underlying Calais Land Use & Development Regulations district. (see attached). Detailed descriptions regarding the district and Calais Land Use & Development Regulations requirements are found in the *Kents Corner Historic District Design Review Guidelines* prepared by the Calais Historic Preservation Commission and adopted by the Town in 2008.

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 ensure 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 that the creation of four or more lots within an eight-year period need Development Review Board (DRB) approval. They also

- guide the subdivision and development process in a way that is consistent with the purpose of each Calais Land Use & Development Regulations district,
- require Development Review Board (DRB) approval for the creation of four or more lots within a ten-year period in any Calais Land Use & Development Regulations district
- encourage Density Averaging to allow for subdivisions that otherwise do not meet Calais Land Use & Development Regulations district dimensional standards,
    - Provide density bonuses for affordable or senior housing;

Goals

1. Implement smart growth principles in Calais Land Use & Development Regulations , town policy, and in the use of town resources using the following strategies.
    - **a.** Collaborate with landowners, Central Vermont Planning Commission, the Department of Housing and Community Development, the Agency of Natural Resources, Agency of Transportation, and other experts to learn what approaches best support our smart growth goals, and what resources are available to meet those goals.
    - **b.** Consider applying for a Municipal Planning Grant or other assistance to update Calais Land Use & Development Regulations to better promote smart growth.
    - **c.** Consider seeking a skilled volunteer or hiring a town staff person to apply for grants to meet smart growth goals.
2. Preserve Rural Character, Open Land and Natural Resources outside the Village Districts

    Action Steps

    a. Minimize scattered development patterns and fragmentation of forest blocks and open land; protect open space, forest blocks, habitat connectors, wildlife crossings, agricultural soils and other natural resources outside of village districts.
    b. Encourage Density Averaging and Planned Unit Developments (PUDs), which allow more dense development while minimizing negative effects on agricultural soils, open land, and other natural resources.

3. Support Smart Growth in the Village Districts

    Action Steps

a. Encourage small-scale commercial, mixed-use, and residential development in the village districts to make them even more vibrant and attractive places to live, work, patronize, and visit. See Economic Development Section and Housing Section.
b. Ensure that new development is well designed to create an attractive, pedestrian friendly environment that enhances community character.
c. Explore grant and other funding opportunities, such as for water and wastewater infrastructure and for transportation improvements, to enable more dense development in our village districts.
d. Research and apply for benefits of our Village Center designations to support smart growth development, such as Downtown Transportation Fund grants to fund improvements such as sidewalks, crosswalks, traffic calming, beautification, EV chargers, landscaping, etc., in the Village Center.
e. Increase pedestrian accessibility in the village districts, and especially in the designated Village Centers.
f. Incorporate open spaces into village districts to enhance the sense of place, add natural beauty and aesthetic value, increase flood safety, and provide recreational opportunities.

7. Revise the Calais Land Use and Development Regulations such that:

    - Shoreland District Standards are more closely aligned with the state SPA standards
    - Add a River Corridor Overlay District to the Flood Hazard Overlay District and align both with current state standards

g. Revise review criteria for Kents Corner Old West Church Design Advisory Overlay District which allows permitting by joint Calais Land Use & Development Regulations Administrator and Design Advisory Board approval (except for proposed work in Flood Hazard Overlay district, which would still require Development Review Board approval)

Housing

Calais, like the rest of Vermont, is experiencing a complex housing crisis. An inadequate supply of market rate and affordable housing has led to rapidly increasing housing costs for renters and homeowners, pricing many out of the housing market, and increasing the need for affordable housing and housing subsidies.

Contributing factors in this crisis include

- higher interest rates, which have slowed the market for home sales,
- fewer available skilled construction workers, making labor more costly overall;
- rapid increases in the cost of building supplies,
- a lack of the underlying infrastructure (water and wastewater) in many towns (including ours), which developers rely on to make development economically realistic.

A diverse range of housing alternatives is essential for Calais to be a viable, sustainable community able to meet demographic, economic, educational, environmental and transportation goals.

A survey of Calais residents more than 25 years ago found that residents aspire to

- continue to afford to live in Calais, despite spite of forces beyond our control,
- maintain an affordable community where older residents and younger adults choose to live,
- have enough housing available either for sale or rent for those wanting to move here, and
- to meet the diverse housing needs and wants of our community.

Current Conditions

Calais has four zoned village districts - East Calais, North Calais, Maple Corner, and Adamant, each of which has within it a "Designated Village Center." As Village Districts, all forms of housing development, Accessory Dwelling Units (ADUs), Group Homes, Single-Family, Two-Family, Multi-Family, Mixed Use, and Planned Use Development are permitted. The Village Center designation increases the opportunity to obtain grants to develop economic growth or housing.

Overall Trends

Growth: Residential properties (both >5 acres and <5 acres) show small, but steady, growth.

Decline: Unlanded manufactured homes are on a downward trend, while seasonal properties show mixed results, particularly a decline in larger seasonal properties.

Stability: Landed manufactured homes are relatively stable with minor fluctuations.

Total Property Count

The Listers' data shows an increase of 42 homes in the past 12 years, an average increase of just 3.5 new homes per year.

In addition, as of 2024, according to the Listers' data

- 38.5% of residential properties are residential homes on more than five acres, as do 8.85% of seasonal homes (subtotal: 47.35%).
- 46.85% of residential homes are on lots of five acres or less, as are 1.69% of seasonal homes (subtotal: 48.54%).
- Four percent of residential properties are mobile homes on owned land, and .12% are mobile homes that are on leased land (4.12%).

Table 3 Total Property Count, 2013-2024

Year	Total Properties	Change Since Previous Year
2013	784	-
2016	792	+8
2020	816	+24
2024	826	+10
Avg Change Per Year	-	**+3.5** (indicating overall growth)

Seasonal homes are categorized by use (may not be used more than 180 days per year), and some may be winterized.

The 2020 U.S. Census estimated Calais had 873[7] homes, an increase of 31 homes from the 2010 U.S. Census. This indicates a significant slowing in the addition of new homes in Calais over the past decade, with only 3.1 houses being built per year, relative to the prior decade (6.9 houses per year), and slightly lower than the 3.5-unit annual growth rate based on the Listers' data.

Relative to the data provided by the Calais Listers, the Census data appears to overestimate our housing stock by around 5.7% (47 units). Assuming this overestimate is county-wide, Calais continues to make up about 2.8% of the housing in Washington County which now has a Census-estimated 30,645 housing units (an increase of 740 from 2010).

Data provided by the Listers does not break down single-family, duplex, and multi-family dwellings. Based on the percentages that can be established from the Census overestimate, we can estimate Calais has

- 779 single unit dwellings
- 28 two- unit dwellings
- Eight three-to-four-unit dwellings

[7] Calais Town, Washington County, Vermont – Census Bureau Profile, *available at* https://data.census.gov/profile/Calais_town,_Washington_County,_Vermont?g=060XX00US5002311350#housing.

- 34 mobile homes

Using either data source, Calais needs more housing.

Owner-occupied households are smaller with an average of 2.43 members, as compared to renter households, which have an average of 3.64 members.

Cost of Homeownership

The median value of owner-occupied homes in the 2020 Census was $338,400, an increase of $88,400 from the 2010 Census. Estimated median monthly housing costs for the approximately 362 homeowners with a mortgage is $2,093.[8] For the 271 homeowners without a mortgage, estimated median monthly housing costs are $755.[9] 155 households, around 25% of homeowners (combining those with and without mortgages) are contributing 30% or more of their incomes toward housing costs.[10]

Department of Taxes records collected through Property Transfer Tax returns shows the average selling price for non-mobile home residential was $262,428 (less than six acres) and $292,125 (more than six acres) in 2013. The median prices in these categories were $200,000 and $224,500 respectively.

The 2024 data over the first three quarters does not show a significant increase in the average price for properties of less than six acres, which was - $269,421. The data does show a significant increase in the median price - $260,000 vs. $200,000 previously. For residential properties on more than six acres, the average price more than doubled from 2013 to $474,644, and the median price nearly tripled to $640,000.

Cost of Renting

The median rent in Calais is $1,195, which is higher than the median for Washington County overall. Approximately 26% of renters are estimated to pay between $2,000 and $2,500 per month. Census Data indicates around 60% of renters are either rent burdened or severely rent burdened, which means they pay at least 30% or 50% of their monthly income to rent.[11]

---

[8] Id.

[9] Id.

[10] Id.

[11] Id.

American Community Survey (ACS) found that 34.4% of Calais residents moved to the town before 1999, 48.2% moved in between 2000 and 2017, 17.3% moved into the town after 2018.

Challenges

Vermont's housing shortage[i] in terms of both available units of housing and affordability has been growing for years. Limited housing leads to expensive housing, which in turn makes it difficult for jobseekers to afford to move to an area for work. Not surprisingly, rental units are also in high demand, and Vermont's overall one percent vacancy rate in the rental market contributes to high rental costs as well.

According to the new Vermont Housing Needs Assessment performed by Vermont Housing Finance Agency, Washington County is likely projected to need 2,289-3,385 additional homes between 2025 and 2029.[12] This includes between 780 and 1,646 owner homes, and 1,509 to 1,739 rental homes. For Calais to develop 2.8% of this total, this would involve the addition of 64-95 homes, including 22-46 owner homes, and 42-49 rental homes.

Washington County saw a significant rise in home sales in 2021 -829 homes sold, accelerating a steadily increasing pace of home sales each year. However, in 2022 and 2023 home sales decreased. In 2023 only 552 homes were sold across the County, suggesting that rising prices and interest rates, and a constrained supply, were slowing the market.[13]

---

[12] https://outside.vermont.gov/agency/ACCD/ACCD_Web_Docs/Housing/Housing-Needs-Assessment/2025-2029/VT-HNA-2025.pdf?_gl=1*gxgbij*_ga*NjY4MDY2Nzc0LjE3MjM0MTY4MzI.*_ga_V9WQH77KLW*MTcyNjUzMzUzOS4zLjEuMTcyNjUzMzU0NS4wLjAuMA..

[13] https://outside.vermont.gov/agency/ACCD/ACCD_Web_Docs/Housing/Housing-Needs-Assessment/2025-2029/VT-HNA-2025.pdf?_gl=1*gxgbij*_ga*NjY4MDY2Nzc0LjE3MjM0MTY4MzI.*_ga_V9WQH77KLW*MTcyNjUzMzUzOS4zLjEuMTcyNjUzMzU0NS4wLjAuMA..

One contributor to the housing shortage is the significant increase in short-term rentals statewide. Calais is estimated to have had around 23 short-term rentals active in October 2023, which constitutes 2.6% of our town's housing stock.[14]

Homelessness in Washington County has increased substantially since the pandemic, with 446 individuals identified as homeless during the 2023 Point-in-Time count, and 963 identified at the 2024 Point-in-Time count. Washington County has only 92 emergency shelter beds.[15]

Other contributors to the housing need in Vermont include the *cost* of housing. For those leaving Vermont, housing was identified as the most common reason in both 2021 (45.7%), and 2022 (41.56%).[16] This includes wanting a new, better, or larger house or apartment, establishing one's own household, and seeking less expensive housing. The cost of a newly built home has risen 52% since 2019 (pre-pandemic) with a median price in 2022 of $555,264.[17] For Calais to attract and sustain demographic health, economic development and increased sustainability, Calais needs to balance among competing interests to ensure that the cost of housing does not continue to outpace the income of our citizens - as is currently the case. Too often we hear from residents, "my children cannot afford to build and live in Calais."

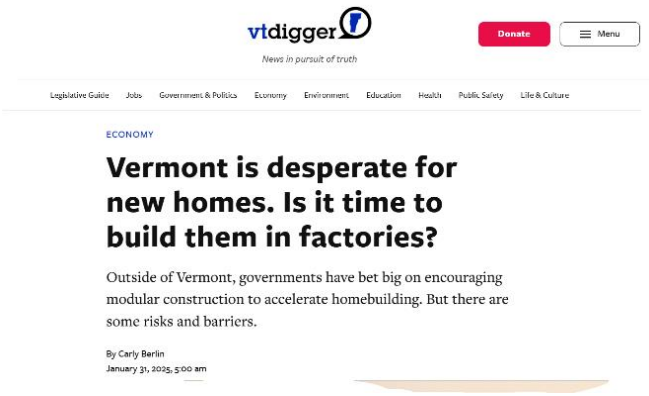

vtdigger
News in pursuit of truth
Donate
Menu
Legislative Guide Jobs Government & Politics Economy Environment Education Health Public Safety Life & Culture
ECONOMY
Vermont is desperate for new homes. Is it time to build them in factories?
Outside of Vermont, governments have bet big on encouraging modular construction to accelerate homebuilding. But there are some risks and barriers.
By Carly Berlin
January 31, 2025, 5:00 am

Figure 7 VTDigger News Article

Workforce and supply chain to develop housing: The construction sector has been constrained by a workforce shortage and supply chain challenges. Flooding in 2023 and 2024

---

[14] https://outside.vermont.gov/agency/ACCD/ACCD_Web_Docs/Housing/Housing-Needs-Assessment/2025-2029/VT-HNA-2025.pdf?_gl=1*gxgbij*_ga*NjY4MDY2Nzc0LjE3MjM0MTY4MzI.*_ga_V9WQH77KLW*MTcyNjUzMzUzOS4zLjEuMTcyNjUzMzU0NS4wLjAuMA..

[15] https://outside.vermont.gov/agency/ACCD/ACCD_Web_Docs/Housing/Housing-Needs-Assessment/2025-2029/VT-HNA-2025.pdf?_gl=1*gxgbij*_ga*NjY4MDY2Nzc0LjE3MjM0MTY4MzI.*_ga_V9WQH77KLW*MTcyNjUzMzUzOS4zLjEuMTcyNjUzMzU0NS4wLjAuMA..

[16] Office of the State Treasurer, U.S. Census Bureau: State-to-State Migration Flows 2022 Analysis of Population Movement In and Out of Vermont at 8 (Nov. 6, 2023), *available at* https://www.vermonttreasurer.gov/sites/treasurer/files/documents/US%20Census%20Bureau%20State-to-State%20Migration%20Flows.pdf.

[17] Anne Wallace Allen, *Housing Crisis is Slowing Vermont's Population Growth, Treasurer Says*, Seven Days Vermont, Nov. 6, 2023.

further impacted both, with resources being re-allocated to clean-up and mold mitigation in impacted buildings, and flooding of some suppliers damaging and destroying inventory.[18]

Regulatory Requirements: Another challenge to building a new home is the cost of compliance with federal, state, and local regulatory requirements. In Over the past two years the state legislature has approached some of these issues, but Calais needs to continue to engage with elected officials and state government leaders on housing policy needs to achieve the Town Plan goals. Short- and long-term rentals are regarded by the Vermont Department of Public Safety (DPS) as Public Buildings. As such, they are expected to conform to the building code standards as established and enforced by DPS. These codes include NFPA 101, IBC, and ADA. It is unclear whether local action in this regard would have a positive or negative impact on the housing shortage. Code compliance would likely require capital expenses that would increase rental costs.

Infrastructure Needs: Three of Calais's four villages lack municipal wastewater systems. Only East Calais village has a water system, run by the East Calais Fire District. Without this underlying infrastructure, Calais may struggle to be an appealing partner for either market rate or affordable housing development.

OPPORTUNITIES

Siting new housing

Calais would benefit by balancing its need for population growth, and housing to accommodate that growth, with conservation of natural resources, wildlife corridors, agricultural land, and the overall rural

landscape. This may include identifying less valuable natural resources or agricultural land that could be amenable to housing development.

New homes, planned unit developments and clustered subdivisions should be placed with that balance of housing and conservation in mind. "Smart Growth" development principles, as defined in the land use section should be used.

Calais needs to work with the Central Vermont Regional Planning Commission (Regional Planning Commission) and state leaders to evaluate need and invest in roadway, water, wastewater, power, and high-speed internet infrastructure that allows compact development in the existing villages, while considering flood resilience. If flood considerations make further village development impractical or prohibitively expensive, Calais may need to reconfigure one or more villages or create a new village district or town center.

The land use section and associated maps provide recommendations for the location of the town's 118 "fair share" of new housing required by the Regional Planning Commission. Calais fell 87 units short of its "fair share" over the course of the prior town plan.

Housing Mix

Calais needs not only more housing, but a more diverse mix of housing types. Calais also needs to build upon its entry into affordable housing development through additional engagement with

---

[18] Carly Berlin, *Vermont was Already Experiencing a Housing Crunch. Then Came Summer Floods*, Vermont Public, Ag. 9, 2023.

Downstreet Housing (formerly Central Vermont Community Land Trust) which manages the three affordable housing units that were rehabilitated by the East Calais community trust as part of the restoration and reopening of the East Calais General Store.

This mix would include:

- smaller size houses,
- accessory dwelling units,
- rental units,
- duplexes,
- multi-family units housing 3 or more units,
- development of clustered housing units,
- mixed use,
- Planned Unit Development made up of units that cater to mixed-income residents.

Calais should explore partnering with a nonprofit affordable housing developer like Downstreet, EverNorth, or Cathedral Square for the development of housing that is accessible for those with needs but who live independently, those who live independently with staff support, and congregate housing to meet the needs of residents with disabilities, and older residents. Calais contains no staff-supported housing, residential care homes, assisted living facilities, or skilled nursing facilities to provide a higher level of care to residents who no longer wish to remain in a private home, or are no longer able to do so. This means we lose valued members of our community due to disability- or age-related housing support needs. Creating these options in the town would also allow new individuals and families to move to Calais through either purchase or rental of the homes existing residents vacate, rather than leaving those homes vacant.

Rehabilitation of housing, and conversion of large houses to multi-family units

There are older houses that could be converted to multi-family units. The Vermont Housing Improvement Program should be promoted to landowners as a source of funding to reduce the cost of such conversion, bring new rental units online, and rehabilitate rental housing impacted by quality issues (e.g., lacking complete kitchen facilities, complete plumbing, lack of heat/use of coal as heating source, overcrowding, or mobile homes built before federal quality standards enacted). This would generate potential income for homeowners in addition to creating opportunities to welcome new residents to the town.

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.

The impact of the 2024 revisions to Calais Land Use & Development Regulations regulations on housing development, housing mix, and affordability will be monitored to identify areas where further adjustment may be necessary to achieve this town plan's housing goals.

Intentional Climate-Resilient Innovations

Calais is served by a patchwork of utilities providing electricity (Washington Electric Cooperative, Green Mountain Power, and Hardwick Electric Department). Green mountain power has worked with South Burlington and a private developer to create an all-electric, storm resilient neighborhood with both multi-family and single-family housing including affordable homes. A smaller scale project in Calais might be very attractive to potential new and existing residents.

Washington Electric Cooperative, which serves most of the homes in Calais, may not have the same resources as Green Mountain Power, but may be particularly interested in dedicating limited resources to such initiatives given the otherwise challenging landscape it serves.

Goals

1. The Selectboard and the Planning Commission will engage with the Regional Planning Commission to identify innovative solutions for shared septic, water, and wastewater systems and funding sources to establish water and wastewater services in the Village Districts and areas just outside the existing Village District boundaries.

2. Calais will commit to being an active partner in solving the state's housing crisis by finding opportunities to add 19 net units of housing (combining owner-occupied and long-term rental units) to Calais for each year of the Town Plan through engagement with landowners who own larger parcels, private developers, and affordable housing developers.

    a. Revise minimum dimensional standards for ADUs to meet or exceed the state minimums to provide housing for families and not just "mother-in-law apartments or studios.

    b. The Selectboard, the Town Administrator, and the Planning Commission will work together to identify landowners who have more than five acres of property and are interested in selling or subdividing land in or near an existing / expanded village district for development of two-family, multifamily, mixed use, planned use, or mobile home park housing options and facilitate partnership with affordable housing developers.

    c. The Selectboard and the Planning Commission will explore, identify and implement local incentives such as temporary tax benefit, for the development of accessory dwelling units and two-family or multi-family housing that contain affordable units.

3. The Selectboard, Emergency Management Committee, and Planning Commission will work with the Central Vermont Regional Planning Commission or an outside expert, potentially in partnership with surrounding towns, to study flood resilience needs in the housing sector and identify how Calais can meet these needs and (a) ensure capacity for desired development of housing to ensure the town's demographic stability and sustainability, (b) allow residents to remain in the town when aging or disability impacts their desire or ability to live independently, and (c) increase the town's stock of affordable housing options for both renters and those seeking homeownership.

    a. If flood resilience needs are determined to make housing development in existing village centers impractical or prohibitively expensive, fund a planner to study and provide options for reconfiguring village districts or a location for a new village district or new town center.

4. The Selectboard and the Planning Commission will engage with state legislators to address statewide and local policies impeding housing development and driving costs of housing development.

5. The Selectboard will explore establishing a housing commission or creating a combined housing and conservation commission to increase attention to the housing needs in the town.

Economic Development

A robust and varied economy plays a vital role in supporting the quality of life we expect in Calais. Such an economy fosters job opportunities and social and cultural exchanges and supplies the necessary resources for various community services. The Town of Calais aspires to support a variety of employment and economic activity, including home-based businesses.

According to the United States Census Bureau, there are 1,543 Calais residents who are 16 years of age or older. Of those, 957 are employed, and 878 of those people commute to work.

Calais has a local economy consisting of numerous small businesses including 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.

Table 4 Calais Residents' Types of Employment

Type of Employment	Percentage
Employee of private company	45.5%
Self-employed in own incorporated business	9.3%
Private not-for-profit wage and salary workers	15.6%
Local, state, and federal government workers	17.2%
Self-employed unincorporated businesses and unpaid family workers	0.5%

Data shows that locally based businesses and job opportunities have decreased over the past several years, but we believe that the Town of Calais should continue to support the growth and establishment of such businesses. Based on census data provided by Central Vermont Regional Planning Commission [CVRPC], the people employed by the Calais businesses come from Calais, Hardwick, Woodbury, Cabot, East Montpelier, Fayston, and Montpelier.

In recent years local groups have supported several successful economic development projects. For example, in 2019, the East Calais Community Trust worked to purchase, renovate, and reinvigorate the East Calais Community Store. Today there is a vibrant locally based business that supports our community with services, a gathering place, and three affordable housing units.

The North Calais Memorial Hall Association raised public and private funding and oversaw the renovation of Memorial Hall on Number 10 Pond, where it has been available since 2023 for weddings, reunions, and other gatherings. And in 2019 a community-owned C-corporation, the Maple Corner Community Store, purchased the Maple Corner Community Store and Whammy Bar Inc., another vibrant local business. Calais is also home to Adamant Co-op, which is the oldest continuously operating co-op in the U.S., and the Adamant Music School, QuarryWorks Theater, and Unadilla Theater.

Figure 8 East Calais Store and Apartments Dedication; Adamant Co-op, Maple Corner Store, clockwise from top

In addition, all four of our villages – Maple Corner, Adamant, East Calais, and North Calais – have received "Village Center Designation" by the Vermont Agency of Commerce and Community Development. With the designation of these Village Centers the Town's efforts to encourage development within our villages as compact, livable, socially, and economically vibrant community centers are enhanced by providing State incentives and benefits such as:

- Tax Credits
  - owners of qualified buildings may apply for tax credits to restore and renovate Historic buildings that contribute to a Designated Village Center's Historic District
  - owners of qualified buildings may obtain tax credits to make building improvements to meet current regulations such as ADA compliance, fire safety, and infrastructure improvements
- Priority consideration for various State and Federal grants such as
  - State Historic Preservation grants,
  - Northern Borders Regional grants,
  - Vermont Housing and Conservation Board grants, Transportation Funds
  - Better Connections grants for walking and bike paths, traffic calming, stormwater management, and other projects within the designated village centers.

These village designations also increase the opportunity to leverage support for housing and wastewater management development.

Challenges and Opportunities

Calais supports local economic endeavors that bolster employment, reduce transportation costs and adverse environmental impacts. In addition to employment opportunities, appropriate economic development can help make our villages more vibrant while maintaining the rural character of outlying areas, increasing property tax revenues, and providing convenient goods and services to town residents.

Community and regional backing through "buy local" campaigns, financial support avenues (including various government and non-profit grants), reasonable Calais Land Use & Development Regulations regulations, affordable housing options, robust transportation systems, and accessible childcare facilities are also crucial.

In Calais, access to high-speed telecommunications is fundamental for most businesses and remote workers. We continue to support and encourage the growth of CVFiber and other providers throughout our community to ensure access to high-speed internet for our citizens. As a community with many cell phone “dead zones” we must continue to support appropriate infrastructure to increase access to digital connections for our residents.

In addition, we must support our local Washington Central School District to ensure the Town has an outstanding educational system to support growth and economic opportunity. When a school district thrives, a community thrives.

Figure 9 Fun on Number 10 Pond

Recreation and tourism are additional major drivers of economic development that Calais can encourage to drive not just economic development, but a high quality of life. Expanding and maintaining trails and bike paths, the North Calais Disc Golf Course and protecting our local lakes and streams, among others, need our continued support.

Other aspects that are imperative to our success include developing affordable housing for people in all stages of life, including families with kids, older residents who want to age in place or move and age here. We need people who can fill roles such as positions in the school, on the road crew and in our local businesses. We need to create transportation systems to support people coming and going from town, and to bolster and expand childcare to support our working families and providers. We need to improve and expand our wastewater systems to support more housing and business.

There are valuable opportunities for sustainable growth in supporting home-based enterprises, small-scale farming, farmers’ markets, local general stores and cooperatives, as well as advancing development in village centers—all of which require our steadfast support.

Goals

1. Promote sustainable and meaningful economic development for all current & future Calais residents. Some actions to consider include:
    a. Support Village Center Designation (Smart Growth Principles apply) for receiving grant monies and supporting infrastructure/transportation improvements
        - Consider hiring a professional town planner, landscape architect or civil engineering firm to help site a new, more central designated village center and/or plan the extension of the designated centers such that they are not in the River Corridor or Flood Hazard areas, so Calais is better able to develop the centers for housing and small businesses.
    b. Facilitate cooperation among businesses and ensure business needs are represented in town decision making and policymaking. Some actions to consider:
        - Create a Calais business association to convene the business community to support business growth and development
        - Create a Calais Entrepreneurial Center with shared office/meeting space, internet connectivity, copying services, and community-based business support
        - Support networking and cooperative initiatives, such as a tool rental cooperative, or group purchasing cooperative for bulk supplies, i.e. General Stores/Co-ops
        - Support food production and other agricultural pursuits including micro and small farming, homesteading, and cooperative agriculture, including a town-sponsored farmer's market. (see Agriculture Section)
2. Ensure Calais Land Use & Development Regulations are reasonable and support small business development, agricultural enterprises, and home-based businesses. Some actions to consider include
    a. review and recommend appropriate changes in the Calais Land Use & Development Regulations regulations to ensure that regulations and conditional uses promote the start-up and sustainability of small, diverse businesses that support the town's vision and values as stated in the Town Plan
    b. consider establishing ***Business*** as a Permitted use type which addresses Calais Land Use & Development Regulations Permits for uses that fall between Home Office, Home Business and Light Industry uses.
    c. Calais Land Use & Development Regulations and other changes to encourage housing affordability: rental housing, single and multi-family home ownership, and accessory dwelling units [see Housing section]
    d. study mechanisms to minimize the regulatory costs of housing development within the Town
    e. support legislative changes re: septic Water/sewage development
    f. advocate to remove the property tax as the mechanism for Education Fund

   g. collect data re: average cost to purchase/ average cost to build
   h. review Calais Land Use & Development Regulations to ensure they enable development of childcare/other desired/needed businesses
   i. explore ways to balance economic development of short-term rental housing (e.g. VRBO/AirBnB) relative to need for long-term affordable rental housing and housing stock for transfer of homeownership (see Housing section)
3. Continue to support regional business development organizations and initiatives. Some actions to consider:
   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 Capstone Community Action, http://www.capstonevt.org/
   b. Encourage Calais residents to represent the town in regional economic and community development initiatives and organizations
   c. Work with adjacent towns to support the development of a regional systems approach to quality, affordable, and reliable early childhood care and education centers and home care providers (see Child Care section)
4. Support growth and development and provision of infrastructure to support Calais businesses
   a. Support and facilitate availability of high-speed internet service to all areas of Calais, including support of CVFiber or other providers in the town [see Municipal Services Section]
   b. Investigate decentralized wastewater systems or on-site system management to allow additional development, residential and business, within village districts
   c. Work cooperatively with neighboring communities when a multi-community solution is needed and feasible

Agriculture

For generations, the Calais landscape has included livestock and dairy, sheep, produce, and grain farms. Farming has been declining for at least a generation, however.

Current Conditions

Today, only one percent of Calais residents earns their living through farming or food production. Almost 90% of Calais residents commute to jobs outside of town. Calais residents, however, value food that is nutritious and affordable and that supports the local economy.

A significant amount of farmland on the eastern side of town is used to produce hay which is sold outside of Calais. Elsewhere in town, many fields and pastures are out of production. These fields continue, however, to provide rural views and support pollinators and other wildlife.

Figure 10 Highland Cattle in a pasture along Blachly Road

In 2021, the last full-time dairy farm in Calais sold their dairy cows and switched to meat production. Two of our largest remaining farms recently changed hands and are producing flowers and organic vegetables for local and export markets. One Town Forest, for example, is currently being leased for Maple Sugar production. Many farms are now small-scale operations kept open by a love for the land.

Vision

What can we, as a community and as a town, do to encourage the best agricultural lands to stay in food production, and not be overgrown or lost to development?

The State of Vermont Agency of Agriculture, Food, and Markets has authority for farming activities in Vermont, while the Department of Forests, Parks, and Recreation oversees silviculture activities. Calais has little control over farming and silviculture, and exempts farming buildings and practices, and silviculture from many permit requirements in our Land Use and Development (Calais Land Use & Development Regulations) Regulations.

Issues Named by Farmers

Taxes

The challenge of how to properly tax farmland has been with us for generations. Everyone benefits from the vistas farms provide, the fresh and healthy local food, the forest canopy that lines the roads we drive and the paths we walk, and from the social diversity and cultural traditions that they keep alive and vibrant.

Tax subsidization, however, is expensive, unequally supports large landowners, reduces the incentive for innovation and modernization, and increases government oversight on land use.

In addition, most of the traditional farmland In Calais is a mix of productive and non-productive land, increasing the effective tax rate on the smaller percentage of land that is income-producing.

Some strategies to mitigate the cost of landownership for farmers include:

1. "Use Value Appraisal" or "Current Use," is a property tax incentive for owners of agricultural and forestry land in Vermont. Eligible landowners enroll to have their land appraised at its Current Use (farming or forestry) value rather than Fair Market Value.
2. A "Conservation Easement" is a legal agreement between a landowner and a government agency or land trust to limit development and protect the land for farming or forestry, for example. Conserved land may have a reduced re-sale value and be eligible for lower property taxes as a result.
3. One major landowner rents houses that share agricultural lots to generate income in a hybrid business plan to offset the cost of taxes.
4. "Density Averaging" is a way that allows farmers to subdivide non-productive land and conserve productive land in a way that would maximize income from selling land without losing farm productivity
5. The Vermont Agency of Agriculture, Food and Markets supports farming. Additional information is available on the Agency of Agriculture's website

Availability of affordable land

Thirty percent of respondents to the National Young Farmer Coalition survey said that barriers to land access prevents them from farming.

Using services like Vermont Land Link, a farmland-specific listing and linking service, farmers can identify and assess potential land opportunities for lease or purchase. The Vermont Land Trust's Farmland Access Program works with the Intervale Center, the University of Vermont's Extension service, and other service providers to provide financial and technical assistance to aspiring farmers.

Some Regulatory Concerns Farmers

Since many of the prime acres of agricultural lands within Calais coincide with the location of aquifers and groundwater recharge sources which provide potable water to the entire town, Calais Land Use & Development Regulations and land use regulations must provide for mitigation of water contamination.

State regulations require all fuel storage vessels above 1000 gallons have a secondary containment vessel. In Calais, any business or farm that has tanks storing more than 500 gallons and have these tanks within a buffer area of 100 feet of a ground water recharge source are required to have a secondary containment vessel.

Figure 11 A Logging Operation

Currently Calais only has water source maps for the East Calais Fire District #1; as the Conservation Commission obtains more complete water source maps for the entire town, those maps could prove useful for aspiring farmers.

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.

To reduce the impacts of farming on water quality, the Required Agricultural Practices set regulatory requirements, such as vegetated and riparian buffers for farms along streams and ponds. There are additional requirements for Medium and Large Farm Operations. These requirements protect surface waters as well as groundwater.

Marketing, processing, and storage

Three local markets sell locally grown agricultural products, and report sales of local products is excellent, plus Calais farmers sell their products at stands, farmers market, or Community-Supported Agriculture (CSA), or directly to processors.

Bees and other pollinators

There are more than 350 species of wild bees in Vermont, as well as many “farmed” species. All of them are stressed by climate change, pesticides in farms and homes, GMO crops, and climate change. Other pollinators are similarly challenged by habitat loss. Managed and native pollinators are important to agriculture; they work on farms pollinating our fruit and vegetables crops. They also provide honey and other bee-related products, adding to Calais’ agricultural diversity.

Climate change, invasive species

Climate change is upon us. With three flood-producing events in the last two years, we are seeing a dramatic change in having to manage excess water, and with recent years’ breaking of each previous record for heat, we are seeing new invasive species and new challenges for our native trees and plants. While flooding has been the issue of late, drought and fire are increasing risks as well.

GOALS

1. Calais maintains detailed mapping of agricultural lands (based on GIS and Central Vermont Regional Planning Commission resources), that identify areas needing protection.
2. Calais has a robust Local Food System that encourages new businesses such as meat processing (slaughter, meat cutting, and packaging) bio-fuel, grains, and the ability to process these products.
3. Calais has a municipal composting center supported by thoughtful land use regulations

Figure 12 Horses on pasture in Calais
Photo by Kathy Hentcy

Strategies to consider to achieve these goals:

a. Explore how to engage Calais residents with UVM Land Link and other farm resources

b. Explore potential for a land exchange program that connects owners of usable land to those wanting to use land within the region.

c. Explore possibility of using or creating non-tax-related incentives to bring ag business here

d. Explore potential for greater flexibility in "on-farm" sales

Flood Resilience

For our purposes, flood resilience is defined as the capacity of the Town of Calais to withstand flooding while reducing the risks of 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.

Like the rest of the state, Calais has suffered from several flooding events. The great flood of 1927 washed out many roads and bridges across the state, and Calais was no exception. Fortunately, in Calais, no lives were lost and no houses were swept off their foundations. Other significant flooding events include:

- 1938 – just eleven years after the Great Flood, 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.

- 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. The Town Hall was an island, surrounded by water over thirty-six inches higher than the lower floor level.

- In August 2011, at least five inches and in places, seven inches of rain brought by Tropical Storm Irene ravaged many Vermont communities but did relatively little damage in Calais.

- In the early evening of May 9, 2010, after light rainfall, 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.

- The Flood of 2023 was one of the most severe natural disasters in Calais's recent history. On July 10th, an intense rainfall event led to widespread flooding, which damaged numerous roads, homes, and essential infrastructure. The town's emergency management team, with support from residents and local contractors, worked tirelessly to address the immediate dangers and begin recovery efforts. The town's Selectboard secured a $1.7 million line of credit to cover the $1.5 million in flood repair costs, while awaiting reimbursement from the Federal Emergency Management Agency (FEMA).

Figure 13 Road washed-out in front of Adamant Co-op July 2023
Photo by Mary Orth

The 2023 event highlighted the urgent need for preparedness and infrastructure resilience, as detailed in the 2023 Town Report. The quick response from the community helped mitigate the damage, and the lessons learned will inform planning efforts.

What are the Flood Risks?

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 in a future rain/flood event is a very real risk, and there is no guarantee against personal injury. In addition, roads rendered impassable to ambulances, fire trucks, utility workers, the road crew and other emergency responders directly affect public safety. Even if future flood events do not result in serious personal injuries, the potential dollar value to the town could be devastating. Personal property loss in a worst-case flood event was estimated in the July 2013 Calais Local Hazard Mitigation Plan to be more than $76 million, or just over $100 million today.

The Calais Selectboard, with input from the town's Emergency Management Coordinator, the Calais Road Commissioner, and with assistance from the Central Vermont Regional Planning Commission (Regional Planning Commission) developed an updated Local Hazard Mitigation Plan (Mitigation Plan) in 2021. The Selectboard officially adopted the Mitigation Plan on September 27, 2021, and FEMA approved it on October 13, 2021.

The purpose of the Mitigation Plan is to "identify policies and actions that can be implemented over the long term to reduce risk and future losses." In addition to a focus on minimizing disaster damage, the Mitigation Plan integrates new strategies, including proactive flood mitigation, appropriate flood plain and river management practices, and fluvial erosion risk assessment initiatives. These strategies are designed to make Calais more resistant to harm and damages in the future, thereby reducing public costs associated with disaster recovery. Calais continues to

Figure 14 Road washout
Photo by Mary Orth

rely on state and federal government support, through the approved Mitigation Plan, to secure necessary funding and resources for effective disaster recovery.

Floodplains and river corridors play an important role in flood risk. Paved or hard-packed surfaces cause faster runoff, for example. And straightened or dredged channels make riverbanks unstable and increase the speed of water flow, increasing the risk of catastrophic damage in a flood. Debris carried by floodwater from one place to another also poses a danger. If managed carefully, however, floodplains and river corridors help store excess flood water, slow water flow and reduce erosion.

To address these issues, Calais should amend the Land Use and Development Regulations to make several critical updates relevant to flood resilience and management. These include:

Flood Hazard and River Corridor Overlay Districts

The regulations should emphasize stricter controls on development within flood hazard areas and river corridors. Development in these areas should require conditional use approval and compliance with enhanced erosion and sediment control standards.

Stormwater Management and Erosion Control

The regulations should require all new developments to incorporate comprehensive stormwater management systems designed to mitigate flood risks. This includes requirements for permeable surfaces, detention basins, and vegetated swales to manage runoff.

Shoreland Overlay District

The Shoreland Overlay District (SHROD) regulations should be updated to include a Shoreland Overlay District with more rigorous protections for shoreline areas. These include mandatory buffer zones, restrictions on new development, and enhanced requirements for vegetation management to prevent erosion and protect water quality.

Floodplain and Floodway Risk

To address hazards from flood inundation its floodplains, Calais should adopt a Flood Hazard Area Overlay District. The Flood Hazard Overlay would have the same boundaries as the Special Flood Hazard Area as shown on the most current flood insurance studies and maps published by the Department of Homeland Security, FEMA, and the National Flood Insurance Program as provided by the Secretary of the Agency of Natural Resources pursuant to 10 V.S.A. § 753. (See the definition of Special Flood Hazard Area in Article 9: Definitions.) The FEMA-mapped boundaries are presumed accurate. The presumption may be rebutted by a Letter of Map Amendment from FEMA.

FEMA has calculated the floodplain on the Flood Insurance Rate Maps to show the 100-year flood boundary, or a flood that has a 1% chance of any given year of occurring. This area of inundation is called the Special Flood Hazard Area. Flood Insurance Rate Maps may also show expected base flood elevations and floodways.

FEMA administers the National Flood Insurance Program, which provides flood hazard insurance. Calais has participated in the National Flood Insurance Program since 1975. Our participation has been and continues to meet or exceed standards set by the state and federal government. As a participating community, property owners in Calais can buy flood insurance through the National Flood Insurance Program. Calais residents qualify for federal insurance, regardless of whether their property is located within a mapped flood hazard area.

The Flood Safety Act, Act 121 of 2024, requires the Agency of Natural Resources to set statewide flood hazard area standards by January 1, 2026. 10 V.S.A. § 755. The state standards may be sufficient, but the Act allows municipalities to adopt more stringent regulations. The Town should review the regulations and determine whether additional Calais Land Use & Development Regulations protections are appropriate.

Fluvial Erosion Risk

According to the Watershed Management Division of Vermont's Agency of Natural Resources, fluvial erosion, which is caused by rivers and streams, can range from gradual bank erosion to catastrophic changes in river channel location and size during flooding.

To address fluvial erosion risks, Calais should adopt a designated River Corridor Overlay District in the Calais Land Use & Development Regulations. The River Corridor Overlay would have the same boundaries as the most current River Corridor delineated by the Vermont Agency of Natural Resources (ANR) pursuant to 10 V.S.A. §§ 1422, 1427(a), and 1428(a). The river corridor

is the land along rivers and streams that is prone to erosion, and the area needed to accommodate a stable river or stream channel. This includes the area within 50 feet of the top of the bank along streams with a watershed size greater than half [.5] a square mile – 2 miles.

The terms "riparian buffer" and "river corridor" both relate to areas adjacent to rivers, but they have distinct definitions and purposes:

Figure 15 A Great Blue Heron on wetland off Martin Road
Photo by Melanie Kehne

Riparian Buffer

Definition: A riparian buffer is a strip of vegetation, typically trees, shrubs, and grasses, located along the edges of rivers, streams, or other water bodies.

Purpose: Its primary role is to protect water quality by filtering pollutants, stabilizing streambanks to prevent erosion, and providing habitat for wildlife.

Focus: Conservation and ecological functions immediately adjacent to the water body.

Width: The width of a riparian buffer can vary depending on local regulations, typically ranging from a few meters to several dozen meters.

Emphasis: Maintains ecological health, improves water quality, and provides shade for aquatic ecosystems.

River Corridor

Definition: A river corridor is the broader area surrounding a river, encompassing the floodplain and the areas affected by the river's natural flow, sediment transport, and flooding dynamics.

Purpose: It focuses on preserving or restoring the natural processes of the river, such as meandering and flooding, to maintain ecosystem health and reduce flood risks.

Focus: The dynamic interactions between the river and its surrounding landscape over a larger area.

Width: It is usually wider than a riparian buffer, as it includes the floodplain and additional land for accommodating natural river movement.

Emphasis: Protects the river's natural functions, manages flood risks, and supports long-term resilience

Table 5 The Difference Between Riparian Buffers and River Corridors

Aspect	Riparian Buffer	River Corridor
Scope	Narrow strip along water bodies	Broader area including floodplains
Purpose	Water quality and habitat protection	River dynamics and flood management
Ecological Function	Immediate edge vegetation support	Whole-system river behavior support
Management Goals	Prevent erosion and filter pollutants	Preserve floodplain functions and reduce flood damage

Since River Corridors vary in widths, depending on the meander pattern of the river or stream, the stated corridor width for planning purposes is determined by the average width of a meander along a representative length of the river's course plus the Riparian Buffer.

For the complete set of regulations in these areas, please refer to the most recent Calais Land Use and Development Regulations.

Dam Failure Risks

The 2024 Curtis Pond Dam Emergency Action Plan provides critical updates for managing the risks associated with the Curtis Pond Dam, which is classified as a Significant Hazard Potential Dam. The Emergency Action Plan defines three levels, from non-emergency situations to imminent dam failure. Each level requires specific responses from local authorities and emergency management teams.

The Town of Calais is actively working to remove the Moscow Woods Dam in collaboration with Friends of the Winooski River. Efforts are underway to secure grant funding and develop a comprehensive project plan, with the goal of completing the removal by 2026. As part of this project, the existing bridge will need to be replaced, and the current culvert will be upgraded to a larger one to improve water flow and reduce flood risks. These improvements will enhance the resilience of Moscow Woods Road while restoring natural river function and aquatic habitat.

Key details of the Curtis Pond Dam include:

Dam Description: The Curtis Pond Dam, built in 1900, stands 14 feet high and 120 feet long. It is managed by the Curtis Pond Association with oversight from the Town of Calais. In July 2023, the dam overtopped for several days due to severe flooding, necessitating the construction of a temporary stone buttress. Full reconstruction of the dam was completed during the summer of 2024.

Dam Failure Flood Inundation Map: The Emergency Action Plan includes a flood inundation map that shows the potential impact of dam failure, and identifies specific homes, businesses, and roads at risk. This map is essential for planning evacuations and managing the immediate response during an emergency.

Population at Risk[19] (PAR): The Emergency Action Plan estimates the number of people at risk in the event of a dam failure, with a nighttime risk of 44 and a daytime risk of 29.

Landslide Risk

Landslides have posed significant challenges to Calais' infrastructure, particularly along Moscow Woods Road, where steep, sandy terrain increases the risk of slope failures. A major landslide rendered the road impassable for several months following the 2023 Flood Event, requiring extensive engineering and thousands of truckloads of material to stabilize and rebuild at a cost of nearly half a million dollars. Another high-risk area along Moscow Woods Road is near the transfer station, where remnants of the old landfill—rotting waste atop unstable sandy soil—further weaken the ground. This hazard was identified during road repairs, and access has since been restricted to prevent vehicles from driving onto the unstable area.

Water Contamination Risk

A moderate threat (in terms of risk probability) to community wellbeing is the contamination of drinking water sources as the result of 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.

Climate Change Effects

Information from the State of Vermont's Climate Action Office highlights the significant ways climate change affects communities like Calais. Local weather patterns, topography, and climate play a crucial role in shaping soil stability, vegetation growth, stormwater management, flooding risks, groundwater availability, and infrastructure maintenance.

Historically, Vermont's winters were dominated by cold, dry air from Canada, while summers brought warmer, humid conditions from the south. However, long-term warming trends have accelerated in recent decades. Since 1900, the state's average annual temperature has increased by approximately 3°F. Projections suggest that this warming could continue, with temperatures potentially rising another 5–9°F within the next 50 to 100 years.

Once viewed as a future challenge, climate change is now a present-day concern. For example, the devastating flooding that impacted Calais in 2023 followed by slightly less catastrophic flooding exactly a year later, underscores the need to integrate climate resilience into town planning efforts.

Warmer temperatures are driving noticeable changes. Extreme heat events have become more common, the growing season is longer, and heavy rainfall events are more frequent, often leading to severe flooding. Invasive species are also spreading more rapidly. From 2010 to 2020, Vermont experienced its warmest decade on record. While total annual precipitation has increased by about 6 inches since the 1960s, weather variability has also resulted in more periods of drought.

---

[19] https://headwaterseconomics.org/tools/populations-at-risk/tool-about/

The changing climate has significantly impacted Vermont's winters. More precipitation now falls as rain instead of snow, and less frozen ground affects the health of trees, forestry operations, maple syrup production, winter sports, and road maintenance. Additionally, the freeze-free period has extended by three weeks since the 1960s. During the winter of 2024, there were as many as five "mud-seasons" or periods of repeated freeze-thaw cycles. These events stress vegetation, wildlife and domestic animals such as cows and other livestock, and lead to rain-on-snow events that heighten flood risks.

Figure 16 A Cyclist Navigates Mud Season on a Calais Road

By recognizing these challenges and trends, Calais can plan proactively to ensure a sustainable and resilient future in the face of a changing climate.

Mitigation - Watersheds

Storm water management starts in our watersheds. Effective watershed 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 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 protect banks from erosion caused by rapid water flow. Properly designed roadside ditches allow for storm water to continue its flow downstream without undue erosion. Water collected in steams 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 watershed. Calais has established an Upland Overlay District, which controls the kind of development associated with poor watershed management. 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 inappropriate or high-density development. These areas are generally characterized by steep slopes, rock outcrops, and shallow soils, and they include important headwater and aquifer recharge areas, large tracts of unbroken wildlife habitat, valuable timber and recreational land, and scenic hills and ridgelines. They are also generally distant from public services and facilities and, as a result, are difficult and costly to access.

In addition to the Vermont Shoreland Protection Act, Calais currently regulates the Shoreland Districts through Calais Land Use & Development Regulations . This should be improved to more closely align with state law by creating a Shoreland Overlay District which aligns with or is more strict than the State Shoreland Protection Act.

Such a District would conserve aquatic and wildlife habitat and water quality and foster the recreational and economic benefits of Calais' lakes and ponds. It would also improve flood resilience by:

- Preserving and promoting the natural features and stability of vegetated shoreland areas
- Reducing stormwater runoff and erosion through best management practices, such as low impact development, and promoting revegetation of native plants and trees to slow run-off
- Applying the Vermont Shoreland Protection Act to all lands protected by the Act and extending and improving critical protections to the Shoreland areas that cross town public highways. This would include the former Shoreland District area east of Curtis Pond.

Figure 17 Bliss Pond Road wash-out July 2023
Photo by Mary Orth

For more information and the specific regulations, please refer to the most recent version of the Calais Land Use and Development Regulations.

Mitigation – Roads, Bridges & Culverts

The Agency of Natural Resources online guide on Flood Resilience Planning estimates that 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.

Acceptable standards can be found in the VTrans Orange Book, 2014-2016: A Handbook for Local Officials.

The Calais Road and Bridge Standards, address flood damage mitigation as a guiding principle:

> "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."*

Planning for Flood Resilience

The Town of Calais repaired the Curtis Pond Dam, as mentioned above. Other projects include the removal of the Moscow Woods Dam, increasing culvert sizes, elevating emergency shelter generators, finding local sources for road gravel and material, preparing for the inevitable impacts of climate change and flooding, reviewing and preparing Calais Land Use & Development Regulations ordinances to protect new development from flooding, documenting all known existing structures will be within the new Flood Hazard Overlay and River Corridor Overlay districts, and exploring the potential of hiring a grant professional to assist with applying for mitigation opportunities. The state has also determined that dams at Elmslie Pond, Adamant Pond and #10 Pond are also Significant Hazard Dams.

Future Storm Water Management Goals

Uncontrolled storm water runoff poses threats to life, safety, and property. Implementation strategies to protect against this threat requires that we establish the following priorities:

- First priority: roadside ditching and culvert and bridge replacement to ensure access by emergency vehicles and the movement of school buses in a flood event
- Second priority: Complete other roadside ditching and replacement of culverts and bridges that are inadequate to handle expected runoff and erosion in a flood event but that aren't critical to emergency vehicles access

The Local Hazard Mitigation Plan was prepared by the Town of Calais and the Central Vermont Regional Planning Commission.

Natural Resources

Calais has an abundance of natural resources, and it is our natural resources that represent much of what makes life in Calais unique and enjoyable. Living in Calais, surrounded by nature, we are able to maintain a connection with the land and an appreciation for wildlife.

The forests provide a variety of benefits to residents: income from forest products; habitat for wildlife species; recreational opportunities; and clean water by filtering surface water runoff.

Figure 18 Welcome Sign at Chickering Bog
Photo by Melanie Kehne

Plentiful and diverse wildlife provides opportunities for hunting, fishing, tracking, and connecting with the natural world. Calais has several areas that are known to contain rare, threatened, or endangered species of plants or animals or which support significant natural communities of plants or animals. Calais also has numerous ponds, streams, and wetlands that provide opportunities for water recreation, wildlife observation, aesthetic enjoyment, and peaceful contemplation. Our groundwater is abundant, accessible, and potable.

Calais has the physical geography and human development patterns that make it a scenic and interesting place to live. One can find in Calais unique natural places that are often remote, quiet and beautiful and that are of immeasurable value both for their own sake and for the enjoyment of people. As Calais residents, we need to share the responsibility for protecting and conserving these valuable resources for future generations.

Based on a buildout analysis, completed by the Central Vermont Regional Planning Commission, Calais Residents can expect an additional 120 single-family dwellings by 2020. The question becomes how do we provide an adequate level of protection for our Natural Resources and still provide flexibility for development?

There are many actions that can be taken now to conserve Calais' important natural resources. However, more comprehensive information as to th types, locations and significance of the town's various natural resources would enhance the town's ability to plan for future growth in ways that will allow our natural resources to be protected. To this end, a two-part Natural Resources Inventory was completed in 2017 under the auspices of the Calais Conservation Commission.

Figure 19 Trout Lily Photo by Melanie Kehne

II. Natural Resource Areas

Natural resource areas are composed of a hierarchy of features. At the top of this hierarchy are the large features that dominate the natural landscape of Calais. These are the interior forest blocks; the connectivity blocks, the connecting corridors of smaller forests that tie together the larger contiguous areas and are critical for the survival of many species of animals and plants; the lakes, ponds, rivers, streams; and the wetlands. Because there are "natural communities" within these places, we have chosen to discuss these components in Section II of this document.

Section III, Components of Natural Resource Areas, discusses some of the natural features within natural resource areas that are worthy of recognition and protection. They include deer wintering areas and rare, threatened, and endangered species. Other natural features that are important, but may take more research and inventory, including vernal pools, natural areas, mast stands, grassland bird habitat, and turtle habitat, are addressed in the Supplemental Information at the end of the Town Plan. The natural resources that we manage, such as agricultural lands, mineral resources, and public lands, are discussed in Section IV, Managed Natural Resources.

Detailed information is provided for each of the natural resource elements, as well as conservation goals and recommended action steps.

A. INTERIOR FOREST BLOCKS

Interior Forest Blocks are areas of contiguous forest and other natural communities and habitats (such as wetlands, ponds, and cliffs) that are unfragmented by roads, development, or agriculture. See 23 V.S.A. § 4303(34) (defining "forest block"). Forest blocks were identified, mapped, and ranked by Vermont Fish and Wildlife Department in 2014.

Ecological Function: Forest blocks provide many ecological and biological functions critical for protecting native species and the integrity of natural systems, including:

Supporting natural ecological processes such as predator-prey interactions and natural disturbance regimes: Helping to maintain air and water quality and flood resilience;

Supporting the biological requirements of many plant and animal species, especially those that require interior forest habitat or require large areas to survive;

Supporting viable populations of wide-ranging animals by allowing access to important feeding habitat, reproduction, and genetic exchange; and

Serving as habitat for source populations of dispersing animals for recolonization of nearby habitats that may have lost their original populations of those species.

Guidelines for prioritizing the interior forest blocks in Calais:

The importance of Calais' interior forest blocks is enhanced by the fact that the Town serves as a connecting link between the more expansive forested areas of the Groton State Forest to the southeast and the Worcester Mountain Range to the northwest. Larger interior forest blocks are more important than small ones, which may provide little interior forest habitat. In general, interior forest blocks larger than 250 acres provide interior forest habitat values and are especially important when linked to others. Smaller blocks may provide other habitat or natural resource values, especially if they are part of identified connectivity blocks linking large habitat blocks together. Large interior forest blocks that include other natural resources (such as wetlands, rare species, or deer wintering areas) are more important than similarly sized blocks without these natural resources.

Guidelines for Maintaining the Ecological Function: The primary goal is to maintain the interior forest conditions that forest blocks provide by avoiding permanent interior forest fragmentation resulting from development. Limited development on the margins of existing large forest blocks may not have significant adverse effects as long as it does not reduce connectivity between blocks and does not encroach into the forest block interior. Forest management that maintains forest structure within the block and results in a distribution of all age classes is compatible with maintaining interior forest conditions over the long term.

Information or data available: A map of interior forest blocks as they exist today in Calais is appended to the Calais Town Plan. Any future updates to Interior Forest Blocks are available on the ANR Natural Resource Atlas.

GOAL: Conserve interior forest blocks in in calais while ensuring the viability of working lands associated with a sustainable forest products economy and promoting stewardship for these areas

a. Identify interior forest blocks that are at least 500 acres each, are relatively undisturbed, have the most diverse habitat types and have the best landscape context (near other interior forest blocks well buffered from fragmenting features) using public input and Natural Resource Map as resources

b. Establish a land and/or development rights acquisition plan drawing upon the Calais Conservation Fund, partnerships with private non-profit conservation organizations, and community fund raising efforts to conserve these large areas of interior forest blocks where landowners are willing.
c. Support and promote a sustainable local and regional forest products economy by encouraging landowners who are eligible to enroll in the Vermont Current Use Program through community outreach and educational opportunities.
d. Use overlay maps for natural resources, agricultural lands and flood plains as guidance for considering Calais Land Use & Development Regulations regulations that direct limited development in areas that minimize impact on natural resources and infrastructures. Please refer to Housing Section of Calais Town Plan for specifics.

B. CONNECTIVITY BLOCKS

Connectivity Blocks are the network of forest blocks that together provide terrestrial connectivity at the regional scale (across Vermont and to adjacent states and Québec) and connectivity between all Vermont biophysical regions. See 24 V.S.A. § 4303(36) (defining "habitat connector"). Landscape connectivity refers to the degree to which blocks of suitable habitat are connected to each other. There is a high level of connectivity within individual forest blocks. The proximity of one forest block to another, the presence of riparian areas, and the characteristics of the intervening roads, agricultural lands, or development determine the effectiveness of the network of Connectivity Blocks in a particular area.

Ecological Function: A network of Connectivity Blocks allows: wide-ranging animals to move across their range, to find suitable habitat for their daily and annual life needs, young animals to disperse, plant and animal species to colonize new and appropriate habitat as climate and land uses change, and contributes to ecological processes, especially genetic exchange between populations.

Maintaining the landscape connectivity function requires both Connectivity Blocks and Riparian Areas for Connectivity, especially in highly fragmented areas of Vermont. There is general agreement among conservation biologists that landscape connectivity and wildlife corridors can mitigate some of the adverse effects of habitat fragmentation on wildlife populations and biological diversity. Specifically, climate change adaptation is enhanced if the long-distance movements of plants and animals is supported by a combination of short movements within large, topographically diverse forest blocks and short corridor movements between forest blocks.

Guidelines for prioritizing the connectivity blocks within Calais: All riparian habitat in Calais is important but Calais' major streams and rivers including Dugar Brook, Pekin Brook, Kingsbury Branch, and their major tributaries are particularly significant. Similarly, while small areas of forest and wetland provide important habitat, those areas that connect larger interior forest blocks are likely more significant. Wildlife road crossing areas are locations where there is suitable cover habitat and no physical barriers on both sides of the road, and where vehicular traffic patterns allows

for animals to cross with minimal mortality. Wildlife road crossings are likely the most threatened aspect of connectivity blocks as housing construction or other development at crossing locations may effectively eliminate wildlife use of some crossings.

Information or data available about connectivity blocks: A map of connectivity blocks as they exist today in Calais is appended to the Town Plan. Any future updates to Connectivity Blocks are available on the ANR Natural Resource Atlas.

Guidelines for Maintaining the Ecological Function of a Connectivity Block: Similar to Interior Forest Blocks, it is important to maintain the interior forest conditions in Connectivity Blocks by avoiding permanent interior forest fragmentation resulting from development. Connectivity within forest blocks will remain high if they remain unfragmented. For Connectivity Blocks it is also critically important to maintain or enhance the structural and functional connectivity that occurs on the margins of these blocks where they border other blocks. This can be accomplished by maintaining forest cover along the margins and by limiting development in these areas of block-to-block connectivity.

Riparian Areas for Connectivity (Riparian Corridors)

Riparian Areas are the connected network of areas along streams, rivers, and other surface waters, in which natural vegetation occurs, providing natural cover for wildlife movement and plant migration.

Ecological Function: In addition to supporting the integrity of the lakes, ponds, rivers, and streams that they border, naturally vegetated riparian areas are especially important for providing cover for wildlife movement and other important wildlife habitat, such as nesting habitat for birds. Many wildlife species use riparian corridors for travel to find suitable habitat to meet their life requisites, but certain species are almost entirely restricted to riparian areas, including mink, otter, beaver, and wood turtle. The linear nature of riparian areas contributes to their function as movement corridors for wildlife. Roads, development, and agricultural lands fragment the Vermont landscape. The combination of Riparian Areas for Connectivity and Connectivity Blocks provide the best available paths for connectivity across the landscape, especially in highly fragmented areas of Vermont.

Guidelines for Maintaining the Ecological Function of Riparian Areas that support Connectivity:

Restoration is needed to provide a fully functioning network of riparian areas that support connectivity.

Restoration of natural vegetation is needed for river and stream shorelines where it does not exist now, and especially in riparian areas that provide the best available terrestrial connectivity between relatively isolated Connectivity Blocks. The width of naturally vegetated riparian areas needed to provide riparian connectivity varies from 100 feet or less on some small streams (50 feet each side) to

600 feet or more (300 feet on each side) for larger rivers or riparian areas that span long distances of otherwise unsuitable habitat.

Information or data available: A map of riparian areas for connectivity and wildlife road crossings in Calais is appended to the Town Plan.

GOAL 1: Conserve important and functioning connectivity blocks

a. Conduct a connectivity block inventory and use the information to identify and prioritize these areas for conservation.
b. Consider establishing Calais Land Use & Development Regulations regulations that require a heightened level of conditional use approval by the DRB for these areas to protect the function of important wildlife corridors from encroaching development and incompatible activities and encourage density averaging.
c. Consider using conservation easements, landowner incentives, and overlay districts to establish a network of connectivity blocks within the town that connects all conserved lands, lands under long-term stewardship, or other habitats identified as important.
d. Lands being considered for public acquisition or other long-term conservation efforts will take into account important connectivity blocks.
e. Adopt town road management standards designed to conserve wildlife corridor functions by avoiding the installation of guardrails (where possible), avoiding the removal of roadside vegetation, avoiding roadside ditching in existing corridor areas and providing for wildlife crossing where necessary.

Goal 2: Promote landowner awareness of important connectivity blocks identified on their property so that they can make appropriate land management decisions for protection and conservation

Figure 20 Sodom Pond
Photo by Melanie Kehne

a. Inform landowners of important connectivity blocks identified as existing on their land and offer a site visit to discuss its significance as a town resource. Provide educational opportunities (such as community programs, site visits, and related media materials) to landowners and/or those who work their land, on the important characteristics of connectivity blocks and how to protect those characteristics.

b. Invite landowners to consider making a long-term conservation easement or stewardship

commitment for the connectivity blocks crossing their land. This land will be given high priority in considering land for acquisition or other long-term conservation efforts.

Establish an incentive program that provides recognition to landowners who are managing their property as wildlife habitat. This will be given high priority in considering land for acquisition or other long-term conservation.

C. PHYSICAL LANDSCAPE DIVERSITY BLOCKS

Physical Landscape Diversity Blocks (often referred to as enduring features) are the parts of the landscape that resist change. They are the hills and valleys, the underlying bedrock, and the deposits left behind by glaciers. They remain largely unchanged when changes in land cover and wildlife occur, as plants and animals move, and even as the climate changes. Physical landscape features are either rare in Vermont or are under-represented in the other kinds of blocks identified in Section A and B of Part II Natural Resources [above].

Physical Landscape Diversity Blocks complement the other block types and riparian area in order to more fully represent the complete spectrum of physical landscape diversity that is important for an ecologically functional landscape. However, these physical landscapes cannot continue to drive ecological processes or support plants, animals, or natural communities if they are developed or otherwise significantly altered by human activities.

In Calais, the Highest Priority Physical Landscape Diversity Blocks represent two distinct features. Most of these blocks represent the calcium-rich bedrock of the Waits River Formation. Calcium-rich bedrock supports many rare species and rare communities, such as the Rich and Intermediate Fends of Chickering Bog.

Calcium-rich bedrock also produces soils that support Rich Northern Hardwood Forests, excellent tree growth, and productive agricultural lands. Calais has an abundance of calcium-rich bedrock. A smaller proportion of the Physical Landscape Diversity Blocks in Calais represent deep sandy and silty soils and some gravel that are found along the valleys of Pekin Brook and Kingsbury Branch. These represent a mixture of origins, including recent alluvial soil deposits, soils deposited into a glacial lake that once existed in the valley bottoms and, further upstream, glacial outwash deposits of sands and gravels that gave rise to Calais' sand and gravel pits.

Guidelines for Maintaining the Ecological Function of Physical Landscape Diversity Blocks: Similar to Interior Forest Blocks, it is important to maintain the interior forest conditions in Physical Landscape Diversity Blocks by avoiding permanent interior forest fragmentation resulting from development. Forest management that maintains forest structure within and results in a distribution of all forest age classes helps to maintain the physical landscape diversity functions.

D. AQUATIC RESOURCES

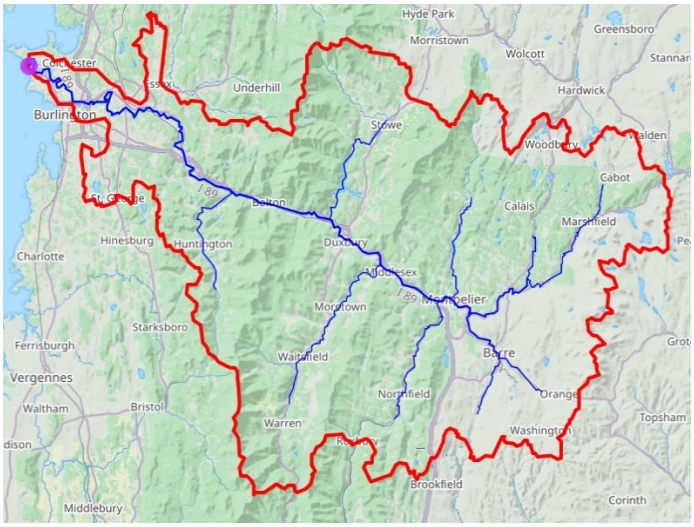
Lakes and Ponds: Fifteen ponds of five or more acres are contained within, or partly within, the Town. The largest are Nelson Pond (131 acres), Curtis Pond (103 acres), Number 10 Pond (Mirror Lake) (77 acres), North Montpelier Pond (53 acres), and Bliss Pond (46 acres).

Others include Sodom Pond, Upper Adamant Pond, East Calais Pond, Hawkins Pond, Watson Pond, Tabor Pond, Wheelock Pond, Little Pond, and Little Mud Pond. Many of the ponds are accessible to the public and provide recreational opportunities such as swimming, fishing, canoeing, boating, and wildlife observation. Lakes and ponds also provide valuable habitat for plants and animals. Recognizing their importance, Calais has adopted shoreland Calais Land Use & Development Regulations to protect the environmental, ecological and recreational qualities of its lakes and ponds.

Rivers and Streams: Calais' named rivers and streams are the Beaver Meadow Brook, Carr Brook, Dugar Brook, Kingsbury Branch, Long Meadow Brook, Pekin Brook, Still Brook, and Worcester Brook.

All of these are in the Winooski River watershed.

Figure 21 Winooski River Watershed
Image by OpenStreets



To maintain water quality, protect wildlife habitat, and prevent soil erosion and surface runoff, the Calais Land Use and Development Regulations require a minimum riparian buffer of fifty feet on named rivers and streams, and of twenty feet on all other streams.River Corridor Plans have been completed for the Kingsbury Branch and Pekin Brook watersheds. A River Corridor Plan is a planning document designed to manage, protect and restore rivers toward equilibrium conditions by resolving conflicts between human infrastructure and river dynamics.

The River Corridor Plans for the Kingsbury Branch and Pekin Brook watersheds may be found on the Vermont Agency of Natural Resource website: https://anrnode.anr.state.vt.us/SGA/finalReports.aspx

Aquatic and Riparian Habitat: Aquatic habitat includes all of the surface waters of Calais, specifically streams, rivers, lakes, and ponds. Riparian habitat is the area directly adjacent to aquatic habitat and includes adjacent wetlands, floodplain forests and shrub swamps, and upland forests.

Aquatic and riparian habitat forms a network across the landscape and defines the path of surface water movement.

Aquatic habitat supports fish, numerous mammals, aquatic plants, and all other aquatic organisms. Riparian habitats typically have high biological diversity and include reptiles and amphibians, plants, waterfowl, songbirds, bats, mink, and otter. Riparian habitats protect the adjacent aquatic habitat by shading the open water and maintaining cooler water temperature and by stabilizing stream banks. Undisturbed riparian areas are key in maintaining proper floodplain function and the natural form and function of rivers to avoid damage from fluvial erosion during major flood events. Riparian areas provide some of the most important wildlife habitat, including wildlife travel corridors and diverse cover adjacent to open water which allows wildlife to safely access and use the open water that is critical to their survival.

All ponds and perennial steams in Calais are well mapped on topographic maps. Fifteen ponds of five or more acres are contained either fully or partly within Calais. Watershed surveys have been conducted for Bliss, Curtis, North Montpelier and No. 10 ponds.

Groundwater: The protection of our groundwater resources is crucial. The community is dependent on aquifers, the underground sources for domestic water supply. Pollution or significant depletion of groundwater aquifers would be a hardship for many years to come and would adversely affect streams and aquatic biota, as well as our drinking water supply.

Major groundwater deposits in the region are most often found in areas underlain by stratified drift deposits (permeable sand gravel of glacial origin) along watercourses in valley areas. In Calais, the areas of greatest potential yield occur along the length of the Kingsbury Branch and Pekin Brook.

Land directly above an aquifer, as well as upland areas from which runoff drains toward the aquifer, is the recharge area. Because land uses which have the potential for spills of toxic substances may pollute the groundwater aquifer, the regulation of land uses in recharge areas is necessary for aquifer protection.

INFORMATION OR DATA AVAILABLE ABOUT GROUNDWATER:
The Land Use map associated with this plan shows the wellhead protection areas (WHPA) in town that have been designated by the State. Vermont's groundwater protection law (10 V.S.A. Chapter 48) sets forth general policies for WHPAs. State geologists are currently Floodplains and Fluvial Erosion Hazard Areas (See Flood Resilience section)

GOAL 1: Protect the town's surface waters - lakes, ponds, streams and rivers - and their riparian habitat by preventing loss and fragmentation of these habitats

a. Educate landowners about the importance of riparian buffers and the various programs available for conservation easements of riparian buffers. Work with landowners and provide incentives for them to maintain and re-establish naturally vegetated riparian habitat.
b. Consider revising Calais Land Use & Development Regulations regulations to require minimum setbacks of 150 feet and vegetated buffers of 50 feet for all surface waters.
c. Work with riparian landowners to end the practice of mowing or clearing to the edge of named ponds and streams and assist to restore the vegetative buffers. Consider revising the Calais Land Use & Development Regulations regulations to phase out the mowing or clearing of land to the edge of ponds and streams.
d. Notify the owners of a property that has either changed use or changed ownership of all land regulations regarding the practice of mowing or clearing to the edge of named streams and ponds on the property to maintain vegetative buffers.
e. Educate the landowner about the importance of setbacks and buffer areas.
f. Consider clarifying Calais Land Use & Development Regulations regulations pertaining to surface water protection so that the buffer requirements apply to all vegetated buffers and not just new development.
g. Consider requiring conditional use approval for all new stream crossings. Stream crossings must be limited as much as possible and, where they cannot reasonably be avoided, must be properly sized and installed so as to maintain stream channel function and aquatic organism passage.
h. Consider adopting a comprehensive Riparian Buffer plan or ordinance or Calais Land Use & Development Regulations bylaw to promote the establishment and protection of heavily vegetated areas of native vegetation and streams to reduce the impact of stormwater runoff, prevent erosion, protect wildlife and fish habitat, and maintain water quality.
i. Consider adopting a comprehensive Low Impact Development Stormwater Management Bylaw to promote stormwater management practices that maintain pre-development hydrology through site design, site development, building design and landscape design techniques, and road construction and management. http://www.vtwaterquality.org/stormwater/htm/sw_green_infrastructure.htm

Goal 2: Improve the riparian habitat in calais by allowing native woody vegetation to become reestablished or by planting native woody species where necessary

a. Develop a Road Inventory and Capital Budget Plan to identify and prioritize repair of road problems that result in erosion of gravel and other habitat impairing substances into streams. This includes identification of existing inadequately sized or installed road culverts that degrade riparian habitat by exacerbating erosion, and that impair passage of fish and other aquatic organisms.

b. Work with local watershed associations, Friends of the Winooski, and Natural Resource Conservation Districts to assist landowners in restoring riparian habitats on their lands. Assistance includes informing landowners about federal riparian restoration cost-sharing programs, organizing volunteers to install woody plants, raising outside funds to help with cost-sharing matches, and educating about the importance of riparian habitat.

D. Wetlands

Definition: Areas that are inundated or saturated with water for long enough during the growing season to develop wetland or hydric soils (such as grey, mottled mineral soils or deep organic soils) and that are dominated by plant species adapted to life in saturated soils.

Swamps are forest or shrub-dominated wetlands, marshes are dominated by herbaceous vegetation, and peat lands (including bogs and fens) are wetlands with deep, poorly decomposed organic soils that usually lack trees. Each of these wetland types supports a unique group of plants and animals, many of which require these wetland habitats to survive.

Value of wetlands: Wetlands serve a wide range of ecological functions and are beneficial to a variety of native plant and animal species. Wetlands provide important habitat for waterfowl and other birds, mammals, and fish. Wetlands also provide flood and erosion

protection, nutrient and pollution filtration, groundwater recharge, aesthetic interest and diversity, and sites for education and research opportunities and recreational activities.

INFORMATION OR DATA AVAILABLE ABOUT WETLANDS: Most wetlands in Vermont have been fairly accurately mapped by the NWI project of the U.S. Fish and Wildlife Department. The U.S. Army Corps of Engineers has regulatory authority over wetlands. Wetlands on the NWI maps are also protected under the Vermont Wetland Rules that are implemented by the Vermont Department of Conservation. The statewide maps are currently being updated to include more wetlands.

Goal: Provide for long-term stewardship and protection of town wetlands and prevent future loss of wetlands

a. Establish ways to protect wetlands and wetland-dependent wildlife by restricting development and activities in wetlands and by maintaining or establishing vegetated buffers around their edges.
b. Conduct an inventory of wetlands in town to verify NWI wetlands, and document other wetlands not on the NWI maps. The Selectboard may petition to reclassify significant wetlands not on the NWI maps to Class I or Class II for better protection under the Vermont Wetland Rules.
c. Develop a landowner stewardship program to encourage restoration and maintenance of wetlands and their buffers. Inform landowners about federal cost-sharing habitat restoration programs.

d. Adopt road management standards designed to protect identified wetlands. Roads must be managed to maintain natural vegetated buffers around wetlands and to limit road runoff from directly entering wetlands.
e. Develop a landowner stewardship program to encourage restoration and maintenance of wetlands and their buffers. Inform landowners about federal cost-sharing habitat restoration programs.

E. Vernal Pools: (See supplemental information)

F. Natural Communities

Definition: A natural community is an interacting assemblage of plants and animals, their physical environment, and natural processes that affect them. As these assemblages of plants and animals repeat across the landscape wherever similar environmental conditions exist, it is possible to describe these repeating assemblages as natural community types. Examples include common forest types like Northern Hardwood Forest and Hemlock Forest and rare to uncommon wetland types like Rich Fen and Alluvial Shrub Swamp.

VALUE OF NATURAL COMMUNITIES: To conserve them for future generations, the particular environmental setting they require must be under minimal human disturbance. The full range of natural communities in Calais captures most of the biological diversity found in town. High quality examples of natural communities are of statewide significance.

GUIDELINES FOR PRIORITIZING THE SIGNIFICANCE OF NATURAL COMMUNITIES IN CALAIS: State-significant examples of natural communities are identified and mapped by Vermont Fish and Wildlife Department using an evaluation process based on the rarity of the natural community type and the condition of the natural community example. Calais recognizes this prioritization system already in use by Vermont Fish and Wildlife Department. Examples of rare and uncommon natural community types are a higher priority for conservation than common natural community types.

Information or data available about Natural Communities:

Vermont natural community types are described in the book Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont (Thompson and Sorenson, 2005). The Natural Heritage Program of Vermont Fish and Wildlife Department maintains a database and map of state-significant natural communities statewide, and the methodology used to evaluate them. In Calais, Chickering Fen, owned and managed by The Nature Conservancy, is an example of a Rich Fen, and is likely the best example of this rare natural community type in Vermont. Currently, four state significant natural communities have been identified in Calais; Poor Fen at West Hill Road, Calais Poor Fen, Red Maple-Black Ash Seepage Swamp at West County Road Swamp, Northern White Cedar Swamp at Bliss Pond Cedar Swamp, and Intermediate Fen at Chickering Bog. The Calais Conservation Commission has worked with landowners on a town wide natural areas inventory, which will in part identify additional state-significant natural communities.

Goal 1: Ensure conservation and appropriate stewardship of significant natural communities in Calais

a. Continue to identify, field inventory, and map significant natural communities in Calais, which contain areas of both local and statewide significance and obtain as complete a portrait and understanding as possible of both.
b. Hold community/public educational forums about the significant natural communities comprising parts of both Calais and its greater bioregion.
c. Discuss the rarity of the local natural communities and potential threats to their integrity.
d. Make information available to landowners about significant natural communities identified on their property. Provide resource information (and land managers) and assistance in developing long term stewardship, conservation and/or restoration plans, as appropriate to willing landowners.
e. Invite landowners to consider making a long term conservation easement or stewardship commitment for the natural community on their land. This resource will be given high priority in considering lands for acquisition or other long term conservation efforts.
f. Include natural communities in open space planning and land easement acquisition programs
g. Consider establishing Calais Land Use & Development Regulations regulations that protect or conserve identified (by the State or the Calais Natural Resources Inventory) significant natural communities from encroaching development and incompatible activities, such as road development or expansion, by restricting development within them and their buffer.

Goal 2: Restore degraded but potentially significant natural communities to a viable condition in places where the land is suitable.

a. Inform landowners when a degraded natural community is discovered to exist on their land through site visits, inventories, or historical records. Help willing landowners to restore the area by contacting Vermont Fish and Wildlife Department or other qualified experts for assistance, and inform landowners about federal cost-sharing habitat restoration programs.
b. Develop a landowner stewardship program to encourage restoration of significant natural communities.

G. Natural Areas

(See Supplemental Information for more information)

III. COMPONENTS OF NATURAL RESOURCE AREAS

A. DEER WINTERING AREAS

Definition: Deer wintering areas (or deeryards) consist of areas of mature or maturing softwood forest cover, which may be made up of hemlock, white pine, northern white cedar, red spruce, or balsam fir.

Value of deer wintering areas: Deer wintering areas provide protection from deep snow, cold temperatures, and wind, allowing white-tailed deer to survive the cold Vermont winters. White-tailed deer are at the northern edge of their range in Vermont and conserving deer wintering areas is essential for maintaining and managing the species in Vermont. Deer wintering areas also provide important habitat for a variety of other wildlife species, including porcupine, snowshoe hare, fox, fisher, coyotes, bobcat, crows, ravens, and white-winged crossbills.

GUIDELINES FOR PRIORITIZING THE SIGNIFICANCE OF DEER WINTERING AREAS IN CALAIS:
Site specific investigation is needed to evaluate the relative importance of each winter habitat based upon physical evidence of deer use.

Information or data available about deer wintering areas:
Calais has large areas of mapped deer wintering habitat. The largest one runs parallel to Route 14 for nearly its entire length in Town.

Goal: **Maintain and protect the functional integrity of all deer wintering areas in Calais by preventing their loss and fragmentation by development**

a. Continue to locate existing deer wintering habitat in Calais that has not been already mapped by the Vermont Fish and Wildlife Department.
b. Development shall consider the conservation principles established in the Vermont Fish and Wildlife Department's 1999 Guidelines for the Review & Mitigation of Impacts to White-tailed Deer Winter Habitat in Vermont.

B. MAST STANDS

(See Supplemental Information for more information)

C. GRASSLAND BIRD HABITAT

(See Supplemental Information for more information)

D. RARE, THREATENED, AND ENDANGERED SPECIES

Definition: A rare plant or animal species is one that has few populations in the state and faces threats to its continued existence. Whereas "rare" is a general term applied to many species, "threatened" and "endangered" are more specific terms for species that have legal protection under Vermont's Endangered Species Law (10 V.S.A. Chapter 123). Threatened species are those that are significantly declining in number due to loss of habitat or human disturbance, and unless protected will become an endangered species. Endangered species are those whose continued existence as a viable component of the state's wild fauna or flora is in jeopardy.

Value of Rare, Endangered or Threatened Species: Rare, threatened, and endangered species are important parts of Vermont's natural heritage and contribute to the overall biological diversity of Calais and Vermont. The existence of a rare species in Calais may indicate that the town lies at the edge of the species' area of natural distribution, that the Town may contain a rare natural community required by the species, or that the habitat required by the species has elsewhere been destroyed. In any event, the presence of these species in Calais is an indication of a healthy biologically diverse environment.

GUIDELINES FOR PRIORITIZING THE SIGNIFICANCE OF RARE, THREATENED AND ENDANGERED SPECIES IN CALAIS: All rare, threatened and endangered species of plants and animals are significant.

Information or data available about Rare, Endangered & Threatened Species: The Natural Heritage Program of Vermont Fish and Wildlife Department maintains a database and map of rare, threatened and endangered species in Vermont and the methodology used to assess the rarity of a species and the viability of specific populations. The Natural Heritage Program also maintains a list of all rare species in Vermont that can be used by landowners to help in identifying additional rare species populations in Calais. Currently there are two rare animal species in Calais (1 area of occurrence for a rare dragonfly and three breeding pairs of Common Loons) and 14 rare plant species in 19 locations.

Goal: **Maintain, restore or increase populations of rare, threatened, and endangered species and provide for long-term stewardship and conservation of habitats and natural communities that support them**

a. Inform landowners and land resource managers of rare, threatened or endangered species that have been identified on their property. Provide interested landowners or managers with resource information (such as location maps, species information) and assist in developing management plans.
b. Assist interested landowners to acquire services of the Vermont Fish and Wildlife Department or a qualified resource specialist or biologist who can conduct a more detailed inventory of the population status of the plant or animal, and to assist in management or conservation efforts to protect the species.
c. Support efforts, pursuant to the state of other regulatory and non-regulatory mechanisms, to conserve or otherwise protect rare, threatened or endangered species, their habitats and travel corridors. Refer to Maps 1,2,3,& 4.
d. Consider incorporating information about the location of rare, threatened and endangered species and related habitats as confirmed from inventory maps into overlay districts, open space and land acquisition/conservation plans.

Areas of overlap should be identified and protected as high priority.

E. TURTLE HABITAT
(See Supplemental Information for more information)

IV. MANAGED NATURAL RESOURCES

A. Agricultural Lands
Primary agricultural soils and other farmlands are particularly vulnerable to encroachment and conversion because they are generally level, cleared and on good building soils. Primary agricultural soils are those best suited for producing food, feed, fiber, forage and oilseed crops. The US Department of Agriculture's Natural Resource Conservation Service (NRCS) has rated and mapped soils in Vermont according to type and value for agricultural use.

NRCS, Farmland Classification System for Vermont Soils (2006). Mapped soil units rated as "local," "statewide" and "prime" are considered primary agricultural soils in Vermont. A map of primary agricultural soils in Calais can be viewed on the Agency of Natural Resources http://maps.anr.state.vt.us/ANRA/.

Agricultural lands provide many benefits: economic, aesthetic, recreational and environmental. For example, these lands can provide habitat for game and non-game wildlife, area for floodwater storage, watershed protection, scenic vistas, open spaces for a variety of outdoor pursuits, and increased self-sufficiency as local sources of food and energy. Because agricultural soils and farming are an important part of Calais's history and culture, they are discussed further in the Agriculture section.

Goal: Support farms and maintain open lands in Calais

This goal and action steps are in addition to the actions listed in the Agriculture Section of the Town Plan.

a. Discourage development on primary agricultural soils.
b. Contact owners of open land to discuss various means of conserving the land.

B. Extraction and Quarrying
Historically several quarries operated in Adamant. These yielded granite, quartz, epodite, apatite, calcite, graphite, and zircon.

Although there were no active stone quarries in town for many years, a small wall stone quarry off the County Road obtained permits to begin operation in the spring of 2003. There are also a few sand and gravel extraction operations existing along Route 14 in the northern part of town.

A municipally owned source of sand and gravel would be in the long term interest of the town, but only if it can be located in an area where it will not have negative impacts on the rural character of the town, its residential areas, wetlands, surface water or groundwater.

It is important that care be taken in the siting and operation of residential development so that future extraction of resources is not foreclosed. But because of the numerous potential adverse impacts of sand and gravel extraction in rural residential areas, such operations should only be allowed where they will not impact the rural character of the area and the people who already live there.

Goal: Explore the feasibility of local gravel extraction while protecting the rural character of Calais

a. An inventory of potential sand and gravel sites and identification of those sites that are sufficiently isolated from residences so that they could be used for commercial extraction shall be conducted.
b. Once potential sand and gravel extraction sites are identified, amend the Calais Land Use & Development Regulations regulations to create an overlay district in appropriate locations where sand and gravel operations may be allowed as a conditional use to advise potential new owners of this proximal use.
c. Explore additional methods to eliminate conflict between existing residents and potential new or expanded sand and gravel operations.
d. Consider revising the Conditions of Approval in the Extraction and Quarrying section of the Calais Land Use & Development Regulations Regulations to better acknowledge the effects that often result from quarrying and sand and gravel operations in residential neighborhoods.

C. PUBLIC LANDS

The Town of Calais owns three forest lots comprised of approximately 154 acres. The Conservation Commission completed forest management plans and inventory reports in 1985 on the Bliss Pond and Chapin lots, adopting in part recommendations set forth in the 1983 Town Plan. The Conservation Commission updated the forest management plans in 2003.

The Bliss Pond lot is the largest of these public lands, covering approximately 120 acres roughly located between County Road, Bliss Pond Road, West Church Road and Kent Hill Road. In 2001 a 1.5-acre parcel was acquired by the Town of Calais to provide public access to and protection of the natural values of approximately seven hundred feet of Bliss Pond shoreline. This lot is primarily northern hardwood and hemlock-hardwood forest. Parts of the lot are mapped as deer yards. This parcel contains a significant northern white cedar swamp with rare plants and an important vernal pool.

The Chapin lot covers roughly 29 acres and is situated in the approximate center of a tract of land bounded by George Road, Lightening Ridge Road, Route 14, and the Pekin Brook Road. It has a wetland area of between two and three acres that the management plan recommends be

maintained as a wildlife habitat. The lot includes calcareous cliffs and a rich northern hardwood forest.

The Gospel Hollow lot covers approximately 19 acres and is situated along the east side of Pekin Brook Road from the intersection of Kent Hill Road to near Singleton Road. The old town garage was removed from this lot in 2002 before the Town Clerk's Office was built in 2004.

The land is steeply sloping forest that serves as a buffer for a small contiguous forest area above it.

Goal: All town lands will have management plans that will be periodically reviewed to ensure their implementation

a. Develop a management plan for the town land at Gospel Hollow.
b. Review the management plans annually.

COMMON PLANS OF ACTION

The following Action Steps apply to all the components of the natural resources in Calais:

1. Consider implementing overlay districts for inventoried** and mapped natural resources.
2. Consider techniques such as clustering to protect natural resources, farm land, and open spaces.
3. Review current regulations to minimize adverse impact on:
    a. scenic areas, historic resources, ridgeline, wetlands, aquatic resources, open spaces, farm land, and other natural resources
4. Hold public meetings to educate landowners about the natural resources on their properties and how to protect them.
5. Require land designated as "common land" in the PUDs to have a conservation easement held by a third party entity or other mechanism that ensures management and uses of the land that are compatible with protection of the identified natural resources or other uses.

** an "inventoried" natural resource is one that has been identified, mapped, and accepted by the Calais Selectboard

V. Regulatory Implementation

Calais is committed to following a path that allows for smart growth development and that controls its impact on natural resources, agricultural potential, the scenic value and recreational uses of the land, and the infrastructure of the Town. Within this context, we recognize that the size of a development project often correlates with its impact. Calais has historically separated development into two categories, permitted uses and conditional uses, as this separation makes sense when considering small development projects. But when considering larger projects, higher standards of protection from the impacts of development must be implemented.

Action Steps: The Planning Commission shall pursue Calais Land Use & Development Regulations regulations that restrict the allowable impact of larger development, including but not limited to:

- development of 8 or more parcels or development which impacts the minimum acreage for 8 parcels in any Calais Land Use & Development Regulations district;
- development which generates more than 50 one-way trips per day on a town road;
- development which includes single or connected structures exceeding 15,000 square feet;
- development which includes structures of any type, including telecommunication towers and wind turbines, which are to be located on hills and ridgelines identified on the most recently approved Calais Ridgeline Map;
    a. In addition to those larger development projects being subject to the following standards through Calais Land Use & Development Regulations , any project that comes before Act 250 or the Public Service Board shall comply with the following standards: a Techniques such as clustered housing to protect natural resources, farmland, and open land must be used if reasonably feasible.
    b. There shall be no harmful impact to inventoried* and officially mapped wetlands, primary agricultural soils, wildlife corridors and connecting habitat, vernal pools, deer wintering areas, significant wildlife habitat, mast stands, historic resources, and rare, threatened or endangered species.

** an "inventoried" natural resource is one that has been identified, mapped, and accepted by the Calais Selectboard

    c. In order to protect the scenic quality of the rural landscape and the any type of tower structure, wind turbines, large scale solar arrays (total of 50 kilowatt), and associated building envelopes, or infrastructure, shall be sited below rather than on prominent ridgelines and hilltops as shown on the most recently approved Calais Ridgeline Map
    d. Vegetated buffers of mapped wetlands must be a minimum of 50 feet.
    e. New roads and driveways shall not be allowed to cross mapped wetlands when other access options are available. If roads must cross mapped wetlands, the developer shall submit a hydrological study and road design prepared by a licensed professional engineer that will maintain wetland hydrology and minimize effects on wildlife and their habitats.
    f. Lakes, ponds, and perennial streams (mapped, and accepted by the Calais Selectboard) shall be protected from encroachments, including but not limited to roads, driveways, and dwellings, by maintaining or establishing a minimum of 50-foot, undisturbed, naturally vegetated riparian buffers on their banks.
    g. New roads and driveways must be located such that a 50-foot vegetated riparian buffer is maintained between roads and surface waters.

h. Stream crossings must be limited as much as possible and, where they cannot be avoided, must be properly sized and installed so as not to disrupt or prevent aquatic species' movements and to maintain the natural form and function of the stream channel.
i. Channelization, dredging, filling, gravel mining, berming, or other activities which would alter the natural form and function of stream channels and lakeshores are prohibited. Waters intentionally impounded by structures in lawful existence at the time of adoption of this Town Plan are exempt.
j. The buffers required by this Plan for mapped lakes and ponds, as well as mapped perennial streams as identified on the applicable U.S.G.S. 7.5 minute topographic quadrangle (as accepted by the Calais Selectboard) shall be described and designated as protected riparian habitat and shall be incorporated into any common land covenants, easements, or other legal documents.

Utilities and Facilities

Recreation Facilities

Calais offers many outdoor recreational opportunities such as hiking, biking, snowshoeing, cross-country skiing, snowmobiling, swimming, hunting, fishing and birdwatching. We have indoor recreation space for community events like exercise classes, dancing, community theater and playing music. Informal groups take advantage of our extensive trail system, beautiful back roads, and community spaces to sponsor group recreation opportunities such as biking races, group hiking, drama, crafts, and music.

Our Trail and Road Systems

A volunteer town trails committee builds and maintains public trails for non-motorized recreation which may include off-road biking and horseback riding. There are over 14 miles of trails on private land, allowed by year-to-year agreements with 15 generous landowners. Financial contributions from private donors and volunteer labor support the trails. The committee continues to develop more trails. Downloadable maps of trails are on the town website[20].

The Mountain Tamers (the local chapter of the Vermont Association of Snowmobile Travelers - VAST) maintains a network of trails on private and public land throughout Calais that may be used for snowmobiles, cross-country skiing, and snowshoeing. These trails connect to VAST trails in other Vermont towns. Maps[21] of these trails are also available.

Calais owns and maintains over 83 miles of beautiful back roads with lovely views of mountains, lakes, farms and fields. Residents regularly use these roads for biking, horseback riding and walking as well as motorized transportation. We also own three town forests which anyone may use for hiking and observation of wildlife.

Our Lakes, Ponds, River and Streams

Calais has more than 15 ponds of five or more acres. Many are accessible to the public for swimming, fishing, canoeing, boating and wildlife observation. The town maintains public swimming access, which includes a dock and a raft, at the south end of Curtis Pond. In the summer, the town provides swimming lessons there for local children. There are also Vermont State public boat access areas on Curtis Pond, #10 Pond, Nelson Pond, and Woodbury Lake.

In addition to the lakes and ponds, numerous rivers and streams flow through Calais, all of which provide fishing and wildlife watching opportunities.

---

[20] https://www.calaisvermont.gov/trails

[21] https://vtvast.org/trails.html

Other community recreation facilities

The East Calais Recreation Association (Rec Assoc) owns a building in East Calais which is used regularly for community gatherings and meetings, and a recreation field on Route 14 which has two baseball fields, a soccer field, and an outdoor, hard-top basketball court.

The Calais Elementary School has a school playground with swings and climbing structures, a soccer field, and an indoor gym.

Figure 22 A Mountain Tamers' VAST Trail Sign

The Rec Assoc and Calais Elementary School provide a wide variety of sports activities for children from pre-K through 6th grade. These include soccer, basketball, baseball, softball, downhill and cross-country skiing, snow shoeing, and swimming. The School's Community Connections Program conducts many activities, programs and camps for children and teens, from pre-K through high school, before and after school, and during some school vacations.

The Calais Town hall, the Maple Corner Community Denter and the Adamant Community Club are all available for community activities such as exercise classes, crafting events, dances, concerts, theatrical productions, presentations, meetings, group meals and other events.

Potential for Increasing Recreational Opportunities

Many tourists come to Calais to take advantage of our outdoor recreation opportunities. With four village centers, three with their own retail businesses offering food, drinks and other goods, historic buildings and theaters and performance space, there are many draws for tourists who are likely to buy refreshments and mementos. Attracting more visitors in a manner that supports businesses while avoiding congestion, noise and other drawbacks that "destination" towns experience from too many tourists however, is key.

Potential Positives from Increased Recreational Resources

Economic Growth and Community Well-Being

In addition to strengthening Calais' businesses, bringing in more "people from away" could provide residents with additional employment opportunities. In Vermont, outdoor recreation accounts for $1.9 billion annually, or 4.6% of the state GDP. According to the US Bureau of Economic Analysis, Vermont ranks second only to Hawaii for outdoor recreation contribution as a percentage of state GDP. Calais is well positioned to increase its share of Vermont's recreational dollars. If the town were to decide to expand recreational resources with an eye

beyond town residents, however, it would have to be done carefully and with respect for the rural nature of our town.

Figure 23 Mountain Biker on a Calais Trail

Studies show that recreation and tourism development can significantly contribute to rural well-being. By attracting tourists and seasonal residents, these amenities help increase local employment, wage levels, and income. They can also reduce poverty and improve education and health outcomes. Rural recreation counties have become success stories, with population and employment growth far outpacing other non-metropolitan areas in recent decades. Clearly, such growth would have to be carefully managed to be in scale with a small town like Calais.

Attracting Residents and Boosting Infrastructure

In rural towns, recreational resources attract visitors and new permanent residents. New residents can lead to the revitalization of the local economy and infrastructure. As more people are drawn to the town for the natural beauty and recreational offerings, the demand for local services, housing, and businesses increases, further boosting economic activity.

Supporting Existing Resources

As described above, Calais already offers a range of recreational offerings. Expanding the trail networks or their use is complicated since trails in Calais are located on private property. But the network of gravel roads, offers opportunities for the growing numbers of cyclists looking for quiet areas to ride mountain bikes. The local theaters and music venues and the Kent Museum offer additional attractive opportunities for attracting more people who are likely to buy food, refreshments and mementos at our local businesses. The Recreation Association facilities are additional locations where public events could be organized. Linking different events across town and with neighboring towns offer other opportunities as well.

Promoting Health and Environmental Stewardship

Providing safe, inexpensive, and environmentally friendly recreational opportunities encourage healthier lifestyles. These resources can also promote environmental awareness and conservation by fostering a connection between residents and the natural beauty around them.

Figure 24 Adamant's Blackfly Festival is an annual event

Some Potential Drawbacks

1. Potential for Low-Wage Jobs

Critics argue that the tourism industry often brings low-wage, seasonal jobs that may not provide sufficient income for residents. Such jobs can be helpful for teens and retired or otherwise unemployed people looking for part-time work, however, and it is unlikely that Calais will soon develop so many service industry jobs that the local economy is depressed.

2. Infrastructure Strain and Environmental Impact

Growth in tourism and recreation can strain local infrastructure, leading to road congestion and increased demand for public services. Where, for example, would an increased number of out-of-town cyclists, for example, readily find bathroom facilities? Who will clean those facilities and pay for upkeep? Additionally, the environmental impact of increased usage—whether through erosion, littering, or wildlife disturbance—must be carefully managed to avoid degrading the very resources that attract visitors.

3. Balancing Growth and Community Welfare

While recreational development can boost economic activity, there is a risk that it could adversely affect other aspects of community welfare, such as the desire for quiet places, uncongested roads, and easy access to swimming or boating, for example. It's important that recreational resources are in concert with other aspects of the town plan, ensuring that growth does not come at the cost of overall community well-being.

Figure 25 Enjoying music at Maple Corner's Whammy Bar

4. Maintaining the Calais Vibe

Even with thoughtful planning, there is a fine line between enhancing recreational offerings and maintaining the rural character that defines small towns. Overdevelopment, even on a small scale, can change the town's identity, potentially making it less attractive to both residents and visitors.

Goals

1. Calais has safe, inexpensive and environmentally and user-friendly recreational opportunities for all residents

Action Steps

a. Convene groups involved with recreation activities to define scope of recreation, how to coordinate current and future activities potential funding sources, and information sharing.
b. Continue evaluating existing town rights-of-way, particularly trails, ancient roads, and class 4 roads, and consider posting them recreational use
c. Obtain, as needed, more effective enforcement of ordinances regarding the recreational use of the ponds in the Town.
d. Encourage private landowners to allow public access to trails that cross their property.
e. Continue the evaluation of access to an extensive interconnected trail system throughout town and to all town forests for recreational use.
f. Develop and periodically review risk management policies, procedures, and insurance for each recreational activity
g. Implement public education and information sharing regarding the availability and use of recreational resources.

2. Calais has safe, inexpensive and environmentally and user-friendly recreational opportunities that attract a reasonable number of tourists

Action Steps

a. Explore feasibility of establishing mapped routes for bicyclists using QR codes (Google maps can be downloaded and used offline) that lead people from Village center to Village center
b. Explore feasibility of establishing a "Small RV Only" park near a Village Center, with strict limits on RV size (small teardrop trailers and camper trucks on regular pickups only, for example), noise and number of vehicles allowed

c. Explore interest in developing an annual festival around a local event/location/other feature
d. Explore potential for collaborative regional projects such as bicycling events, such as Muddy Onion, with neighboring towns
e. Explore potential for water-based event centered around Mirror Lake, Curtis Pond, Sodom Pond. Calais could organize a "dinner (or lunch) picnic & paddle," or a scavenger hunt within or between water bodies.

Cultural Facilities

Calais is rich in the arts and historic venues. Iconic landmarks like the Kent Museum, Old West Church, and Robinson Sawmill reflect the town's deep-rooted history and architectural charm. The Unadilla Theater and the Quarry Theaters add to the thriving cultural scene, showcasing local talent and creativity. These treasures, alongside other arts-focused venues and events are featured in the Calais Historic and Architecture Driving Tour, created by the Historic Preservation Commission. This recorded guide will make exploring these gems even more accessible. These historic and artistic activities play a vital role in fostering community pride, preserving heritage, and enriching the lives of residents and visitors alike.

Town Buildings

Calais owns three buildings.

The Calais Town Office, located at the intersection of Pekin Brook Road and Kent Hill Road in Gospel Hollow is open Monday – Thursday, 9:00-4:00. The building provides office space for the Town Clerk, the Assistant Town Clerk, the Town Administrator, Treasurer, Town Listers, Delinquent Tax Collector, and Calais Land Use & Development Regulations Administrator. All town records are stored in a secure vault in this office. The office is accessible for disabled citizens. See the Town Website for the most current information: http://www.calaisvermont.gov/or call 802-456-8720.

As our town grows and town government becomes more complex, our staff, and thus our need for more office space, is expanding. The Calais Town staff and Selectboard are considering options to provide additional space.

The Calais Town Hall, located on Kent Hill Road in Gospel Hollow, was built in 1866 and is listed on the National Register of Historic Places. Working with the Calais Historic Preservation Commission (HPC), the Selectboard, Friends of Calais Town Hall and other local supporters, the town recently renovated a significant portion of the entire building. The building was moved outside the mapped floodplain and is now handicapped accessible and has high speed internet. Most town committee meetings are held in the downstairs space. The upstairs is managed by the Friends of the Calais Town Hall. It is used by various community groups for dramatic productions, dances and other cultural events, and available for rent by private parties wishing to use it for their events. The kitchen has been newly renovated and is also available to these groups.

As of this writing, the upstairs is unheated and unusable in winter. The Friends are watching for grant money that will enable them to continue renovating so that the space should become more useable in time. Information for usage and reservations can be found at http://www.calaisvermont.gov/ or by calling 802-456-8720.

Action Steps

a. Plan for the further renovation of the upstairs of Town Hall
b. continue to pursue grant funding and to organize further renovations.

The Calais Town Garage is located north of East Calais village on Route 14. In 2023, a generator was installed to ensure operations can continue during power outages.

The Town Garage provides adequate work and storage space to meet the town's current needs, but the building's location means that the town trucks and graders travel relatively long distances for work on all but the northernmost town roads. Wear and tear on the town trucks and graders would be reduced if the Town Garage or a subsidiary garage space was located closer to the center of Town.

In addition, there is no potable water at the facility, the foundation is in need of repair and it is not an energy efficient workspace., according to current Commercial Building Energy Standards.

Action Steps

a. Study the potential for establishing a new, more centrally-located Town Garage. The study should include
    - likely locations for a new town garage
    - cost estimates to secure a new location,
    - cost estimates for the design and building of a new garage,
    - timeline for completion from study to use of the new garage,
    - an alternate plan for retaining the town garage in its current location, including foundation repair, energy efficiency measures and provision of potable water
    - a recommendation for how to move forward

4. Public Water and Sewage Systems

Calais has two public water systems. All other residents have their own wells or springs.

Calais Elementary School has a NonTransient, Non-Community Water System [NTNC]. An NTNC water system is a public water system that regularly serves at least 25 or more of the same people daily for more than six months per year, as defined by the Agency of Natural Resources (ANR). The school must have a certified operator and must monitor water quality as scheduled by ANR with testing done by a certified laboratory.

The second water system is operated by the East Calais Fire District #1[22] and is considered a Public Water System. A Public Water System serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents. 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.

Residents pay a flat fee on a quarterly basis for access to the system. Meters at each connection monitor water pressure. Water quality is monitored based on the requirements of the state,

[22]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.

which requires water samples to be sent to certified laboratories for drinking water analysis.

Issues

There are three primary concerns regarding the water supply and systems in the Town of Calais.

- Protecting the groundwater from contamination and assuring clean, potable water for all residents of Calais
- Handling future growth in East Calais, other village districts, and the rural residential district
- Water conservation

Protecting the groundwater from all chemical pollutants, hazardous waste, sewage, and agricultural runoff is necessary to ensure all potable water, whether in individual wells, small systems, or public systems, is safe. Source protection areas for the East Calais Fire District #1 water system have been mapped. There are no mapped source protection areas for other ground water sources that supply many of the wells for private households.

The ECFD#1 water system cannot support new connections without increasing the reservoir capacity, due to the inability of the system to maintain water pressure at the level required for a public water system. Additional water sources have to be found and another reservoir made if new housing is to be developed within East Calais Village District.

Action steps

a. Develop maps of water sources for wells
b. Evaluate how to meet the water supply demand due to new development in village districts or in the rural residential district. See Village Wastewater Solutions Initiative | Department of Environmental Conservation.

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. New septic systems must comply with State regulations and receive a permit from the Department of Environmental Conservation.

All septic systems in Calais are on-site systems.

Issues

In coordination with state regulations and funding, Calais must reduce stormwater overflow and runoff into our ponds, lakes, and streams. This goal is addressed in the Flood Resilience and Natural Resource sections.

Calais' stormwater and septic management rules must align with and support state oversight and regulations.

For more information, see Stormwater Program | Department of Environmental Conservation and Village Wastewater Solutions Initiative | Department of Environmental Conservation

Goals

1. Encourage the use of trees, shrubs, plants, water cisterns and more ("green infrastructure") to manage rainfall runoff from buildings to protect and manage surface water and storm water

a. Create information and educational sessions for the residents of the Town in conjunction with State ANR.
b. Provide incentives for residential and commercial property owners to install green infrastructure, spurring private owners to take action.
c. Working with outside organizations, provide demonstration projects and workshops with "how-to" materials and guides.

Police, Fire and Emergency Services

Police

The town has historically had a town constable who was able to provide limited services. As this function has become more complex, requiring more training and time commitment, the town has been unable to find anyone to do this job. The Selectboard is currently exploring the possibility of sharing a person with one or more adjacent towns. If this is not feasible, it may decide to eliminate the position.

Calais contracts with the Washington County Sheriff's office for a certain number of hours of coverage per week. The sheriff's office, however, has more than doubled its fees in the last few years as their operation has become more complex and expensive. As a result, the town halved the amount of time for which it contracts. We find this amount of time to be insufficient, with increased complaints to the town office about speeding and other infractions of the law. The Selectboard is working to increase police time in Calais, but the amount of coverage Calais receives will depend on how much the town is willing to dedicate to pay for these services.

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

Fire and Emergency Services

Calais contracts with the Woodbury Fire Department for fire and ambulance services. The department reports that it increasingly responds to emergencies that are dangerous to department volunteers because they sometimes involve violent and even gun-related situations.

Calais receives fire and ambulance services from the East Montpelier Fire Department under an interlocal agreement among Calais, the Woodbury Fire Department and the Town of East Montpelier. Under this agreement, Calais pays for one third of the operating and capital costs of the East Montpelier Fire Department, and East Montpelier pays two thirds. Thus, Calais owns one third of the East Montpelier Fire Department building and equipment. The East Montpelier Fire Department contracts with other adjoining towns, as well, to provide services for them. The East Montpelier selectboard, Calais selectboard and East Montpelier Fire Department meet three times per year to discuss operations and finances, including development of the annual budget request to the two towns.

Like the Woodbury Fire Department, the East Montpelier Fire Department also reports responding to increasingly violent and dangerous situations. This, as well as state and national laws requiring more training, is making it increasingly difficult to recruit and retain volunteers. The East Montpelier Fire Department has recently hired staff to ensure round-the-clock availability of its services.

Issue

Police, fire and emergency services are becoming increasingly complex, equipment is becoming more sophisticated and expensive, and regulations and training requirements are increasing. All of these factors combine to make providing services through volunteers difficult or unworkable, requiring hiring of employees if we are going to have services available as needed.

Action Steps

a. Engage in discussions about these issues with other municipalities to seek creative solutions to the issue.

b. Work with state lawmakers to reduce costs, whether through regionalization of services, sharing of equipment, reduction in regulatory requirements, or other solutions.

Solid Waste

Vermont law bans the disposal of the following in landfills: recyclables, such as paper, aluminum, cardboard, steel, glass, and hard plastics; food scraps, leaf and yard debris, and clean wood scraps. The law also requires solid waste haulers, transfer stations, and drop-off facilities to offer residential collection services for recyclables, food scraps, and leaf and yard debris. Most of Vermont trash is collected by haulers or dropped off by residents at local transfer stations and from there, taken to a landfill in Coventry.

Calais residents can hire a hauler or personally take their trash, recyclables and compostable materials to a local transfer station in Barre, Montpelier, East Montpelier or Worcester. In addition, Calais maintains a transfer station on Moscow Woods Road on Saturday mornings for trash and recycling drop-off and Vermont Compost, on the County Road just north of Montpelier, provides a free drop-off for compostable materials. Many residents choose to compost their food scraps and yard debris themselves.

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

Goals

1. Trash, recycling and composting are properly handled.

Action Steps

a. Support ongoing provision of trash and recycling on Moscow Woods Road
b. b. Explore interest in composting workshops, with a focus on deterring bears and other wildlife from being attracted to compost piles
c. c. Publicize availability of compost drop-off at Vermont Compost in Montpelier

d. Work with CVSWMD to provide a small 1 hour tutorial or a link to a video that demonstrate proper sorting of recyclables – may be in conjunction with a potluck to get larger attendance; provide on-going information on FPF.
e. Solicit citizens who compost to provide education seminars on the various methods of composting. Work with CVSWMD
f. Evaluate feasibility of making centrally located town-maintained recycling bins available
g. Explore grant opportunities to support local recycling and compost efforts
h. Study possibility of having centralized composting areas for people who do not compost and to provide compost for those needing it for gardens

Cellular Phone Service

Cell phone 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. A map compiled by the Vermont Public Service board shows coverage by all providers as of 2022.

The Public Service Board does not consider the local Calais Land Use & Development Regulations for placement of cell towers but does give substantial deference to the land conservation measures stated in a town plan. Calais has

- a strong Natural Resources plan that outlines the importance of conserving our natural beauty from undue adverse impact,
- a historic district that meets guidelines of Federal and State Historic Preservation, and
- comprehensive road and bridge standards to maintain the rural scenic quality of our roads.

In addition the Town of Calais has agreed to limit placement of cell towers to Town-owned property, in designated village districts, or in rural residential districts, such that the height of any tower is not greater than 140 feet and shall not be exposed on a ridge line or hill top, nor shall the top of the tower extend more than 20 feet above the average height of tree canopies within 100 feet of the top of the proposed tower. Calais has a Selectboard-accepted map of Protected Ridgelines.

Goal

1. Improve cell coverage

Action Steps

a. Identify and mark locations along roads where cell service is available.
    - create area for drivers to park at these locations and use a cell phone
    - share information with the public
b. Maintain contact with legislative representatives so that Calais remains in the forefront to get coverage when the state issues new contracts
c. Any new cell towers must follow existing Calais Land Use & Development Regulations regulations, and new towers shall first be co-located with other existing towers if possible

d. Investigate the feasibility for small cell technology using existing utility poles and wireless spectrum, and if found to be feasible shall stipulate small cell technology or similar technology be used throughout all districts.

Town Operations

The chart below shows the number of people who work together to provide the services described in this section. The lines drawn from the voters indicate elected positions. Of these elected officials, only the town clerk receives a salary. The Selectboard members and the listers receive a stipend. The rest are volunteers. The positions listed in the blue boxes either receive a salary or, if titled "other paid staff" receive only a modest stipend. All the appointees and committee positions listed in the green box are volunteers.

Even as many Calais residents volunteer their time, there is still a great need for people to serve in some capacity to continue to provide fresh ideas for the successful functioning of our Town. The work of administering the town continues to increase in complexity, however, making tasks more difficult and time consuming and therefore harder for volunteers to do the work.

Reliance on digital communications, whether using a computer or a cell phone, is common, and the internet has become an important tool for keeping Calais residents informed about and involved in Calais government operations. Work to improve the town's website is described above. It is also important to ensure that all our residents have access to all materials and communications. To this end the Town has upgraded its website to allow more accessibility and services online for those using assistive technologies like a screen reader, a magnifier, voice recognition software, or captions for videos.

In 2023, the Town of Calais adopted a "Declaration of Inclusion" to provide a positive customer experience to all citizens, with the aim to promote accessibility and inclusion. The Declaration can be found on page 3 of the Town Plan and at the link, above. In 2024 the Town Clerk's office created an "Inclusion Workgroup" to ensure that town functions are living up to the goals in the Declaration of Inclusion.

The Town Website[23] is an important source of information for Calais residents. It is managed by a volunteer designated by 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 [Calais Land Use & Development Regulations], and DRB decisions can be found on the site. Instructions for filing permits and contacting the Calais Land Use & Development Regulations Administrator are also there.

Under Vermont's Open Meeting Law, 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 five days after the meeting. Once the minutes have been approved, all official minutes must be posted on the Town site.

Permit application forms are available online. The intent is to make it easier for property owners to understand the permit process, seek guidance early, and to obtain required permits. It is still not possible, however, to file a permit application online.

Goals

1. Establish clear direction and processes necessary for Calais to continue to rely on volunteers instead of hiring more professional staff, which in turn would put more pressure on the town budget.

Action Steps

a. Create a comprehensive list of volunteer positions, with statement of need and time commitment required for each

b. Create clear guidance documents for each town board or commission to ensure

[23] https://www.calaisvermont.gov/

consistency and accuracy in meeting state and local requirements for each body's responsibilities

c. Establish appointment processes where appropriate

d. Develop trainings for town staff and for volunteers that clearly delineate responsibilities, lines of communication and other expectations for each role

e. Establish a process for acknowledging service and ending appointments in a clear and respectful manner.

2. Make better use of electronic communication systems.

Action Steps

a. Establish a task force of three people to explore capabilities and capacity of town website and make recommendations for how to make full use of it.

b. Create ability on Town's Website to advertise local businesses without endorsing them, or develop a second Website expressly for the purpose of advertising Calais business, agriculture businesses, etc.

c. Evaluate if town should hire a professional web master to maintain the site, meet Open Meeting Laws and provide expanded service. Check for costs of such a professional.

d. Develop online Calais Land Use & Development Regulations permits with linkage to residential district maps with appropriate overlays

e. Consider whether we should post local businesses, ride-share schedules, and other current town information on the town website

Calais Cemetery Services

The Calais Cemetery Commissioners aspire to recognize Calais cemeteries as beautiful, sacred and historical burial grounds for past and present generations, while continuing a legacy for future generations; and to strive to sustain the integrity of the cemetery settings as honorable and appropriate locations for bereavement and solace as well as for inspiration and reflection.

Calais Cemetery Commission members are elected. The practical services and logistics for the internment and memorial of the deceased are managed by the town sexton, who is appointed.

There are seven principal cemeteries in Calais:

1. Ainsworth (Jack Hill Road)
2. Robinson (TH 25 near Kent's Corner)
2. Janes (East Hill)
3. Fairview (East Calais)
4. Old West Church (south of Kent's Corner)
5. Shortt (George Road)
6. Hudson (George and Lightening Ridge Roads)

There are at least four other, more or less obscure cemeteries that have not been maintained by the Town, that are located on private property:

1. Bliss
2. Poplar Hill (Rte 14)
3. Bruce (near Calais/Worcester line)
4. Martin (near LaValley farm off Dugar Brook)

Conditions of the Town's cemeteries differ widely.

- The stones in Robinson Cemetery were professionally cleaned in September 2014.
- Fairview is in good condition but needs extensive pruning of its cedar hedges.
- Bliss Cemetery is located within Fairview Cemetery. Bliss Cemetery is private and funds to maintain it are held in trust.
- The Old West Church fence needs regular maintenance.
- Janes is in good condition due in part to the efforts of local families.
- Ainsworth and Shortt are in very poor condition with rotting fences, broken headstones and trees and pervasive bushes overgrowing grave sites.

There is adequate burial space to provide burial plots for several years.

Issues

The Cemetery Commission requires funding to repair and/or replace fences, clean, repair and reset broken and fallen gravestones, and remove invasive plants, overgrown hedges and brush

Financing

The Cemetery Commission is funded by the town and receives donations and payments for burial plots. Funds pay for routine upkeep and minor repairs to the extent possible. All monies are kept in the Cemetery Endowment Fund, also known as the Cemetery Trust Fund. Income from the Fund is to be used strictly for upkeep of the monuments and cemetery lands. The major work listed above requires the establishment of a Capital Budget to plan for large expenditures.

Goals

1. Calais cemeteries are well maintained, with sound fencing, clean gravestones and well-trimmed grass and hedges.

Action steps

a. Continue the respectful upkeep, preservation, rehabilitation and improvement of the Calais Cemeteries with regular maintenance, landscaping, and stone care.

b. Develop strategic planning to inventory and accomplish the above in perpetuity.

2. Increase and maintain robust community involvement in maintaining Calais cemeteries

Action steps

a. Encourage community involvement by promoting educational events about the historic, cultural and scenic importance of Calais cemeteries.

3. Establish a Cemeteries capital budget for future major repair expenses and for acquiring additional cemetery capacity

Actions

a. Explore grant sources for preservation of cemeteries

b. Seek donations of land in Calais for additional cemetery capacity

Energy

"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

Figure 26 An example of a large-scale solar farm

Overview

Evidence abounds that we as a nation are experiencing the consequences of climate change. Vermonters care about this change and want to do what we can to restore harmony and balance with nature. During the 2016 legislative session, the State of Vermont passed Act 174 which is an act related to improving the siting of energy projects. Act 174 outlines a path whereby regions and municipalities could receive "substantial deference" before the Public Utility Commission (formerly the Public Service Board) if certain considerations were incorporated into a regional or municipal development plan. The standards outlined in Act 174 align with the primary goal of State of Vermont's Comprehensive Energy Plan which is to have 90% of the state's energy needs being generated from renewable sources by 2050 (90 by 50).

To meet this goal, we will have to increase the efficient use of resources across all fronts, including the energy fitness of our homes. The Vermont Legislature established statewide goals that 20% of the state's housing stock should be energy efficient by 2017; by 2020, 25% of the state's houses should meet energy efficiency standards[24].

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[25].

---

[24] Energy Planning & Implementation Guidebook for Vermont Communities, April 11, VNRC and VLCT https://www.ccrpcvt.org/wp-content/uploads/2016/01/Final-Guide-4-27-11.pdf

[25] https://www.netzeromontpelier.org/

Current sources and use

In Vermont, fossil fuels are the primary source of our energy, accounting for approximately 71 percent[26] of all energy use. Our reliance on fossil fuels contributes to our dependency on foreign countries, the accumulation of "greenhouse gases" in the atmosphere, acid precipitation, and human health hazards resulting from declining air quality. Continued dependency on fossil fuels over the long term will ultimately create severe environmental problems and the potential for economic hardship when supplies dwindle or are cut off.

The three main types of energy consumption in Calais are household heating, private vehicles, and electricity.

Table 6 Current Municipal Transportation Energy Use

Transportation Data	Calais Data
Total # of Vehicles (ACS 2011-2015)	1,167
Average Miles per Vehicle (VTrans)	12,500
Total Miles Traveled	14,587,500
Average Gallons Used per Vehicle per Year (VTrans)	576
Total Gallons Use per Year	672192
Transportation BTUs (Billion)	94
Average Cost per Gallon of Gasoline (RPC)	$3.15
Gasoline Cost per Year	$2,470,463.10
This table is based on data from the American Community Survey (ACS) and Vermont Agency of Transportation (VTrans) to calculate current transportation energy use and energy costs.	

Electricity

The Town of Calais is serviced by three electric utilities: Green Mountain Power (GMP), Washington Electric Company (WEC), and Hardwick Electric Company (HEC). State law requires utilities to provide net metering for solar customers, which means any power produced by residential, "grid-tied" solar panels that is not used or stored by the homeowner is fed into the electrical power grid and the homeowner is reimbursed for that power. Several residents who have solar panels also have battery storage for back-up power during an outage, and may be entirely off-grid, or grid-tied with the ability to switch to solar generation.

Issues

WEC's poles were originally placed to follow the shortest route possible from one location to

[26] https://eanvt.org/

the next, so many WEC poles stand in fields or cross through wooded areas, leading to sometimes challenging working conditions when restoring power during outages.

While WEC seeks to move poles to follow the roads, the necessary right-of-way below the power lines would require cutting down trees and reducing the natural buffer zone Calais has committed to. In addition to providing important filtering of run-off and helping to hold soil in place, the roadside buffer zones and trees are important contributors to the rural character of Calais.

Calais follows VSA 24 Section 2502 to protect our shade trees and to assure the preservation of the rural character and the scenic beauty of our roads. Calais works with utility companies to find compromises that support both the town and utilities' goals.

In addition to assuring the availability of residential power, there is the potential need for three phase energy typically used in industrial and commercial applications that rely on large machinery, electric equipment, or that require manufacturing facilities. 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.

Renewable energy

Home Heating

In Calais, home heating costs and energy use can be dramatically reduced and climate pollution lessened through insulating, weatherization (blocking airflow around leaky windows, doors, etc.), solar systems, passive solar design, and building orientation. In recent years, a growing number of Calais households have had solar systems installed. In addition, proper insulation and weatherization of both new and existing structures yields returns far greater than the investment required over the life of most buildings. New construction should include these renewable and efficiency techniques.

Table 7 Calais' Existing Renewable Generation, according to the Vermont Department of Public Service

Renewable Type	MegaWatts (MW)	MegaWatt Hours (MWh)
Solar	0.15	**177.83**
Wind	0.00	**0**
Hydro	0.00	**0.00**
Biomass	unknown	**unknown**
Other	0.00	**0.00**
Total Existing Generation	**0.15**	**177.83**

The potential for additional renewable energy generation in Calais is significant. According to the Vermont Department of Public Service, a mix of renewable energy sources could produce almost 913 megawatts of power, or 1,165,077 MW hours.

Table 8 Calais' Renewable Generation Potential

Renewable Type	MW	MWh
Rooftop Solar	0.76	**935**
Ground-mounted Solar	887.49	**1,088,419**
Hydro	0.00	**0**
Biomass and Methane	0.00	**0**
Other	0.00	**0**
Total Renewable Generation Potential	**912.95**	**1,165,077**

Renewable generation potential is based on mapping completed by the Regional Planning Commission that is based on the Municipal Determination Standards and associated guidance documents developed by the Vermont Department of Public Service. The renewable generation potential is expressed in MW and MWh by the type of renewable resource (solar, wind, hydro, etc.).

To put this in context, it is helpful to clarify the units of measurement. The difference between megawatts (MW) and megawatt-hours (MWh) lies in what they measure:

1. Megawatts (MW)

- **What it measures:** Power, or the rate of energy generation or usage at a specific moment in time.
- **Analogy:** Think of it as the speed of a car—how fast energy is being delivered or used.
- **Example:** A 913 MW power plant can generate 913 megawatts of power *at any given moment*.

2. Megawatt-hours (MWh)

- **What it measures:** Energy, or the total amount of power used or generated over time.
- **Analogy:** Think of it as the distance a car travels—how much energy has been delivered or used over a period of time.
- **Example:** If generation sources such as solar, wind and geotherms produce 913 MW of power at for 1 hour, they will produce **913 MWh** of energy. If the sun shines fully and the wind blows hard enough, for example, for 2 hours, they would produce **1,826 MWh** (913 MW × 2 hours).

Key Relationship

The relationship between the two is time:

$$\text{Energy (MWh)} = \text{Power (MW)} \times \text{Time (hours)}$$

We don't always have bright sunny days, of course, and no solar generation occurs at night, and the wind doesn't always blow, etc. For those reasons, the Department of Public Service has accounted for such "downtime" to calculate MegaWatt Hours of power.

How MWh Is Calculated

Since total energy (MWh) is calculated as Energy (MWh) =Power (MW) × Time (hours), the generation capacity of 913 MW that is estimated for Calais would be:

- Over one hour, all potential sources under perfect conditions would generate 913 MWh.
- Over 100 hours, they would generate 91,300 MWh.
- The potential generation for Calais is 1,165,077 MWh, so we can calculate how many hours during which power might be produced:

Time (hours)= Energy (MWh)Power (MW) =1,165,077 MWh/913 MW≈1,276 hours.

What This Means

- If the generation potential is 913 MW, then 1,165,077 MWh represents the energy produced if the generation sources (solar panels, geothermal, etc.) were generating power at full capacity for about 1,276 hours, or about 53 days (1,276 ÷ 24).

Energy Efficiency Targets

Given the continued costly reliance on fossil fuels, there is likely to be increased interest in developing renewable projects in Calais. While the Town encourages the use of solar and small-scale wind, a delicate balance must be struck in deciding the placement of solar and wind energy equipment.

Calais supports renewable energy structures including wind towers that are less than 50 feet in height, have blades less than 20 feet in diameter and are not on a ridgeline, and solar generation on rooftops or less than 10 feet tall, and scaled for residential use.

Calais has not yet developed an Enhanced Energy Plan but plans to produce one in 2025. Calais committed to working towards targets for energy use and efficiency, and the targets below are suggestions to help set future discussion of benchmarks and plan for the next 30 years.

DISCLAIMER: The information below represents estimated conditions based on current available data. It is intended to be a representation of possible conditions and should be used for planning purposes only. More in- depth analysis or evaluation should be done to verify or confirm actual conditions for each scenario represented as errors or omissions may exist within the data.

Table 9 Residential Thermal Efficiency Targets

Residential– Increased Efficiency and Conservation	2025	2035	2050
Percent of households to be weatherized	**20%**	**42%**	**92%**

This table displays targets for thermal efficiency for residential structures based on a methodology developed by the Department of Public Service using data available from the regional Long-range Energy Alternatives Planning analysis and the American Community Survey. The data in this table represents the percentage of municipal households that will need to be weatherized in the target years.

Table 10 Commercial Thermal Efficiency Targets

Commercial - Increased Efficiency and Conservation	2025	2035	2050
Percent of commercial establishments to be weatherized	**22%**	**33%**	**61%**

This table sets targets for commercial thermal efficiency. Information from the Vermont Department of Labor is required to reach this target.

Table 11 Fuel Switching Targets (Residential and Commercial) - Wood

Thermal Fuel Switching Targets (Residential and Commercial) - Wood Systems	2025	2035	**2050**
New Efficient Wood Heat Systems (in units)	1	0	15

Targets for new wood heating systems for residential and commercial structures in the municipality was calculated using data from the Long-range Energy Alternatives Planning and the American Community Survey.

Table 12 Fuel Switching Targets (Residential and Commercial) - Heat Pumps

Thermal Fuel Switching Targets (Residential and Commercial) – Heat Pumps	2025	2035	**2050**
New Heat Pumps (in units)	65	165	314

Targets for new heat pump systems for residential and commercial structures in the municipality was calculated using data from Long-range Energy Alternatives Planning and the American Community Survey.

Table 13 Increase Efficiency and Conservation

Efficiency and Conservation	2025	2035	2050
Increase	1.5%	7.3%	15.2%

The targets for increased electricity efficiency and conservation were developed using regional Long-range Energy Alternatives Planning analysis.

Table 14 Use of Renewables - Transportation

Transportation	2025	2035	2050
Use of Renewable Energy Source	9.6%	31.3%	90.2%

The percentage of transportation energy use coming from renewable sources was developed using Long-range Energy Alternatives Planning analysis.

Table 15 Use of Renewables - Heating

Heating	2025	2035	2050
Use of Renewable Energy Source	51.6%	66.2%	92.9%

This target for the percentage of transportation energy use coming from renewable sources during each year was developed using the Long-range Energy Alternatives Planning analysis.

Table 16 Use of Renewables - Electricity

Electricity	2025	2035	2050
Use of Renewable Energy Source (MWh)	2,585	4,136	10,342

This target for MWh generation coming from renewable sources within the municipality during each target year was developed using information from the Regional Planning Commission and the Department of Public Service. This data is the same as the data in Table 16 (below).

Table 17 Transportation Fuel Switching - Electric Vehicles

Transportation Fuel Switching	2025	2035	2050
Electric Vehicles	100	693	1,383

This target for switching from fossil fuel-based vehicles (gasoline and diesel) to electric vehicles is calculated using Long-range Energy Alternatives Planning analysis and the American Community Survey data.

Table 18 Transportation Fuel Switching Target - Biodiesel Vehicles

Transportation Fuel Switching	2025	2035	2050
Biodiesel Vehicles	174	324	525

This target for switching from fossil fuel-based vehicles to biodiesel- powered vehicles is calculated by using Long-range Energy Alternatives Planning analysis and the American Community Survey data.

Table 19 Renewable Energy Generation Targets

Renewable Generation Target	2025	2035	2050
Total Renewable Energy Generation Target (MWh)	2,585	4,136	10,342

Renewable generation targets for municipalities were developed by the Regional Planning Commission.

Table 20 Sufficient Land For Alternative Energy Generation

Sufficient Land Available	Is land available?
Solar	Yes
Wind	Yes

This table shows that there is sufficient land in the municipality to meet the renewable generation targets based on the renewable generation potential in the municipality.

Calais recognizes and respects the importance of renewable energy sources and is dedicated to working towards state and federal goals of a clean and sustainable future. Calais also recognizes that there may at times be competing goods, and that the presence of such facilities can disrupt important wildlife corridors or damage important public scenic views.

Calais believes that these goods can work in concert if facility siting is thoughtful and, as such, wishes to provide guidance to applicable regulatory agencies in making these decisions. Siting of large-scale wind or solar projects can be categorized as follows:

- Preferably Prohibited Sites: The town will not support installations at these sites because of the scenic, significant natural resource, or cultural values of the specified areas.
    - Highest priority forest blocks as delineated by the Agency of Natural Resources;
    - Areas with endangered or uncommon species;
        - Class I and Class II wetlands
    - Mapped and protected ridgelines within the town of Calais: The uppermost point of a ridge, hill, cliff, slope or face. It may coincide with the top (highest elevation) of a rock cliff or, where the bedrock is not exposed, the most obvious break in slope associated with the underlying bedrock. The term does not include intermediate terraces, steps, or elevations along the face of a slope.
- Potentially Suitable Sites: The town will give cautionary consideration to installations at these sites; careful consideration should be given to context and availability of lands with similar resource constraints.
    - Lands in agricultural production

- Lands with slopes over 25%.

- Preferred Sites: The town will support installations at these sites
  - Industrial areas
  - In or near landfills, parking lots, previously paved surfaces and brownfields
  - Near schools and community spaces to offer increased awareness and potentially serve as an educational opportunity
  - On rooftops of existing and proposed buildings

Goals

1. Complete an Enhanced Energy Plan in 2025 that supports the energy goals of Calais, the surrounding region and the State of Vermont

Action Steps

a. Promote the use of renewable energy resources in town which are aligned with other goals of this Plan.
b. Reinforce smart growth patterns to reduce energy consumption in the transportation, energy and land use sectors.
c. Promote small scale, individual and group net-metered and community-based energy projects in compliance with this Plan. Efforts should be made to limit the adverse environmental and social impacts of renewable energy projects.
d. Work with the Vermont Public Utility Commission to site facilities which respect the specific energy facility siting conditions outlined in this Plan.
e. Encourage energy efficiency and conservation in municipal construction projects.
f. Consider area by Calais Town Hall for a large PhotoVoltaic (solar panel) array with appropriately sized battery back-up for the building's electrical needs, including when used as an emergency shelter.
g. Consider removal and/or replacement of conventional streetlights with LED fixtures.
h. Continue to analyze results of past municipal energy audits and perform recommended upgrades to buildings.

2. Reduce energy consumption in the transportation, building, heating and electrical generation sectors.

Action Steps

a. Incorporate energy efficiency and conservation into municipal construction projects.

b. Work with the Vermont Public Utility Commission to site facilities which respect the specific energy facility siting conditions outlined in this Plan.
c. Consider removal and/or replacement of conventional streetlights with LED fixtures.
d. Continue to analyze results of past municipal energy audits and perform recommended upgrades to buildings.
e. Consider tax credits to offset the increase in market value of a house that has been energy upgraded in order that a homeowner is not disincentivized for making energy efficiency investments.
f. Modify Building Permit Applications to document compliance with the Vermont Residential Building Energy Standards and/or Vermont Commercial Building Energy Standards by developing a Certificate of Completion form to officially acknowledge compliance.
g. Complete an Enhanced Energy Plan in 2025.

The Energy Plan is closely linked to nearly every other section in this Town Plan. Some chapters amplify the energy plan goals directly. For example, affordability is an important objective of the Housing Plan and weatherization of housing helps achieve both our housing and energy goals. Similarly, the Utilities and Facilities Chapter looks to energy efficiency in our buildings to support sustainable budget goals.

The Transportation plan's support for public transit, ride sharing options and electric vehicle charging stations also work to advance the goals of the energy plan.

Who's Involved? Who is responsible for implementing Calais' Energy goals? We all are.

Transportation

Calais spends approximately 60% of its income on items related to maintenance of its 83 miles of gravel roads. In addition to providing a transportation network for travel to and from work, shopping and more, they are a shared public space that ties our community together. Our appreciation for the scenic and rural character of our roads helps set the tone for much of what goes on in Calais.

Among factors which affect transportation are the means used, the affordability of fuel, and the condition of traveling surfaces. Citizens of Calais count on those roads to be efficiently and economically well-maintained.

Each road is classified into one of four categories that determines the state aid funding and maintenance levels as shown in the table, below.

Table 21 Roads Classifications and Mileage

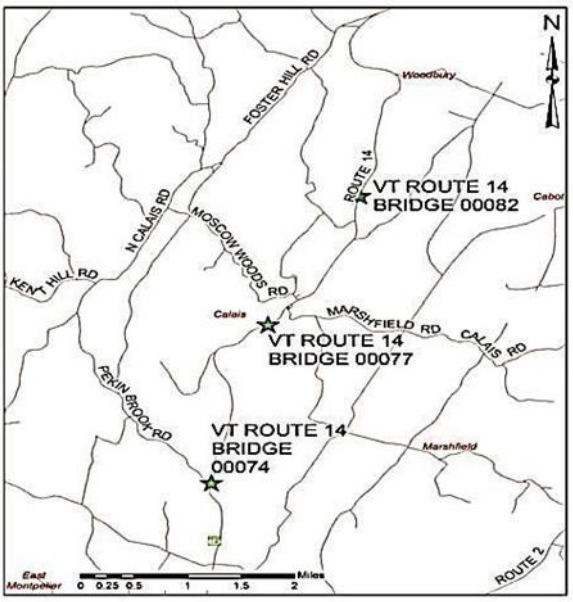
Road Class	Description	Miles	Maintenance Level	State Aid Level
Class 1	State highways	6.9	State maintained	Highest
Class 2	Most important town highways with heavy traffic	Part of 72.8	High	Moderate
Class 3	Year-round, less-used highways accessible by standard vehicles	Part of 72.8	Moderate	Lower
Class 4	All other roads, typically not maintained year-round	11.5	Lowest	Minimal

Current Conditions

Except for the seven miles of State Route 14, which are built and maintained by the State, the Town is responsible for the design and maintenance of all public highways in town for the best use of all our residents and the public in general. Principles of good road design guide how roads are maintained for year-round car, truck and motorcycle travel as well as for use by bicyclists, horse riders, and pedestrians.

State roads and bridges within Calais need more maintenance than we provide. Route 14 in Calais is in somewhat better condition today than it has been in earlier years, in part due to federal Recovery/Stimulus funds that have been available to communities since 2009. Three bridges[ii] have been replaced since 2021, and several culverts were replaced in 2023.

In 2025, Route 14 is scheduled to be rebuilt from E. Montpelier to Hardwick[iii].



Planned improvements for 2025

- Kent Hill Road
- Kent Hill/Pekin Brook Culvert replacement
- Moscow Woods Bridge improvements
- Two projects on Moscow Woods Road

funded by Central Vermont Regional Planning Commission

Calais maintains a road crew of five full-time members, one of whom is the foreman, who manages the day to day operations of the department, and another the assistant foreman. Since November 2023, the Town Administrator has served as Road Commissioner who is responsible for setting priorities and policies and is the main member of the crew to interact with the public. In addition, Calais employs a highway grants administrator who files state reports and pursues grant opportunities for the town highway department. The crew operates and maintains five trucks, two graders, an excavator, mower, chipper, and other pieces of equipment. We have an established capital plan for replacing equipment which works well to enable us to replace equipment on a timely basis without incurring huge fluctuating expenses from year to year.

Workflow tends to be seasonal. During the winter months, plowing and salting/sanding occupies most of the crew's time. Mud season requires grading and gravel applications. Summer and fall are our windows for improving roads and replacing culverts. There is an increasing risk of flooding events damaging roads and taking the crew away from planned work.

Issues

After a year of experience, our town administrator reports that fulfilling the duties of road commissioner is difficult, particularly since he spends many hours a week carrying out the work of town treasurer. The duties of a road commissioner, if that position includes the work of the highway grants administrator, can probably be done in about 30 hours per week.

Finding road crew members has become difficult in the last few years. We are lucky to have a terrific fully staffed crew as of this writing, recruiting applicants when positions become open is difficult.

Town Road Policies

ROAD STANDARDS

The width, speeds, and types of maintenance appropriate to various categories of Calais's roads can be found in the Town Road and Bridge Standards.

These Standards were approved as conforming to comparable VTrans and ANR standards. They set forth Guiding Principles for the conservative management of roadways, ditches, culverts, bridges, stormwater, erosion control and more.

The goal of the Standards is to maintain the scenic and rural character of our roads and prevent the pollution of our surface waters from stormwater runoff, while maintaining safe travel ways for motorized vehicles as well as bicycles, horses, and pedestrians. 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.

MAINTENANCE OF CLASS 4 ROADS, ACCEPTANCE OF NEW ROADS, CURB CUTS

The Town requires private maintenance of Class IV roads, and will, without obligation or undue expense, assist in their private maintenance at the Selectboard's discretion.

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 such 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. Calais does 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.

DANGEROUS INTERSECTIONS

The Planning Commission believes that concerns regarding dangerous intersections 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 Lightening Ridge Road, and with Marshfield Road remain two of the most serious traffic problems in town, but a mechanism for the Town having standing in the planning stage of State road projects is unclear. The Planning Commission is currently investigating this question.

According to Matthew Bogaczyk, at VTrans Pavement Design, future projects are dependent on the scope of work needed. The Regional Planning Commissions review projects while they’re being developed in order to highlight any needs in the area. In order to address the town’s needs and plans within VTrans projects, working with the Regional Planning Commission for help in coordinating that is key.

East Calais Village Study Area

From the *Calais Town Plan - Transportation Element, 1993*

- 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.
- 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.

From the Central Vermont Regional Transportation Plan, CVRPC, 2003

- 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

Vt 14-Lightening Ridge Road-Max Gray Road Intersection

- "At the Lightening 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)

Carpooling

Transportation costs affect those with the lowest incomes disproportionately more than higher earners. When figured on a national level, those with less than $17,000 in after-tax income (2022 dollars), spent 30% of their income on transportation, while those earning more than $39,000 after-tax, spent 20% on transportation. With increases in transportation costs outpacing income growth, people are likely to seek ways to lower their costs. They may choose to move closer to work, decide to work from home, or consider carpooling or, if its available, public transportation. Commuter parking lots in Calais would encourage carpooling, and access to the regional rural commuter buses operated on Route 2 by RCTA and GMTA might be attractive options as well.

Ninety-six percent (96%) of employed Calais residents commute to employment either within or outside of Calais (2023 Census). Despite this and the fact that many begin their commutes at about the same time each day, around 78% of all commuters drive alone. Just 2.3% report that they carpool.

Category	2010 Census	2023 Census	Change (%)
Population	1,607	1,161	↓ 27.8%
Total Workers	806	1,008	↑ 25.1%
Drove Alone	638 (79.2%)	787 (78.1%)	↑ 23.3% (↓ 1.1% in share)
Carpooled	45 (5.6%)	23 (2.3%)	↓ 48.9% (↓ 3.3% in share)
Public Transportation	12 (1.5%)	Not applicable	-
Walked	10 (1.2%)	10 (1.0%)	No Change (↓ 0.2% in share)
Other Means	14 (1.7%)	6 (0.6%)	↓ 57.1% (↓ 1.1% in share)
Worked from Home	87 (10.8%)	181 (18.0%)	↑ 108.0% (↑ 7.2% in share)
Mean Travel Time	26.5 minutes	29.6 minutes	↑ 11.7%

Key Takeaways

- Population **decreased** by **27.8%**, but the number of workers **increased** by **25.1%**.
- The percentage of people **driving alone** remained fairly stable.
- **Carpooling and other means of travel declined significantly**.
- **Public transportation is no longer applicable**.
- **Working from home nearly doubled**, reaching **18% of workers**.
- **Average commute time increased** by about **3 minutes**.

This data highlights a shift towards more solo driving and remote work, with a decline in carpooling, and a lack of public transportation options. It also suggests that there are many opportunities for promoting ride- sharing, reducing carbon emissions, and decreasing road traffic.

The Flood of 2023

The July 2023 flood created significant impacts for the Town's roads, government operations and financial conditions. All told, approximately 30 roads were damaged enough to qualify for approximately $1.4 million in FEMA reimbursements. The work was conducted by the Highway Department and independent contracts and was completed by November 2023.

Several important lessons were learned, and processes recently enacted were reinforced in importance:

- A system for emergency communication is essential.
- A system for tracking labor, equipment usage, materials and contractor expenses by road segment must be established ahead of time. FEMA also requires before and after photos, damage measurements and GPS coordinates for damage and materials sources.
- Submitting materials to FEMA and follow-through on reimbursements is tedious and requires dedicated personnel.
- Because reimbursement takes so long, it is important to have a good supply of cash on hand and/or access to short term cash flow. Having just enough cash in 2023 allowed Calais to recover from the storm and initiate repayment more quickly than many similarly affected towns.

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 carpool 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 residents who are trying to "buy locally".

The State also feels the financial impact of the increase in cost of petroleum products. Because of VT highway funding shortages, our state funded roads, such as Route 14, bridges and culverts have been deteriorating over many years. This poor condition puts an 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 currently uses gravel from several nearby sources, particularly Plainfield, Barre, and Middlesex.

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 develop local sources of road materials.

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 and similar 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 of financial pressures on the Town, including roads-based decisions.

Our "Town Road and Bridge Standards" (Goal 1) document strongly endorses maintenance of our roads for the safe use of all means of travel, including not only motor vehicles, but also for cyclists, horse riders, and pedestrians. Greater traffic-calming on certain Class 3 roads would be achieved by maintaining existing tree canopies or planting new trees, thereby slowing traffic as well as providing better attenuation of stormwater runoff. The replacement of deep roadside ditches with shallower ditches or other means of reducing erosion is strongly encouraged for both safety and reduction of stormwater runoff to our lakes and streams.

Action steps

a. Encourage carpooling
b. Assist those without reliable transportation

c. work with the regional planning commission to improve safety at the Marshfield Road and Lightening Ridge Intersections with Vt. Rte 1.
d. continue to evaluate and refine the structure of the road crew, particularly the roles of the road commissioner and highway grants administrator
e. search for and evaluate the feasibility of developing a local source of gravel

Education

Introduction

Access to high quality childcare and local public education is a core value for our town. Our schools have long been a strength that keeps families here and attract newcomers to our town. Because Calais is made of scattered villages, Calais Elementary School is a focal point for the community. It is the policy of the town of Calais that access to early childhood education and elementary education (birth through grade 6) within the borders of the town is a key element of the Town Plan, and necessary to achieve Town Plan goals for housing, economic development, agriculture, and smart growth/land use.

The town takes pride in Calais Elementary School. The building is single story and 22,510 square feet. It was originally constructed in 1970 and renovated in 1990. The grounds include a soccer field, playground, and wooded area. The U-32 middle-high school facility is 180,000 square feet across 3 stories. It was originally built in 1970 and renovated in 2000. The U-32 campus contains two secondary buildings (including the district's central office), athletic fields, a greenhouse and trail network. Both facilities are in good repair; according to the State Agency of Education facilities inventory, there are no significant issues with any of the building systems. The district employs a multi-year capital improvement plan and has been able to fund it through typical appropriations in recent years.

Child Care and Early Childhood Education

In Vermont, center-based childcare and pre-school programs must be licensed. Home based childcare programs can be either licensed or registered. Depending upon the maximum number of children, and adherence to regulations like those for centers-based programs. The state provides Child Care Financial Assistance ("subsidy") on a sliding scale depending on a family's size and gross monthly income (as percent of the Federal Poverty Level).

The Washington Central Unified Union School District (Supervisory Union) offers pre-Kindergarten to residents ages 3-5 years old for 10 hours per week in compliance with Vermont's Universal PreK law (Act 166). This is provided at Calais Elementary School for Calais residents. For the 2024-25 school year, Supervisory Districtalso provides universal pre-K at Berlin, East Montpelier, and Rumney (for both Middlesex and Worcester residents). However, space is limited, and older children are prioritized in cases of over-enrollment.

Additionally, Community Connections is licensed to provide care for up to 23 children from preschool to school-age children.[27]. It is intended to provide wrap-around care for families to access full-day childcare on all days that the district program is open, as well as before- and after-school care to school-aged children. However, staffing challenges have limited its capacity to offer these services.

In addition, there are three registered home childcare providers in Calais according to the state's childcare provider database.[28] Only two of the three providers have published capacity information. For the two reporting providers, they have a combined capacity of 19 including four infant spots, five toddler, five pre-school, and five school-age spots. There are another 13 registered homes within a ten-mile radius of Calais (in East Montpelier, Worcester, Montpelier, Cabot, and Plainfield). These providers accept a mix of infants, toddlers, and preschoolers.

For families seeking licensed providers, there are no options other than Community Connections in Calais. There are eight licensed programs in a 10-mile radius of Calais (East Montpelier, Montpelier, and Cabot), five of which serve infants and toddlers, and six of which serve preschoolers. Very few of these programs have vacancies.

Lack of available childcare is an impediment to economic development and addressing the town's overall demographic needs.

Pre-Kindergarten through High School

Calais is one of the five towns that make up the Washington Central Unified Union School District (SUPERVISORY DISTRICT) along with Berlin, East Montpelier, Middlesex, and Worcester. Supervisory District operates two schools that serve Calais residents: U-32 High School and Middle School (grades 7-12) and Calais Elementary School (preK-6). Supervisory District also operates preK-6 schools in the other four

---

[27] https://www.brightfutures.dcf.state.vt.us/vtcc/process.do?0Mmr3Pyxb.Pyxb_29%256U66Odgjumkz13-SgYEjWekr3%3dxguw3YEa.aU7zaju.xnn.xGOG0-SO-Gq%2bSG%256UOD%256USS.qSSgwEkeUs3peYY.wjRszYgwUVm3kmLmkkUs_wkEpz1mk_ujaaUkrguAEK_kmujseu3rmugsUWVjUVm3mWgwkmpwUVm3kmLmkkUs_umUkYAgkz13Sq6OO0h6GDDGO_q

[28] https://www.brightfutures.dcf.state.vt.us/vtcc/reset.do?0Mmr3gjumkz13-SgYEjWekr3%3dxguw3YEa.aU7zaju.xnn.xGOOF-Oq-Gq%2bSS%256UOq%256UhS.0DGgwEkeUs3peYY.wjRszYgwUVm3kmLmkkUs_umUkYAgsUWVjUVm3mWgwkmpwUVm31mLUjsegkz13SG0DqOqGqS0FO_SD

towns. Calais Elementary School is located at 321 Lightening Ridge Road while U-32 occupies 930 Gallison Hill Road in East Montpelier.

The mission statement of the Board of Directors for the Supervisory Union:

> *Washington Central Unified Union School District exists to nurture and inspire in all students the passion, creativity, and power to contribute to their local and global communities.*

In 2022, the district adopted this Humanity and Justice Vision Statement:

> *The Washington Central Unified Union School District is dedicated to taking concrete actions that provide a safer and more supportive learning environment that is free of barriers; one that affirms the identity of each of us and acknowledges and celebrates differences to create a sense of belonging for each person connected to our schools. The school district is committed to creating inclusive educational opportunities that are relevant both historically and culturally, addressing the impacts of bias, prejudice, and discrimination while building more opportunity for us to thrive rather than merely survive.*
>
> *This statement represents a commitment within our school district to acknowledge and end oppression and oppressive systems, to center our full humanity of all in our community, and to keep broadening our perspectives. These identities — including and not limited to race, color, religion, creed, national origin, ethnicity, marital status, family composition, sex, sexual orientation, gender identity, varying physical and mental abilities, and socioeconomic status — carry socially constructed meaning and value. Our commitment is to the development of cultural humility and personal growth that is best supported in a climate that respects differences and provides a sense of belonging and inclusion.*

The district is governed by a school board composed of three members from each town. Board members are nominated by their towns and elected in district-wide voting. Board members typically serve three-year terms. The board establishes policies, allocates resources and directs the work of the Superintendent. A central office provides administrative support to each of the schools.

Current Conditions and Trends

While small, our learning community provides quality education. Both the elementary school and U-32 offer physical education, music, art, library/media, and guidance in addition to traditional academic subjects. The high school offers an array of co-curricular activities, advanced placement courses and experiential learning programs. The elementary school offers athletics in the fall and winter (soccer and basketball) in collaboration with neighboring schools. Individualized learning is prioritized. At the secondary level, high school students may pursue vocational and technical training at Central Vermont Career Center in Barre, enroll in Early College, or pursue other flexible pathways to graduation. As required by state law, the district has a multi-tiered system of supports (MTSS) to provide interventions and supports to meet the needs of struggling students. This does not supplant the right to a 504 plan or an Individual Education Program (IEP) for students with disabilities who qualify for additional supports and services under federal law.

The Supervisory District curriculum is aligned with the State's Education Quality Standards. As in much of the State, student enrollment at our schools has been trending downward for many years. District-wide, enrollment has decreased approximately nine percent in the past five years. Absent affordable housing in Calais, as envisioned in the Housing portion of this Town Plan, that trend is expected to continue for the foreseeable future. However, if Calais can ramp up its housing stock, particularly by developing affordable housing in or near village centers, this would significantly alter the Supervisory District's projected school population and grade sizes.

In 2023-24, the district engaged in a strategic planning process to articulate core beliefs, strategic goals and action steps.

Core Beliefs:

Rigorous Curriculum & Instruction: ALL students can learn, thrive, and make a difference in their communities. Schools hold high expectations for all students and ensure they see their lives and the lives of others reflected in a meaningful curriculum. Educators nurture and inspire them as they direct their learning, celebrate their developing identities, pursue interests, and create meaningful pathways to graduation and lifelong learning.

Well-Being: Schools are spaces where people feel safe and valued. Our schools must meet the academic, social-emotional, and physical needs of all students. We foster and practice joy, kindness, empathy, inclusivity, and flexibility.

Humanity, Justice, Community & Belonging: Schools respect, value, and welcome all people. Our schools build belonging by honoring diversity, centering equity, and celebrating the different experiences we all bring to our community. We will continue to learn and adjust our practices to create a more just and humane world

Community Engagement & Relationships: Strong, positive relationships are essential to our schools and communities. We nurture connections between people and places. The community is engaged in our schools and our students are engaged in the local and global community.

Transparent & Responsible Governance: All decisions about our schools must be student-centered. The board makes decisions using information and input from the community. Our processes are clear, predictable, inclusive, and transparent.

In the spring of 2024, the Supervisory District school board published a Configuration Study, which was designed to close two schools in the district. The Configuration Study aimed to explore options that reduced the number of schools and would (1) allow class sizes that meet Education Quality Standards and are sufficient to provide rich instruction; (2) maintain full time nursing and counseling; (3)maintain or expand enrichment opportunities that are consistent across the system; (4) limit (or eliminate) shared positions across schools and very small FTE. This final criterion appeared to conflict with one of the legislative purposes behind school district consolidation, which was to enable shared positions more easily. Neither the Planning Commission nor the Selectboard were consulted as part of the study and the potential social, cultural and economic impacts on the communities, other than the education tax rate, were not considered.

Following the configuration study, the school board proposed "reconfiguration" that would have (a)moved sixth grade students to U-32, and (b) closed both Calais Elementary School and Doty Memorial School (Worcester). It then held listening sessions in the early summer and three school board meetings in August, September, and October of 2024. In these sessions residents of towns that stood to lose their schools, Calais and Worcester, expressed great concern about the social and economic impacts on their communities. Many voiced concern that in small town like ours with several hamlets instead of one town center, the school is an important focal point for the community. It functions as a center of town activity and fosters a sense of town identity; particularly so for families with young children.

Others expressed concerns about the unstudied consequences. Schools are known to draw new families in search of a town where they will raise a family. If the school is closed, we risk a downward cycle of fewer young families and their children choosing to live in Calais or Worcester, fewer associated home businesses, less local business use as the town population declines, and a smaller (and declining) tax base.

In addition, if the school is closed, the towns will have to decide whether to buy the building, bringing with it the associated maintenance and management costs.

After following the listening sessions in early summer and three school board meetings in August, September, and October of 2024, the school board rejected the proposed "reconfiguration" (which would have (a)moved sixth grade students to U-32, and (b) closed both Calais Elementary School and Worcester's Doty Memorial School). However, the school board is likely to continue to pursue structural changes that it views as being in the interest of the school district given rising costs and the state's overall system for education financing. If the school board resurrects a plan to close Calais Elementary School, it will have to put the question to the voters before it can act. However, moving some students to another building (such as sixth graders to U-32) does not require a town vote and can be enacted without violating the Supervisory District articles of incorporation. The district has already begun to make such changes, for example by sending Worcester's pre-K students to Rumney Elementary School. So long as at least some educational services are provided at Calais Elementary School, the town's voters do not have the right to vote on other changes.

Goals:

1. Explore, in discussions with the district, opportunities to create more childcare options for families with young children.

Action Steps

a. Facilitate leasing the building space to address unmet needs for full day, full-year childcare for children 0-5 and after school and school vacation care for school-age children. This should be done in partnership with both existing or new private childcare providers and programs like Head Start at Capstone Community Action which serve low income families in the town.

b. Support existing and new providers to

    i. secure and maintain licensing,

    ii. ensure families understand how to, and do access state childcare subsidies,

iii. use available district or town-managed space for provision of services, and

iv. ensure Calais Land Use & Development Regulations regulations do not impede development of childcare businesses.

2. Explore, in discussions with the district, ways to make use of underutilized space in our school building

Action Steps

a. Consider leasing available space to the town to alleviate pressure on the town office (see Municipal Services).

b. Consider providing other social services such as childcare or senior citizen services in the available space.

Since education is a core value for the town, engagement with the district in its vision for the future is essential. The Configuration Study left unanswered many pedagogical questions that impact both the children in Calais who are currently enrolled in the school, and future generations. The goals and actions steps below aim to address these questions.

3. Develop a clear understanding of short-and long-term consequences of closing the Calais Elementary school so that we can engage productively in discussion with the supervisory union about the best ways to reduce education costs while maintaining a high quality of educational services and maintaining our strong sense of community.

Action steps

a. The Planning Commission and Selectboard will undertake a study to understand the short-and long-term consequences of

i. losing the elementary school from a property value and tax perspective,

ii. the cost of maintaining the building if the school closes and the town exercises its option to purchase the building,

iii. the economic impact of a school closure on the town, particularly the housing market, and its other impacts on our environment, health, community identity, and ability to achieve Town Plan goals.

The study should also

iv. identify the strategies needed and funding sources available, to slow or reverse demographic trends, and

v. evaluate the advantages and drawbacks to our children of closing the school and sending them to a larger school.

b. Continue to support the elementary school as an essential component of achieving the Town Plan and its goals, particularly in the areas of housing, economic development, smart growth, and municipal services

c. Develop a robust line of communication between the Town, the School Board and the Central Office to explore creative solutions for effective use of school space which can be mutually beneficial

d. Develop a long-term plan for potential future town ownership of Calais Elementary School including assessment of the need for development of a reserve fund to prepare for needed maintenance or capital improvements so the building can continue to be used for educational and town purposes.

    i. Identify efficiency and environmental remediation needs for the building (e.g. PCBs, PFOAs).

e. Seek to ensure that no school closures are contemplated until we have secured a more equitable method of funding education.

    i. The Selectboard, or its designee, will work with our State Representative, State Senators, and other small towns to secure reform to education financing through legislative advocacy to reduce or eliminate reliance on property values and property tax to fund public education.

f. Ask the Legislature to address the rapidly increasing cost of health insurance, which is a major driver of increased costs for the district.

4. Ensure that the Calais elementary school continues to be a center for social engagement among community members.

Action steps

a. Support vibrancy of school-and community-based learning opportunities for Calais's younger residents through community engagement with students, by offering resident volunteers for programs that enable adult community members to provide enrichment opportunities which have been available in the past (e.g. Environmental Learning for the Future (ELF), Bolton after-school ski program).

Supplemental Information

A. Natural Resources

This addendum identifies Natural Resources which require the following:

- location identification in Calais;
- recording identified locations on map(s);
- acceptance of the map(s) by the Selectboard; and,
- a statement of the issues of how these resources may be affected by development.

Included in this addendum are action steps of how these Natural Resources may be protected. The action steps were developed without the benefit of location identification and may need review once the mapping is complete.

All of these Natural Resources are important to conserve within Calais. However, the realities of limited time, money, and people to do this work require us to prioritize what is most important. Regulations for these parts of the Natural Resources are not achievable in the current time frame. As time permits, these components will be worked on in accordance with all other aspects of this Town Plan.

Vernal Pools

Definition: Vernal pools are small, natural basins that fill with water in the spring and fall and that provide critical breeding habitat for many species of salamanders, wood frogs, and spring peepers, as well as habitat for several invertebrate species. Vernal pools typically have little vegetation due to the presence of standing water for long periods in the growing season, but they are typically well shaded by trees growing in the adjacent upland forest.

Vernal pools typically occur in very small watersheds and usually have no inlet or outlet streams.

Value of vernal pools: Vernal pools provide critical breeding habitat for many species of amphibians. Salamanders and frogs travel to vernal pools on rainy nights in early spring where they mate and lay eggs before returning to adjacent upland forests where they spend the remainder of the year on the forest floor. These amphibians rely heavily on vernal pools to maintain their populations. Other animals use vernal pools as well, including bears, fairy shrimp, fingernail clams, snails, eastern newts, green frogs, American toads, spring peepers, and a diversity of aquatic insects. Despite their small size and temporary nature, vernal pools are highly productive ecosystems.

Guidelines for prioritizing the significance of vernal pools in Calais: All vernal pools that provide successful breeding habitat for amphibians are significant. Pools associated with other natural heritage elements and pools of particularly high quality should be given higher priority. Existing forested connections between pools should be considered high priority for protection because connections between vernal pools

are vital to sustaining healthy populations of pool-breeding amphibians by allowing for dispersal of individuals and genetic exchange.

Information or data available about the resource: There are currently no statewide maps of vernal pools. Vernal pools are best identified by landowners that know of their presence by the spring calls of wood frogs and peepers. The Calais CC has worked with landowners on a preliminary natural resources inventory, which when completed will identify additional vernal pools. It is estimated that there may be 20 to 30 vernal pools in Calais. Vernal pools that provide successful amphibian breeding habitat are best protected by maintaining undisturbed forest for 100 feet from the edge of the pool, and maintaining forest with at least 75 percent canopy cover for an additional 500 feet from the pool edge in which no barriers are created for amphibian movement (such as deep skidder ruts) and where timber harvesting does not occur during the spring when amphibians are moving.

Goal

1: Inform landowners of vernal pools on their property so that they can make appropriate land management decisions for protection and conservation.

- Continue to work with willing landowners in Calais to gather information, inventory, and map the location of all vernal pools in town. Continue conducting surveys over several years to provide an accurate assessment of amphibian use of the vernal pools. Once the information is available, a vernal pool map will be included in the town plan.
- Continue to inform landowners of the locations of vernal pools on their property, the habitat needs of the associated amphibians, and how they can protect these pools and the amphibians using them.

Goal

2. Provide for the long-term protection and stewardship of vernal pools and adjacent upland forest habitat in Calais
    a. Develop stewardship programs for landowners and use certification programs for foresters to encourage management of forested lands in a manner compatible with pool-breeding amphibian conservation.
    b. Where vernal pools are in close proximity to each other, once the inventory of vernal pools is complete, work with landowners to protect and restore forested habitats between pools to provide dispersal corridors for amphibians.
    c. Seek to reclassify highly significant vernal pools as Class II wetlands so they are protected by the Vermont Wetland Rules.
    d. Include in the management plans for town owned lands provisions to protect functions of vernal pools.
    e. Consider providing incentives such as density bonuses for PUD designs

that cluster development away from vernal pools and their surrounding terrestrial amphibian habitat.

f. Consider protecting vernal pools from encroaching development, including roads and driveways, by requiring that forested habitat around all vernal pools in Calais are retained or established.

g. Consider the location of new roads and driveways to maintain adequate terrestrial habitat between roads and vernal pools. Look into incorporating into subdivision and Calais Land Use & Development Regulations regulations minimum setbacks from vernal pools of 500 feet or greater for new roads and driveways within the subdivisions. Consider requiring all road and driveway designs to avoid increasing runoff to, or changing the hydrology of, vernal pools and other wetlands.

Natural Areas

Definition: "Natural area" is a general term used to encompass a variety of physical and biological settings where natural ecological processes dominate over human disturbance and where there is a significant feature of biological, geological, or scenic interest. Natural areas include waterfalls, glacial features, and certain wetlands and ponds.

Value of natural areas: Such places – often remote, quiet and beautiful – are of immeasurable value to local residents and visitors. Natural areas are an important component of Calais' natural history, culture and character and may provide meaningful opportunities for education in natural science and local history.

Guidelines for prioritizing the significance of natural areas in Calais: Biological or ecological natural areas are better identified and prioritized using specific criteria, such as those for natural communities, wetlands or rare species habitat. Geological natural areas are typically very stable and enduring and there are many land uses that are compatible with their long-term protection. Balancing the town's need for sand and gravel resources with conservation of important glacial features will require site-specific evaluations.

Information or data available about natural areas: There are currently six natural areas identified by the state agency of Natural Resources within Calais that are known to contain rare, remnant, or unique species of flora and /or fauna. These areas are: Chickering Bog, Curtis Pond, East Hill Wetlands, Little Mud Pond, Watson Pond, and Bliss Pond Cedar Swamp.

Other natural areas such as geological features can be identified from soils maps produced by the Natural Resources Conservation Service or by state surficial geology maps.

Goal

3. Identify and develop an appropriate level of conservation for Calais' important geological and scenic natural areas
    a. Continue to identify, field inventory, and map significant natural areas in Calais
    b. Make landowners aware of significant natural areas identified on their property
    c. Provide resource information and assistance in developing long term stewardship and/or conservation, as appropriate to willing landowners (and land managers).
    d. Hold community educational forums about the significant natural communities comprising parts of Calais. Discuss the historical, geological and cultural values of the local natural communities and considerations for deciding their use or conservation.
    e. Invite landowners to consider making a long-term conservation easement or stewardship commitment for a significant natural area on their land. This resource will be given high priority in considering lands for acquisition or other long-term conservation efforts.
    f. Incorporate habitats that overlap with natural areas important for the conservation and protection of rare, threatened, and endangered species into conservation districts, open space plans and land acquisition/conservation plans. These areas should be targeted and protected as priority conservation zones within Calais.
    g. Balance the town's need for sand and gravel resources with conservation of important glacial features through site-specific evaluations.
    h. Develop specific criteria for the evaluation of natural areas to determine whether they should be conserved and present to Planning Commission.

Mast Stands

Definition*:* Mast is a term commonly used to describe the seeds of shrubs and trees that are eaten by wildlife. Hard mast refers to nuts (especially those of beech and oak trees) and soft mast refers to the berries of a variety of trees and shrubs (such as black cherry and blackberries). Mast stands are areas where there is concentrated growth of tree and shrub species that produce mast for wildlife. Beech stands representing necessary black bear habitat are defined as those stands that exhibit bear scarring (bear claws scar the beech trunks when they climb the trees to reach the beech nuts) within the past 10 years and include at least 15 to 25 scarred trees.

Value of Mast Stands*:* Many species of wildlife rely on mast for food. Hard mast is very important for wildlife and in Calais, where red oak is uncommon; beech stands are especially important. Beech stands are necessary black bear habitat as beech mast provides critical, high-energy food for bears that dramatically affects bear productivity rates and cub survival.

Guidelines for prioritizing the significance of mast stands in Calais: Mast stands of beech are not common in Calais and it is important to conserve and manage all existing stands for their wildlife value.

Information or data available about mast stands: The Vermont Fish and Wildlife Department maintains a database and map of mast stands that have outstanding value to wildlife.

Goal: Maintain and protect mast stands in Calais against loss and fragmentation by development and increase the number of acres of mast stand habitat that is under long-term stewardship or conservation in Calais.

Locate existing mast stands in Calais based on Vermont Fish and Wildlife Department resources and engage trained professionals to assist in locating additional mast stands not already identified. Develop an overlay district or wildlife map of these mast stands after they have been mapped.

Identify the largest and highest quality mast stands for land acquisition or conservation easements.

Inform landowners of the locations of mast stands on their property, the habitat needs of associated wildlife and how they can conserve these stands to keep them functioning as important wildlife habitat. Develop a stewardship program to assist landowners.

Grassland Bird Habitat

Definition: Grassland bird habitat is open land dominated by grasses, sedges, and broadleaf herbs with little or no woody vegetation. In Calais, most grassland habitat is hay field.

Value of Grassland Bird Habitat: Vermont grasslands provide critical breeding habitat for eight bird species, including Bobolink and Eastern Meadowlark in Calais. These species nest only in open lands of adequate size dominated by grasses, sedges, and broadleaf herbs with little or no woody vegetation. Grassland birds were more common in Vermont during the peak of agricultural clearing in the 1800s but these species are now declining, endangered, or state threatened as agricultural fields are developed for residential and other uses, abandoned and revert to forest, or are more intensively hayed.

Guidelines for prioritizing the significance of Grassland Bird Habitat: There are few remaining hay fields of adequate size (larger than 5 acres) in Calais to support grassland birds. Therefore, all remaining grassland bird habitat is significant.

Information or data available about Grassland Bird Habitat:

Little information is available on grassland bird habitat in Vermont. Gathering field data on the locations of hay fields that support grassland birds is important for protecting these species.

Goal

4. Identify and maintain or increase populations of rare or uncommon grassland birds in Calais.
    a. Encourage landowners and those who mow their fields to use field management methods that will support successful grassland bird nesting and reproduction.
    b. Offer educational opportunities designed to inform landowners, and those working their grasslands, about the life and reproductive cycles of meadow nesting birds, bird friendly farming techniques that support these cycles, and incentives for the compatible management of grasslands (e.g. the Wildlife Habitat Incentives Program known as WHIP).
    c. Establish a recognition program that will identify landowners who are managing their property as wildlife habitat and who would be willing to use their land as demonstration sites to educate townspeople

Turtle Habitat

Definition: Calais has three species of turtles: wood turtles, painted turtles, and snapping turtles. Nesting, over-wintering, and foraging habitat are critical to the survival of turtle populations. Nesting habitat must provide appropriate conditions for laying eggs (typically fine textured soil) within a reasonable distance of an aquatic environment.

Over-wintering habitat is typically the muddy bottoms of ponds and marshes for painted and snapping turtles and the undercut banks of slow-moving streams for wood turtles. Foraging habitat for wood turtles includes wide areas of riparian habitat (often a few hundred feet), while painted and snapping turtles forage in mostly aquatic habitat.

Value of Important Turtle Habitat: Turtles are a long-lived group of reptiles that face many threats from human activity, such as disturbance of wintering areas by placing fill in the water, dredging, and draw downs.

Turtles are often hit by cars as they travel to suitable nesting habitat from the wetlands, ponds, and riparian areas where they spend most of their life (wood turtles are more terrestrial than the other two species occurring in Calais).

Guidelines for prioritizing the significance of important turtle habitat in Calais: Any functioning important turtle habitat (including ponds, deep-water wetlands, and streamside riparian areas) and turtle nesting habitat nearby are especially important for the survival for these species.

Information or data available about important turtle habitat: Little information is available on turtle habitat. Gathering town wide field data on turtle nesting, overwintering, and foraging habitat is important for protecting Calais' turtles.

Goal

5. Ensure continued existence of important turtle habitat in Calais by preventing loss, fragmentation, or degradation of habitat, including connections between turtle wintering or foraging habitat and nesting sites and riparian areas known to be used by wood turtles.
    - Identify turtle habitat and the corridors between turtle nesting, overwintering, and foraging habitat in Calais by consulting with residents and experts, and conducting field work with landowners' permission.
    - Determine which streams harbor wood turtles.
    - Provide for long-term stewardship or protection of these sites through landowner education, conservation easements, overlay districts, or other methods of conservation.

---

[i] https://accd.vermont.gov/housing/plans-data-rules/needs-assessment

ii https://resources.vtrans.vermont.gov/factsheet/FactSheetFiles/12B146/calais route 14 location map.png

iii https://resources.vtrans.vermont.gov/FactSheet/default.aspx?pin=19V445